





**Government of Sudan** 

Federal Ministry of Health

**Central Bureau of Statistics** 



Sudan Household Health Survey (SHHS-II) – 2010





Federal Ministry of Health

**Central Bureau of Statistics** 

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MICS

# SUDAN Sudan Household Health Survey–Round 2 2010

National Report December 2012

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The Sudan Household Health Survey - Second Round (SHHS2) was carried out during the period March to May 2010 by the Federal Ministry of Health (FMOH) and the Central Bureau of Statistics (CBS) of the Republic of Sudan. The SHHS2 was carried out in collaboration with several ministries and institutions of the Government of Sudan such as the Ministry of International Cooperation, Ministry of Education, Ministry of Welfare and Social Security National Population Council, National Council for Child Welfare (NCCW) and National Water Corporation as well as regional and international organisations such as the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), the World Food Programme (WFP), the World Health Organization (WHO), the UNAIDS, the Pan Arab Project for Family Health (PAPFAM), the Japan International Cooperation Agency (JICA) and the United States Agency for International Development (USAID)

The methodology and content of SHHS2 was based on the Multiple Indicator Cluster Survey (MICS) and Pan Arab Project for Family Health (PAPFAM) survey. The SHHS2 was conducted as part of the fourth global round of MICS. The SHHS2 report provides up-to-date information on the situation of children and women in Sudan and on key indicators that allow the country to monitor progress towards some of the national development goals, targets, the MDGs and other internationally agreed upon commitments.

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Federal Ministry of Health and Central Bureau of Statistics, Sudan Household and Health Survey -2, 2012, National report. Khartoum, Republic of Sudan: Federal Ministry of Health and Central Bureau of Statistics.

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## Sudan Household Health Survey – Round 2 2010

## Federal Ministry of Health, Government of Sudan Central Bureau of Statistics, Government of Sudan

In collaboration with

United Nations Children's Fund (UNICEF) United Nations development Programme (UNDF) United Nations Population Fund (UNFPA) United Nations Programme on HIV/AIDS (UNAIDS) World Food Programme (WFP), World Health Organisation (WHO) Japan International Cooperation Agency (JICA) Pan Arab Project for Family Health (PAPFAM) United States Agency for International Development (USAID)

December 2012

## Summary Table of Findings

## Sudan Household Health Survey – Round 2 (SHHS2) and Millennium Development Goals (MDG) Indicators, Sudan, 2010

Торіс	SHHS2/MICS Indicator	MDG Indicator	SHHS2 Indicator	Value	
7.	Number	Number		6 8.4 9.4gA	
CHILD MORT	TALITY	A state of the		<u>, 1999, 1997</u> , 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997, 1997,	
	1.1	4.1	Under-five mortality rate	83	per 1,000
	1.2	4.2	Infant mortality rate	60	per 1,000
	1.3		Neonatal mortality rate	34	per 1,000
	1.4		Post-neonatal mortality rate	26	per 1,000
	1.5		Child mortality rate	24	per 1,000
NUTRITION		* • • • • • • • •			
Nutritional	2.15	4.0	Underweight prevalence	22.2	norcont
status	2.1a 2.1h	1.8	Severe (- 3 SD)	32.2	percent
	2.20		Stunting prevalence	12.0	percent
	2.2a		Moderate and Severe (- 2 SD)	35.0	percent
	2.2b		Severe (- 3 SD)	15.7	percent
			Wasting prevalence		
	2.3a 2.3b		Moderate and Severe (- 2 SD) Severe (- 3 SD)	16.4 5.3	percent
Breastfeeding	2.4	·····	Children ever breastfed	98.5	nercent
and infant	25		Farly initiation of breastfeeding	73.2	nercent
feeding	2.5		Evolusive breastfeeding under 6 months	41.0	percent
	2.0		Continued breastfeeding at 1 year	87.6	percent
	2.7		Continued breastfeeding at 2 years	40.1	percent
	2.0		Deedeminant broactfooding under 6 menths	70.0	percent
	2.9		Predominant preastieeding under 6 months	/9.8	percent
	2.10		Duration of preastreeding	18.9	months
	2.11		Bottle reading	5.1	percent
	2.12		Introduction of solid, semi-solid or soft foods	51.5	percent
	2.13		Minimum meal frequency	30.3	percent
	2.14		Age-appropriate breastfeeding	49.4	percent
	2.15		Milk feeding frequency for non-breastfed children	55.8	percent
Salt iodization	2.16		lodized salt consumption	9.5	percent
Vitamin A	2.17		Vitamin A supplementation (children under age 5)	60.5	percent
	2.17a		Vitamin A supplementation (post-partum mothers)*	22.1	percent
CHILD HEALT	Н	-			
Vaccinations	3.1	Т	uberculosis immunization coverage	74.6	percent
	3.2	Р	olio immunization coverage	62.0	percent
	3.3& 3.5	ור ( [ סי	nmunization coverage for diphtheria, pertussis and tetanus OPT), Hepatitis B (HB) and (HIB) (immunisation coverage for entavalent vaccine)	58.4	percent
	3.4	4.3 N	leasles immunization coverage	62.3	percent
Fetanus coxoid	3.7	N	eonatal tetanus protection	54.7	percent
Care of	3.8	0	ral rehydration therapy with continued feeding	11.8	percent
llness	3.9	C	are seeking for suspected pneumonia	55.8	percent
1000	3.10	A	ntibiotic treatment of suspected pneumonia	66.1	percent
iolid fuel use	3.11	Sc	slid fuels	63.2	percent
Country Speci	fic Indicator				
	3.16	M	alaria diagnostics usage	57.4	Percent
	3.17	Aı da	ntimalarial treatment of children under 5 the same or next	43.0	percent

	SHHS2/MICS	MDG			
Торіс	Indicator Number	Indicator Number	SHHS2 Indicator	Value	
	3.18	6.8 /	Antimalarial treatment of children under age 5	65.0	percent
WATER AND	SANITATION				1. 
Water and	4.1	7.8	Use of improved drinking water sources	60.5	percent
sanitation	4.2		Water treatment	0.9	percent
	4.3	7.9	Use of improved sanitation	27.1	percent
	4.4		Safe disposal of child's faeces	46.5	percent
REPRODUCT	IVE HEALTH			s stipted Diak tame of et	i ki je na Pade N
Contraception	5.1	5.4	Adolescent birth rate	102	per 1,000
and unmet	5.2		Early childbearing	14.0	percent
need	5.3	5.3	Contraceptive prevalence rate	9.0	Percent
	5.4	5.6	Unmet need	28.9	Percent
Maternal and			Antenatal care coverage		
newborn	5.5a	5.5	At least once by skilled personnel	74.3	percent
health	5.5b		At least four times by any provider	47.1	percent
	5.6		Content of antenatal care	51.6	percent
	5.7	5.2	Skilled attendant at delivery	72.5	percent
	5.8		Institutional deliveries	20.5	percent
· · · · · · · · · · · · · · · · · · ·	5.9		Caesarean section	6.6	percent
	5.13	5.1	Maternal mortality ratio <sup>1</sup>	216	per 100,000
EDUCATION	22 Teanna - Teanna				
Early childhood education	6.7		Attendance to early childhood education	20.4	Percent
Literacy	7.1	2.3	Literacy rate among young women age 15-24 years	45.2	Percent
Pre-primary, primary and secondary school education	7.2		School readiness	45.3	Percent
	7.3		Net intake rate in primary education	46.0	Percent
	7.4	2.1	Primary school net attendance ratio (adjusted)	71.8	Percent
p. (3- 1998)	7.5		Secondary school net attendance ratio (adjusted)	32.1	percent
	7.6	2.2	Children reaching last grade of primary	82.2	Percent
	7.7		Primary completion rate	62.7	Percent
	7.8		Transition rate to secondary school	77.8	Percent
,	7.9		Gender parity index (primary school)	0.94	Ratio
	7.10		Gender parity index (secondary school)	1.08	Ratio
CHILD PROTE	CTION AND ORP	HANED AND	VULNERABLE CHILDREN		
Birth registration	8.1	9 - 200 - T. C. T. C. C. C. C. C.	Birth registration	59.3	Percent
Early	8.6		Marriage before age 15 ( women age 15-49 years)	9.5	Percent
marriage and	8.7		Marriage before age 18 (women age 20-49 years)	37.6	Percent
polygyny	8.8		Young women age 15-19 years currently married	23.5	Percent
	8.9		Polygyny (women age 15-49 years)	20.0	Percent

<sup>&</sup>lt;sup>1</sup> Computed from the maternal mortality survey as part of the listing operations of the SHHS2

				and the state of t	and the second se
Female	8.11		Approval for female genital mutilation/cutting (FGM/C)	48.1	Percent
genital mutilation/	8.12		Prevalence of female genital mutilation/cutting (FGM/C) among	65.5	
			women		Percent
Domestic violence	8.14		Attitudes toward domestic violence (women age 15-49 years)	47.0	Percent
Orphaned	9.17		Children's living arrangements	4.1	Percent
children	9.18		Prevalence of children with one or both parents dead	5.7	Percent
	9.19	6.4	School attendance of orphans	78.8	Percent
	9.20	6.4	School attendance of non-orphans	81.8	Percent
HIV/AIDS, SE	XUAL BEH	AVIOUR,			
HIV/AIDS knowledge	9.1		Comprehensive knowledge about HIV prevention (women age 15- 49 years)	5.8	percent
and attitudes	9.2	6.3	Comprehensive knowledge about HIV prevention among young people (women age 15-24 years)	5.3	percent
	9.3		Knowledge of mother-to-child transmission of HIV (women age 15- 49 years)	32.7	percent
	9.4		Accepting attitudes towards people living with HIV (women age 15- 49 years)	8.3	percent
	9.5		Women who know where to be tested for HIV	14.4	percent
	9.6		Women who have been tested for HIV and know the results	0.5	percent
CHRONIC DIS	EASES AN	D INJURIES		÷	ы ;
	10.1		Prevalence of Chronic Diseases	9	percent
FOOD SECUR	ΙΤΥ				
	11.1		Food consumption status	89.9	percent
	11.2		Food security status	92	percent
	11.3		Food insecurity status	8	percent

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## List of Abbreviations

ACT	Artemisinin Combination Therapies
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ARI	Acute Respiratory Infection
BCG	Bacillis-Calmette-Geuerin (Tuberculosis)
CBS	Central Bureau of Statistics
CPR	Contraceptive Prevalence Rate
CRC	Convention on the Rights of the Child
CSPro	Census and Survey Processing System
DHS	Demographic and Health Survey
DPT	Diphtheria Pertussis Tetanus
EPI	Expanded Programme on Immunization
FGM/C	Female Genital Mutilation/Cutting
FMoH	Federal Ministry of Health
FP	Family Planning
GPI	Gender Parity Index
HB	Hepatitis B
HIB	Haemophilus Influenza type B
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IDD	lodine Deficiency Disorders
IGME	Inter-Agency Group on Mortality Estimation
IMR	Infant Mortality Rate
ITN	Insecticide Treated Net
IUD	Intrauterine Device
JICA	Japan International Cooperation Agency
JMP	Joint Monitoring Programme
LAM	Lactational Amenorrhea Method
LLINs	Long Lasting Insecticide Treated Nets
MD	Millennium Declaration
MDG	Millennium Development Goals
MICS	Multiple Indicator Cluster Survey
MICS4	Multiple Indicator Cluster Survey Round 4
MMR	Maternal Mortality Ratio
NAR	Net Attendance Rate
NCCW	National Council for Child Welfare
NIDs	National Immunisation Days
NMR	Neonatal Mortality Rate
ORT	Oral Rehydration Treatment
PAPFAM	Pan Arab Project for Family Health
RH	Reproductive Health
SHHS	Sudan Household Health Survey
SHHS2	Sudan Household Health Survey - Second Round
SPSS	Statistical Package for Social Sciences
STI	Sexually Transmitted Infections
TT	Tetanus Toxoid
U5MR	Under 5 Mortality Rate
UNAIDS	United Nations Programme on HIV/AIDS

UNDP United Nations Development Programme

UNFPA United Nations Population Fund

UNGASS United Nations General Assembly Special Session on HIV/AIDS

UNICEF United Nations Children's Fund

USAID United States Agency for International Development

WFFC World Fit for Children

- WFP World Food Programme
- WHO World Health Organization

#### Acknowledgements

The Federal Ministry of Health (FMoH) and the Central Bureau of Statistics (CBS) of the Republic of Sudan would like to acknowledge the support of many individuals, ministries and institutions of the Government of Sudan and regional and international agencies/organisations which contributed to the successful completion of the Sudan Household Health Survey – Second Round, 2010 (SHHS2).

On behalf of the SHHS2 management team, I would like to place on record our deep appreciation to the chairpersons and members of the Steering Committee and technical working group, head and members of the national-level coordination (executive) body and leader and members of the state-level teams who had played an important role in the completion of the survey.

Special appreciation is due to the ministries and institutions of the Government of Sudan including the Ministry of International Cooperation, Ministry of Education, Ministry of Social Welfare and Women and Child Affairs, National Population Council, National Council for Child Welfare (NCCW) and National Water Corporation for their support to the various tasks relating to the planning and implementation of the SHHS2.

In particular, the Federal Ministry of Health (FMoH) and the Central Bureau of Statistics (CBS) would like to acknowledge the financial and technical support provided by the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the World Health Organization (WHO), the United Nations Development Programme (UNDP), the World Food Programme (WFP), the United Nations Programme on HIV/AIDS (UNAIDS), the United States Agency for International Development (USAID) and the Japan International Cooperation Agency (JICA) and the key role played by them in the planning and implementation of various tasks relating to the survey. The technical assistance provided by the Pan Arab Project for Family Health (PAPFAM) is gratefully acknowledged. Special thanks are extended to experts from UNICEF headquarters and UNICEF Middle East and North Africa Regional Office who provided technical support to facilitate effective planning and implementation of the survey, including the preparation of survey tools and data analysis.

Our sincere gratitude goes to all the staff, especially those at the State and locality levels who participated in the SHHS2 Survey for their strong support from the inception to the completion of the survey. Special thanks to **Dr. Igbal Ahmed Bashir**, Survey Executive Director, FMOH and **Mr. Amin Daoud** Data Processing Manager at CBS who coordinated and efficiently implemented all the tasks relating to the SHHS2. Finally, the FMOH takes this opportunity to convey its gratitude to **Mr. K. Ramachandran** for his valuable contribution in the report writing.

Dr. Mohamed Ali Yahia Elabassi SHHS2 National Coordinator

#### **Executive Summary**

This report presents the detailed findings of the Sudan Household Health Survey second round (SHHS2), conducted jointly by the Federal Ministry of Health (FMOH) and the Central Bureau of Statistics with financial and technical assistance from the United Nations agencies and other partners. The SHHS2 is a customized version of the Multiple Indicator Cluster Survey (MICS) Round 4 and the Pan Arab Project for Family Health (PAPFAM) survey. The survey is part of the fourth round of the MICS (MICS4), which is a global survey program, originally developed to measure progress towards an internationally agreed set of goals that emerged from the 1990 World Summit for Children. This Main Report covers the following areas; sample and survey methodology, sample coverage and the characteristics of households and respondents, child mortality, child nutrition, child health, environment, reproductive health, education, child protection, and HIV and AIDS and orphaned and vulnerable children.

The survey was conducted at a time when Sudan was undergoing the separation from South Sudan region with unprecedented socioeconomic challenges which had direct implications on the welfare of children and women.

The national and state-level data generated by the SHHS2 are expected to help in assessing the current status in relation to some of the key indicators relating to the Millennium Development Goals (MDGs), the World Fit For Children (WFFC) goals, Programme of Action adopted at the International Conference on Population and Development (ICPD), and other internationally and nationally agreed upon goals, as a basis for action.

#### Sample design and coverage

The sample for the Sudan Household Health Survey (SHHS2) was designed to provide estimates with regard to certain key indicators at the national level and for the 15 states. It was judged that a minimum sample of about 1000 households in each state would be necessary to obtain survey estimates for most indicators with the required degree of precision at the state level. A two-stage cluster sampling design was employed to draw the sample in each state. The villages or quarters (in the case of urban areas) constituted the Primary Sampling Units (PSUs). It was decided to draw 40 clusters from each state and 25 households from each cluster. Accordingly, the survey aimed at a total sample of 15,000 households in 15 states of Sudan.

#### Questionnaires

The survey tools consisted of five sets of questionnaires: (i) a Household questionnaire which was used to collect information on all de jure household members and the household; (ii) a Women's questionnaire administered to all women aged 15-49 years in each household; and (iii) a children's questionnaire administered to mothers or caretakers of all children under five years of age living in the household; (iv) Men's questionnaire administered to all men living in the household; and (v) the Food Security Questionnaire which was administered in each household.

The first three questionnaires are based on the MICS4 and PAPFAM model questionnaires. A copy of the SHHS2 questionnaires is provided in Appendix F.

#### **Background Characteristics of Households and Respondents**

Of the 15,000 households selected for the sample, 14,921 were found to be occupied. Of these, 14,778 households were interviewed successfully for a household response rate of 99.0 percent. In those households interviewed, 18,614 women (aged 15-49 years) were identified. Of these, 17,174 women were interviewed, yielding a response rate of 92 percent within interviewed households. In addition, 13,587 children under age five were listed in the household questionnaire. Questionnaires were completed for 13,282 of these children, corresponding to a response rate of 98 percent. An overall response rate of 91 percent was achieved for women while an overall response rate of 97 percent was achieved for under-five children. Although 16,448 men were also identified, only 5,573 men could be interviewed yielding an overall response rate of 34 percent and for this reason, results for men are not presented.

#### Infant and Under-five Mortality

The infant and under-five mortality rates that have been computed by using the direct estimation method indicate that the infant mortality rate (IMR) in Sudan was 60 per 1,000 live births while the under-5 mortality rate (U5MR) was 83 per 1,000 live births during the 5-year period before the SHHS2. Estimates of neonatal, post-neonatal and child mortality rates were calculated using the direct method. They were 34 and 26 per 1,000 live births respectively.

#### **Children's Nutritional Status**

**Underweight prevalence (moderate and severe):** Almost one in three children under age five in Sudan were found to be moderately or severely underweight. There was a slight difference in terms of those who were moderately or severely underweight among boys (34 percent) and girls (31 percent).

**Underweight prevalence (severe):** Almost one in eight (13 percent) under age five children in Sudan could be classified as severely underweight.

**Stunting prevalence (moderate and severe):** The SHHS2 findings indicated that about 35 percent of children under age five in Sudan were moderately or severely stunted (too short for their age) with 37 percent of boys and 33 percent girls affected.

Stunting prevalence (severe): one in every six children (16 percent) under five years was found to be severely stunted.

Wasting prevalence (moderate and severe): Approximately one out of six under-five children (16 percent) in Sudan were found to be moderately or severely wasted (too thin for their height). Wasting is usually the result of a recent nutritional deficiency related to, for example, recent illness or inadequate diet intake. The prevalence estimate may exhibit significant seasonal shifts associated with changes in the availability of food or disease prevalence.

#### **Breast Feeding**

Based on the survey findings, the proportion of children born in the last two years who were ever breastfed, and were first breastfed within one hour and one day of birth was 73 percent and 93 percent respectively. Breastfeeding within one hour to one day of birth is very important for establishing a physical and emotional relationship between the baby and its mother.

The SHHS2 data indicated that about 88 percent of children aged 12-15 months received continued breastfeeding at one year. The percentage of children aged 12-15 months who received continued breastfeeding was higher in urban areas (91 percent) than that of children in rural areas (86 percent).

About 3 percent of children aged 2-3 months were weaned (not breastfed). The percentage of children that were exclusively breastfed was only 18 percent among children aged 4-5 months, even though exclusive breastfeeding is considered as adequate feeding up to six months. Few mothers continued breastfeeding up to 23 months. In all, only about 29 percent of children aged 22-23 months were receiving breast milk.

#### **Consumption of Iodized Salt**

The SHHS2 findings indicated that only a small proportion of households (15 percent) were found to be using iodized salt. In only 10 percent of households, salt was found to contain 15 parts per million (ppm) or more of iodine, while in the case of 5 percent of households, salt was found to contain less than the required 15 parts per million (ppm).

#### Vitamin A Supplementation

The survey indicated that during the six months prior to the SHHS2, 61 percent of children aged 6-23 months received a high dose of Vitamin A supplement. The survey also included questions on Vitamin A supplementation for post-partum mothers. Only 22 percent of post-partum mothers received the recommended dose of Vitamin A supplementation.

#### **Child Health**

#### Immunization Coverage

The SHHS2 data indicated that only half (49 percent) of Sudan's children aged 12-23 months were fully immunized receiving the BCG vaccine against tuberculosis, three doses of polio vaccine against polio, three doses of Pentavaent against DPT (diphtheria, pertussis and tetanus), Hepatitis B (HB), and Haemophilus Influenza type B (HIB) and measles vaccine before their first birthday. This leaves the rest of the children aged 12-23 months unprotected against life-threatening diseases. The percentage of fully immunized children was slightly higher among females (50 percent) than that among male children (49 percent). The percentage of fully immunized children was higher for children in urban areas (56 percent) than among children in rural areas (47 percent). The percentage of fully immunized children ranged from 41 percent for children of mothers with no education to 58 percent for children of mothers with primary education, and to 61 percent for children of mothers with secondary or higher education.

The SHHS2 data indicates that the percentage of women aged 15-49 years with a live birth in the last two years protected against neonatal tetanus was only 55 percent. The percentage of women who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy was only 34 percent.

#### Management of Diarrhoea

The SHHS2 data indicated that overall, 27 percent of under-five children had diarrhoea in the two weeks preceding the survey. The peak of diarrhoea prevalence (36 percent) was observed among children aged 12-23 months. There was slight difference in the proportion of under-five children who had diarrhoea in the two weeks preceding the survey in rural and urban areas.

#### Care Seeking for Suspected Pneumonia

The SHHS2 data indicates that about 19 percent of children aged 0-59 months were reported to have had symptoms of pneumonia during the two weeks preceding the survey.

#### Water and Sanitation

The SHHS2 findings indicated that overall, 61 percent of the population was using an improved source of drinking water at the time of the survey. The percentage of household population using an improved source of drinking water was higher for household members in urban areas (67 percent) than that for household members in rural areas (58 percent). The percentage of household population using improved sources of drinking water increases with the educational level of the household head. The percentage of household population using improved sources of drinking water showed an increasing trend from 56 percent in the case of households which had household heads with primary education to 63 percent in the case of households which had household heads with primary education and to 73 percent in the case of household population using improved sources of drinking water also increases with the family wealth. The SHHS2 findings indicatedthat only 27 percent of the population of Sudan were living in households using improved sanitation facilities. This percentage was 47 percent in urban areas compared to 18 percent in rural areas. The proportion of household members using improved sanitation facilities was highest in Northern State (71 percent) and the lowest in South Darfur State (5 percent)

#### **Reproductive Health**

Early child bearing was indicated among 1 percent of women age 15-19 years, with 3 percent who were pregnant with their first child, 16percent had begun childbearing and 1percenthad a live birth before age 15. The SHHS2 findings also indicated that 14percent of women aged 20-24 had a live birth before age 18.

#### Contraception

Current use of contraception was reported by 9 percent of currently married women. The most popular method is the pill which is used by 6 percent of married women in Sudan. The next most popular method was the use of injectable, among 1 percent of married women. Less than 1 percent of women reported the use of an IUD

#### **Unmet Need for Contraception**

The SHHS2 findings indicated that the percentage of women age 15 - 49 years (currently married) with unmet need for contraception for spacing and limiting was 18 percent and 11 percent respectively. The unmet need for contraception varied marginally by urban/rural areas. The unmet need for contraception for spacing was 18 percent in the case of women in urban areas compared to 19 percent for women in rural areas. The unmet need for contraception for limiting was 12 percent in the case of women in rural areas.

#### Antenatal Care

In the country as a whole, about a quarter of women (26percent) age 15-49 years who gave birth in the two years preceding the survey did not receive any antenatal care from qualified health personnel (a doctor, nurse, health visitor or midwife). About 47 percent of women received ANC from a medical doctor, 4 percent received ANC from a nurse, 5 percent from a health visitor and 18 percent from a midwife.

#### Place of Delivery

The SHHS2 findings indicated that only 21 percent of births in Sudan (North) were delivered in a health facility; 20 percent of deliveries occurred in a hospital and 1 percent occurred in a primary health care facility (PHCF). Three in four births (76 percent) were delivered at home. Women in urban areas (36 percent) were more likely to deliver in a health facility compared to their rural counterparts (13 percent).

#### Literacy and Education

#### Literacy Rate for Young Women

The SHHS2 data indicated that the literacy rate among young women remains low. Nationwide, only 45 percent of women ages 15-24 years were literate. The percentage of literate women aged 15-24 years was higher in urban areas (57 percent) than that among women in rural areas (39 percent). Of women who stated that primary school was their highest level of education, only 52 percent of them were actually able to read the statement shown to them while of the women who stated that secondary school was their highest level of education, 71 percent of them were able to read the statement shown to them.

#### Early Childhood Care and Education

Twenty percent of children age 36-59 months was attending some form of organized early childhood care and education programme at the time of SHHS2. There were no gender differentials among boys and girls who were attending some form of organized early childhood education programme.

#### Primary School Entry (Net Intake Rate in Primary Education)

Of children who were of primary school entry age (age 6) in Sudan, about 46 percent of them were attending the first grade of primary school at the time of the SHHS2. Among male children who were of primary school entry age, 47 percent of them were attending the first grade of primary school compared to 45 percent of female children of primary school entry age.

#### Net Primary School Attendance Ratio

The net primary school attendance ratio shows the extent of participation in education of children belonging to the official primary school-age group which in Sudan is 6-13 years. The SHHS2 data indicate that about 72 percent of children of primary school age were attending school at the time of the survey. This means that about 28 percent of the children were out of school when they were expected to be participating in primary education. The percentage of children of primary-school age attending school at the time of the survey was highest (82 percent) among children aged 10 years and lowest among children aged 6 years (49 percent).

#### Primary School Completion

At the time of the SHHS2, the primary school completion rate was 63 percent (72 percent for boys and 55 percent for girls). The primary school completion rate was significantly higher in urban areas (92 percent) compared to 49 percent for children in rural areas.

#### Transition Rate to Secondary Education

The transition rate to secondary school (percentage of the children that completed successfully the last grade of primary school attending the first grade of secondary school) was 75 percent for boys compared to 81 percent for girls.

#### Secondary School Attendance

The official secondary school-age group in Sudan is 14-16 years. Only about one-third (32 percent) of the children of secondary-school age were found to be attending secondary school or higher level of institutions at the time of the survey. Of the remaining secondary school-age children, some of them were either attending primary school or were out of school. Approximately 34 percent of the children of secondary school age were attending primary school when they should be attending secondary school while the remaining 34 percent were not attending school at all.

#### **Child Protection**

#### Birth Registration

The SHHS2 data indicated that the births of 59 percent of under-five children in Sudan were reported registered on the reference date of the survey. Of the children under age five whose birth was not registered, only of 26 percent mothers/caretakers of these children knew how to register birth.

#### Early Marriage and Polygamy

The SHHS2 data indicated that about one in ten (10 percent) young women married before age 15. The proportion of young women who were married before age 15 varied between urban and rural areas. Nationwide, about 20 percent of women age 15-49 years were in a polygamous marriage. This percentage was lower among women in urban areas (15 percent) than that among women in rural areas (22 percent). The incidence of polygamy appears to be linked to women's education level and the household wealth.

#### Female Genital Mutilation/Cutting

The SHHS2 data shows that 88 percent of women aged 15-49 and 66 percent of ever women aged 0-50+ had experienced some form of genital cutting. The percentage of women who had been subjected to FGM/C was highest (90) among women in the age group 40-44 years and lowest (9) among girls in the age group 0-4 years. Younger women are less likely to have undergone any form of FGM/C than women in the older age groups.

#### Attitudes toward domestic violence

Overall, 47 percent of women in Sudan feel that their husband has a right to hit or beat them for at least one of a variety of reasons mentioned during the survey.

#### Prevalence of Orphans

Nationwide, the prevalence of orphans (percentage of children under age 18 who have one or both of their parents dead) was 6 percent.

#### **HIV/AIDS Knowledge and Attitude**

The SHHS2 data indicated that overall, more than three-fourths (76 percent) of women age 15-49 years had heard of AIDS though only 6 percent of women were found to have comprehensive knowledge of HIV prevention, which was higher among women in urban areas (11 percent) than in rural areas (3 percent).Overall, only 6 percent of women were found to have comprehensive knowledge of HIV prevention, which was higher among women in urban areas (11 percent) than among women in rural areas (3 percent). The proportion of women who had comprehensive knowledge about HIV prevention was highest among women in the age group 30-39 years (7 percent) and lowest among women in the age group 40-49 years (4 percent)

#### Knowledge of Mother-To-Child Transmission of HIV

Overall, 60 percent of women age 15-49 years knew that HIV could be transmitted from mother to child. About 52 percent of women knew that HIV could be transmitted from mother to child during pregnancy; 47 percent of women knew that HIV could be transmitted from mother to child during delivery; and 43 percent of women knew that HIV could be transmitted from mother to child by breastfeeding. Only 16 percent knew all three means.

#### Accepting Attitudes toward People Living with HIV/AIDS

The indicators on attitudes toward people living with HIV measure stigma and discrimination in the community found that 90 percent of women who have heard of AIDS agree with at least one discriminatory statement.

#### **Injury and Chronic Diseases**

The SHHS2 collected data on the prevalence of major chronic diseases among people of Sudan. The percent distribution of respondents according to diseases is as follows: Hypertension (24 percent), Diabetes (14 percent), Asthma (8 percent), Hypothyroidism (7 percent), Glaucoma (6 percent), Cataract (5 percent), Mental health-related problems (3 percent), Heart disease (3 percent), Rheumatic heart disease (3 percent), Renal failure (2 percent), TB (2 percent), Epilepsy (1 percent). The incidence of cancer and leprosy were negligible (0.2 percent) and other diseases (31 percent) were not classified.

#### **Food Security**

Diets in Sudan are diverse, linked in large part to its climatic conditions and resource base. The main dietary sources for people in Sudan includes cereal, sugar, oil, milk, meat, pulses, vegetables, fruits and eggs. Though the main staples of the Sudanese diet are sorghum and millet, in certain areas, especially in pastoral areas, a significant amount of meat and milk is also consumed. The SHHS2 data indicated that a total of about eight percent of households were moderately or severely food insecure. The proportion of moderately and severely food insecure households ranged between less than one percent in River Nile State to 20 percent in West Darfur State.

#### I. Introduction

#### Background

The Government's efforts aimed at formulating and implementing policies and programmes that would have a positive impact on the situation of children and women in Sudan in particular, and on the achievement of the MDGs in general, necessitates periodic collection of relevant data/information for assessing progress towards achievement of the defined developmental goals and targets. The Sudan Household Survey represents one of the major tools to make available the data/information required for assessing progress towards achievement of the defined national and international developmental goals and targets and for the formulation and implementation of policies and programmes to improve the situation of children and women in Sudan.

Administratively, the Republic of Sudan is governed by a federal system, comprised of 15 States. Sudan has been conducting surveys to generate data on important indicators for assessing progress towards developmental targets. Some of these surveys conducted earlier include the Demographic and Health Survey (DHS) carried out in 1989-90, a Maternal and Child Health survey which was conducted in 1993 (Sudan, Ministry of Health, 1994) under the Pan Arab Project on Child Development (PAPCHILD), Safe Motherhood Survey (SMS) of 1999, conducted by the Central Bureau of Statistics under the overall supervision of the Federal Ministry of Health. The SMS was followed by the Multiple Indicator Cluster Survey (MICS) of 2000 covering all northern states and selected urban areas of three states in Southern Sudan.

The Sudan Household Health Survey (SHHS), conducted in 2006, was the first nationally representative survey covering the entire Sudan in two decades covering key social development indicators. The national and state-level data generated by the SHHS helped in creating a baseline for assessing the progress towards some of the key MDG goals and targets, assisting in monitoring of MDG commitments and in informed decision making with regard to development planning. In 2009, the decision was taken to repeat the SHHS to provide up-to date data on social development indicators.

This report is based on the Sudan Household Health Survey - Second Round (SHHS2) conducted during the period March to May 2010 by the Federal Ministry of Health (FMoH) and the Central Bureau of Statistics (CBS), Government of Sudan which represents a major effort on the part of the Government of Sudan to assess the situation of children and women and to monitor progress towards selected national development goals and the Millennium Development Goals (MDGs) and targets. The survey was carried out in collaboration with several ministries and institutions of the Government of Sudan as well as international and regional organisations such as the United Nations Children's Fund (UNICEF), the United Nations development Programme (UNDP), the World Health Organisation (WHO), the United Nations Population Fund (UNFPA), the World Food Programme (WFP), the United States Agency for International Development (USAID), the Pan Arab Project for Family Health (PAPFAM).

This final report presents the results of the indicators and topics covered in the survey.

#### **Survey Objectives**

The primary objectives of the 2010 Sudan Household Health Survey (SHHS2) were as follows:

- To provide up-to-date information for assessing the situation of children and women in Sudan;
- To furnish data needed for monitoring progress toward goals established in the Millennium Declaration and other internationally agreed upon goals, as a basis for future action;
- To contribute to the improvement of data and monitoring systems in Sudan and to strengthen technical expertise in the design, implementation, and analysis of such systems.
- To generate data on the situation of children and women, including the identification of vulnerable groups and of disparities, to inform policies and interventions.

The methodology and content of SHH2 are based on the models and standards developed by the global Multiple Indicator Cluster Survey (MICS) programme, an international household survey programme developed and supported by UNICEF and Pan Arab Project for Family Health (PAPFAM) survey under the State of Arab League. The SHHS2 was conducted as part of the fourth round of MICS. The SHHS2 provides valuable information on the situation of children and women in Sudan, and measures of key indicators that allow Sudan to monitor progress towards the goals and targets emanating from some of the international agreements: the Millennium Declaration, adopted by all 191 United Nations Member States in September 2000, and the Plan of Action of A World Fit For Children, adopted by 189 Member States at the United Nations Special Session on Children in May 2002. Both of these commitments build upon promises made by the international community at the 1990 World Summit for Children.

In parallel, a maternal mortality survey was conducted as part of the listing operations of the SHHS2 and other country specific testing for anaemia were conducted at the field. Random samples of blood drawn during this process were also tested in central laboratories for hepatitis, syphilis and HIV.

The maternal mortality survey and the testing processes are not considered as part of the MICS modules and therefore did not benefit from the technical assistance and quality assurance processes of the MICS programme.

#### Sample Design

The sample for the 2010 Sudan Household Health Survey (SHHS2) was designed to provide estimates for some key indicators on the situation of children and women at the national level, for urban and rural areas and for the 15 states (Northern, River Nile, Red Sea, Kassala, Gedarif, Khartoum, Gezira, Sinnar, Blue Nile, White Nile, North Kordofan, South Kordofan, North Darfur, West Darfur, South Darfur). The target universe for the SHHS2 includes the households and members of individual households, including nomadic households camping at a location/place at the time of the survey. The population living in institutions and group quarters such as hospitals, military bases and prisons, were excluded from the sampling frame.

The states constitute the main sampling domains and in each state a two stage cluster sampling design was employed to draw the sample for the SHHS2. The villages or quarters (in the case of urban areas) constituted the Primary Sampling Units (PSUs) for the SHHS2. The PSU represented the smallest area or administrative unit which could be identified in the field with commonly recognized boundaries. The sampling frame for 15 states was compiled using the list of villages and quarters and estimated population updated by the Central Bureau of Statistics on the basis of the updated frame from the 2008 Population Census. In the 15 States, clusters were distributed to urban and rural areas, proportional to the size of urban and rural populations in each state. The urban and rural clusters in each of these states were selected randomly with probability of selection proportional to size.

The sample size for the survey was determined by the accuracy and degree of precision required for the survey estimates for each state. It was judged that a minimum sample of 900 households would be necessary to make estimates/results with some degree of precision at the state level. Allowing for some non-response in the survey, it was decided to take a sample of 1,000 households in each state. Since a similar level of precision was required for the survey results from each state, it was decided to draw 40 clusters from each state and 25 households from each cluster. The sampling frame of villages/quarters was compiled separately for each state based on the best available population measures. In cases where a selected village/quarter could not be reached because of security or access problems, it was replaced by a neighbouring village/quarter in the sampling frame. All selected clusters (villages/quarters) in each state were fully covered. After a household listing was carried out within the selected clusters; a sample of 25 households was drawn from each selected cluster using the method of systematic random sampling.

Although each state sample can be considered as self-weighting, the total sample for Sudan is not self-weighting since a fixed sample of households was drawn from each state, irrespective of its population size. Therefore, to derive estimates for Sudan as a whole it was necessary to assign a weight to each state-level sample. For reporting national level results, and to obtain unbiased estimates from the data, appropriate weights were applied to the sample data based on the probabilities of selection. Measures of sampling variability for key survey estimates were also calculated. Sample weights were calculated for each state-level sample and these were used in the subsequent analyses of the survey data. A more detailed description of the sample design can be found in Appendix A.

#### Questionnaires

The survey tools consisted of five sets of questionnaires: (i) a *Household questionnaire* which was used to collect information on all *de jure* household members (usual residents), the household and the dwelling; (ii) a *Women's questionnaire* administered to all women aged 15-49 years in each household; (iii) a *children's questionnaire* administered to mothers or caretakers of all children under five years of age living in the household; (iv) a *men's questionnaire* administered to all men aged 15-49 years living in the household; and (v) *Food Security Questionnaire*.

The first three questionnaires are based on the MICS4 and PAPFAM model questionnaires. A copy of the SHHS2 questionnaires is provided in Appendix F.

The Household Questionnaire included the following modules:

Household listing form; Education; Chronic diseases and injuries (country specific module); Female Genital Mutilation/Cutting (FGM/C) (country specific module); Child disability; Water and sanitation Household characteristics/income; Insecticide treated nets (ITNs); Salt iodization

The Questionnaire for Individual Women included the following modules:

Woman's Background; Marriage Child Mortality Desire For Last Birth; Birth History Maternal and Newborn Health; Contraception; Unmet Need; Female Genital Mutilation/Cutting (FGM/C) (country specific module); Attitudes towards Domestic Violence; HIV/AIDS Knowledge, Sexually Transmitted Infections (STI) (country specific module).

The Questionnaire for Children Under Five was administered to mothers or caretakers of children under 5 years of age living in the households. Normally, the questionnaire was administered to mothers of under-5 children; in cases when the mother was not listed in the household roster, a primary caretaker for the child was identified and interviewed. The questionnaire included the following modules:

Age; Birth Registration; Early Childhood Development (country specific module); Care of Illness and Illness Symptoms Vitamin A; Malaria; Breastfeeding; Immunisation; Anthropometry.

In addition, country specific questionnaires were administered as follows:

The Questionnaire for Individual Men which included the following modules:

Man's Background; Marriage; Circumcision and FGM; Knowledge of means of contraception; Attitudes Towards Domestic Violence; Sexually Transmitted Infections; Knowledge of HIV/AIDS.

The Food Security Questionnaire included the following modules:

Income sources; Household expenditures; Food consumption and dietary diversity.

Maternal Mortality questions were included in the listing form which was administered in all households of the selected clusters during the listing process of updating the sample.

The questionnaires were pre-tested during the last quarter of 2009 and the first quarter of 2010 and modifications were made to the wording and translation of the questionnaires based on the results of the pre-test.

In addition to the administration of questionnaires, fieldwork teams tested the salt used for cooking in the households for iodine content, tested blood for all household members and measured the weights and heights of children under-5 years of age. Details and findings of these measurements are provided in the respective sections of the report. However, the results of the anaemia testing and blood testing are not provided in the report in view of the very low response rates for these tests.

#### **Training and Fieldwork**

Training programmes for the fieldwork were conducted for all the states involved in the SHHS2 during the month of February and March 2010, the duration of training varying between 7-10 days. The training was conducted at three levels -- national, sub-national and state levels. To ensure consistency, the sub-national training sessions for all trainees in all states were conducted by the same trainers. The training included lectures and discussions relating to interviewing techniques and the contents of the questionnaires, supervision and monitoring of quality of data. Towards the end of the training period, trainees spent some days in the field to practice interviewing in selected sites which were not included in the sample.

A total of 240 interviewers and 60 supervisors were trained to collect data. Field work was undertaken from March to May 2010. The average period to complete the field work was 33 days, with a minimum of 27 days for the main questionnaires excluding Maternal Mortality survey and a maximum of 43 days, extended to overcome the low response rate, for blood collection and for covering additional clusters for collecting data on maternal mortality.

The data were collected by 60 cluster teams in the 15 States of Sudan, involving four teams for each of the States. Each cluster team comprised of four interviewers (including the measurer), one field editor, one blood sample officer and the supervisor. In all, the data collection involved 360 data collectors and field editors, 60 team leaders and supervisors, and 30 national supervisors and leaders.

#### **Data Processing**

Data were entered using the CSPro software. In order to ensure quality control, all questionnaires were double entered and internal consistency checks were performed. Procedures and standard programmes developed under the global MICS4 project and adapted to the SHHS2 questionnaires were used throughout. Data processing was concluded in August -2010. Data were analysed using the Statistical Package for Social Sciences (SPSS) software programme (Version 18), and the model syntax and tabulation plans developed for the SHHS2 were largely based on the standard MICS Syntax. Food security indicators were calculated using the standard WFP food score syntax.

# III. Sample Coverage and the Characteristics of Households and Respondents

#### Sample Coverage

Of the 15,000 households selected for the sample, 14,921 were found to be occupied. Of these, 14,778 households were interviewed successfully for a household response rate of 99 percent. In those households interviewed, 18,614 women (age 15-49 years) were identified. Of these, 17,174 women were interviewed, yielding a response rate of 92 percent within interviewed households. In addition, 13,587 children under age five were listed in the household questionnaire. Questionnaires were completed for 13,282 of these children, corresponding to a response rate of 98 percent. An overall response rate of 91 percent was achieved for women, while an overall response rate of 97 percent was achieved for under-five children (Table 3.1).

The sample response rates show slight variations by area and by States. There is considerably less difference among the response rates for the household; women and children's questionnaires in rural areas while the response rates for each questionnaire was considerably different in urban area. The response rates at the State level for the three questionnaires do not show notable differences within the States. The women's overall response rate was higher in rural areas (93 percent) compared with 91 percent in urban areas. The overall response rate for under-five children was 97 percent in rural areas compared to 96 percent in urban areas. The overall response rate for women's questionnaire was 92 percent in rural areas compared to 89 percent in urban areas.

In the interviewed households, 16,448 men (age 15-49 years) were identified. Of these, only 5,573 men could be successfully interviewed. An overall response rate of 34 percent was calculated for the men's interviews (Table 3.1). One of the reasons for the low response rate for men was that at the time of visits to the households, men in a large proportion of the households were out to work. The low response rates obtained for the men's questionnaire implies that the results for men in regard to relevant indicators cannot be presented as they will not be representative and as such the results for men have not been included in this report.

Table 3.1: Results of household, women's, men's and under-five interviews																		
Numbers of households, v	vomen, m	en and un	ider-five child	dren by re	sults of t	ne househo	ld, women's	s, men's and u	nder-5 chi	dren's int	erviews, a	nd house	hold, women	's, men's and	d under-fiv	e children	's respons	e rates,
Sudan, 2010												Tatal						
	Ar	ea							State				Couth	Marth		Couth	lotal	
	oroan	Kurai	Northern	Nile	Sea	Kassala	Gadani	Knartoum	Gezira	Nile	Sinnar	Nile	Kordofan	Kordofan	Darfur	Darfur	Darfur	
Number of households			L	L	لىيە مىر		k,,				······································					L		
Households Sampled	4575	10425	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	15000
Households Occupied	4542	10379	994	992	995	995	993	992	1000	990	998	999	999	991	997	994	992	14921
Households Interviewed	4479	10299	984	983	988	970	973	971	1000	976	989	998	999	988	992	987	980	14778
Household response rate (%)	98.6	99.2	99.0	99.1	99.3	97.5	98.0	97.9	100.0	98.6	99.1	99.9	100.0	99.7	99.5	99.3	98.8	99.0
Number of women		MAR MARK	2 ALLANDONAN TO			5.2000-000 G	••••••••••••••••••••••••••••••••••••••					<b>.</b>	1		5 17			
Women Eligible	6406	12208	1405	1306	1156	1153	1175	1479	1417	1310	1202	1277	1212	1135	1124	1042	1221	18614
Women Interviewed	5807	11367	1223	1179	1081	1077	1090	1327	1385	1165	1131	1186	1155	1066	1024	1000	1085	17174
Women's response rate	90.6	93.1	87.0	90.3	93.5	93.4	92.8	89.7	97.7	88.9	94.1	92.9	95.3	93.9	91.1	96.0	88.9	92.3
Women's overall response rate (%)	89.4	92.4	86.2	89.5	92.9	91.1	90.9	87.8	97.7	87.7	93.2	92.8	95.3	93.6	90.6	95.3	87.8	91.4
Number of men		L	-,	<u></u>	I						•			••••••				1
Men Eligible	6000	10448	1230	1263	1151	1127	972	1450	1080	1129	1101	1177	936	916	1054	808	1054	16448
Men Interviewed	1956	3617	251	473	224	253	395	412	389	474	432	466	397	332	378	286	411	5573
Men's response rate	32.6	34.6	20.4	37.5	19.5	22.4	40.6	28.4	36.0	42.0	39.2	39.6	42.4	36.2	35.9	35.4	39.0	33.9
Men's overall response rate (%)	32.1	34.4	20.2	37.1	19.3	21.9	39.8	27.8	36.0	41.4	38.9	39.6	42.4	36.1	35.7	35.1	38.5	33.6
Number of children under	5												•••••					
Children under 5 Eligible	3877	9710	637	789	641	824	935	862	843	889	853	1257	910	1031	1067	975	1074	13587
Children under 5 Mother/Caretaker Interviewed	3771	9511	607	765	625	818	901	828	839	856	843	1234	902	1020	1043	967	1034	13282
Under-5's response rate	97.3	98.0	95.3	97.0	97.5	99.3	96.4	96.1	99.5	96.3	98.8	98.2	99.1	98.9	97.8	99.2	96.3	97.8
Under-5's overall response rate (%)	95.9	97.2	94.3	96.1	96.8	96.8	94.4	94.0	99.5	94.9	97.9	98.1	99.1	98.6	97.3	98.5	95.1	96.8

#### **Characteristics of Households**

The household age distribution by sex is provided in Table 3.2. The Table indicates the distribution of the household population by five-year age groups, dependency age groups, and child (age 0-17 years) and adult populations (age 18 or more), by sex. In the 14,778 households successfully interviewed in the survey, 84,530 household members were listed. Of these, 41,313 (49 percent) were males, and 43,217 (51 percent) were females. Based on these figures, the average household size was estimated at 5.7 persons.

The total number of children in the age group 0-14 years (below age 15) in the households was 38,525 (male: 19,441; female: 19,084), constituting 4.6 percent of the total survey population. The number of household members in the age group 15-64 years was estimated at 42,690 (male: 19,991; female: 22,699), constituting 51 percent of the total survey population. The household members aged 65 years and above was 3,270 (male: 1,860; female: 1,410), constituting 4 percent of the total survey population.

Percent and frequency d groups, and by child	Table 3.2 istribution of t (age 0-17 year	2: Household he household s) and adult p	age distribution population b populations (a)	on by sex y five-year ag ge 18 or more	e groups, dep ), by sex, Suda	endency age an, 2010		
	Ma	les	Ferr	ales	Total			
	Number	Percent	Number	Percent	Number	Percent		
Age group			an and a second			10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -		
0-4	7021	17.0	6802	15.7	13823	16.4		
5-9	6635	16.1	6457	14.9	13091	15.5		
10-14	5786	14.0	5825	13.5	11611	13.7		
15-19	3736	9.0	4035	9.3	7771	9.2		
20-24	2840	6.9	3700	8.6	6540	7.7		
25-29	2498	6.0	3471	8.0	5969	7.1		
30-34	2101	5.1	2314	5.4	4415	5.2		
35-39	2128	5.2	2626	6.1	4754	5.6		
40-44	1786	4.3	1610	3.7	3397	4.0		
45-49	1465	3.5	1192	2.8	2657	3.1		
50-54	1417	3.4	2143	5.0	3560	4.2		
55-59	1003	2.4	849	2.0	1852	2.2		
60-64	1016	2.5	760	1.8	1776	2.1		
65-69	642	1.6	417	1.0	1059	1.3		
70-74	544	1.3	443	1.0	988	1.2		
75-79	280	0.7	202	0.5	482	0.6		
80-84	243	0.6	220	0.5	463	0.5		
85+	151	0.4	126	0.3	277	0.3		
Missing/DK	21	0.1	24	0.1	45	0.1		
Dependency age group								
0-14	19441	47.1	19084	44.2	38525	45.6		
15-64	19991	48.4	22699	52.5	42690	50.5		
65+	1860	4.5	1410	3.3	3270	3.9		
Missing/DK	21	0.1	24	0.1	45	0.1		
Children and adult populations								
Children age 0-17 years	21663	52.4	21315	49.3	42978	50.8		
Adults age 18+ years	19630	47.5	21878	50.6	41508	49.1		
Missing/DK	21	0.1	24	0.1	45	0.1		
Total	41314	100 0	48217	100.0	84530			

The total number of children in the age group 0-17 years in the households and survey population was 42,978 (male: 21,663; female: 21,315), constituting 51 percent of the total survey population, the sex ratio being 984 girls for every 1,000 boys. The household members aged 18 years and above constituted 49 percent of the survey population. The under-five children in the total survey population was 13,823 (male: 7,021); female (6,802). The proportion of under-five children in the total survey population was estimated at 16 percent, the sex ratio being 969 females for 1,000 males.

The proportion of children in the age group 0-17 years (51 percent) in the total survey population was higher than the proportion of under-18 population (49 percent) at the time of the 2008 Census. The percentage of female household members (51 percent) to total survey population was also higher than the percentage of female population to total population at the time of the 2008 Census (49 percent). Similarly, the percentage of under-five children to total survey population was also higher (16 percent) than the percentage of under-five children to total population at the time of the 2008 Census.

The data in Table 3.2 are also used to produce Figure 3.1 which depicts the age and sex distribution of the household population by five-year age groups.





The above figure (demographic pyramid) shows the age structure of the survey population. The pyramid consists of two sets of horizontal bar graphs, one for each sex, which indicates the proportion of people in each age group. The pyramid shows that the proportion of males is larger than that of females, except in those groups aged 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, and 50-54 years.

#### Household Composition

Tables 3.3 - 3.5 provide basic information on the households, female respondents age 15-49 years, and children under-five by presenting the un-weighted, as well as the weighted numbers. Information on the basic characteristics of households, women and children under-five interviewed in the survey is essential for the interpretation of findings presented later in the report and also can provide an indication of the representativeness of the survey. The remaining tables in this report are presented only with weighted numbers. See Appendix A for more details about the weighting.

Table 3.3 provides basic background information on the households. Within households, the sex of the household head, state of residence, area of residence, number of household members, education of household head and household distribution by age group are shown in the Table 3.3. These background characteristics are used in subsequent tables in this report; the figures in the table are also intended to show the number of observations by major categories of analysis in the report.

The weighted and un-weighted numbers of households are equal, since sample weights were normalized (See Appendix A). The table also shows the proportions of households with at least one child under 18, at least one child under 5, and at least one eligible woman age 15-49 years. The table also shows the weighted average household size estimated by the survey.
Table 3.3: House Percent distribution of households b	hold composit	tion racteristics. Sudan	. 2010
	Weighted	Number	of households
	percent	Weighted	Unweighted
Sex of household head			
Male	82.5	12187	12324
Female	17.5	2591	2454
State			
Northern	1.9	279	984
River Nile	3.6	528	983
Red Sea	3.1	455	988
Kassala	6.3	935	970
Gadarif	5.0	734	973
Khartoum	14.7	2167	971
Gezira	14.6	2160	1000
White Nile	5.0	745	976
Sinnar	4.2	619	989
Blue Nile	22	<u> </u>	905
North Kordofan	11.0	1620	000
South Kordofan	11.0	 	000
North Darfur	4.0	002	300
North Darfur	0.1	907	992
Couth Darfur	4.0	1742	967
South Dariur	11.8	1/42	980
Area or residence		4250	0544
Dipan	29.5	4359	4479
Kurai	70.5	10419	10299
Number of household members			
7	1.6	232	254
2	8.2	1216	1261
3	11.9	1/63	1839
4	14.6	2160	2151
5	14.5	2143	2192
6	14.1	2085	2034
7	11.5	1694	1680
8	8.8	1303	1305
9	6.5	964	910
10+	8.3	1220	1152
Education of household head			
None	57.7	8523	8620
Primary	25.1	3703	3664
Secondary +	16.6	2454	2391
Missing/DK	0.7	98	103
Household distribution by age group			
Households with at least: one child age 0-4 years	58.1	14778	14778
Households with at least: one child age 0-17 years	85.2	14778	14778
Households with at least: one woman age 15-49 yrs	89.7	14778	14778
Households with at least: one man age 15-49 years	75.4	14778	14778
Mean household size	5.7	14778	14778
SUDAN (TOTAL)	100.0	14778	14778

Male household heads constituted 83 percent of the total household heads while female household heads constituted 18 percent. About 58 percent of the household heads had no formal education, while about 25 percent of the household heads had primary education and 17 percent of them had

secondary or higher level of education. The members in the households in urban areas constituted 30 percent of the total surveyed population while household members in rural areas constituted 71 percent of the total.

The households with four members constituted the largest proportion (15 percent) of the surveyed households followed by households with five members (15 percent) and households with six members (14 percent) while households with only one member constituted the least proportion (2 percent) of all households. This indicates that a large proportion of households/families had four or more than four members which reflect the preference for larger families among a majority (78 percent) of the households. The SHHS2 findings indicate that smaller households (with three or less than three members) constitute a very small proportion (22 percent).

About 58 percent of the households had at least one child under five while 85 percent of the households had at least one child under 18. About 90 percent of the households had at least one woman in the age group 15-49 years while 75percent of the households had at least one man in the age group 15-49 years. The average household size estimated by the survey was 5.7 persons.

## Characteristics of Female Respondents 15-49 Years of Age and Children Under-5

Table 3.4 provides information on the background characteristics of female respondents 15-49 years of age. The table includes information on the distribution of women according to state of residence; area of residence, age group, marital status, motherhood status, births in last two years preceding the SHHS2, educational status<sup>2</sup>, and wealth index quintiles<sup>3</sup>.

Of the total women in the age group 15-49 years in the survey population, women in urban areas constituted 34 percent of total women in the survey population while women in rural areas constituted 66 percent. Women in the age group 15-19 years constituted the largest proportion (21 percent) of women in the survey population followed by women in the age group 20-24 years (19 percent) and those in the age group 25-29 years (19 percent) while the lowest proportion of women was in the age group 45-49 years (6 percent).

About 64 percent of the women aged 15-49 years were currently married, six percent were formerly married (widowed, divorced or separated) while never married women constituted 30 percent. Approximately six out of ten (62 percent) women had given birth to a child while 38 percent never gave birth to a child. About 33 percent of the women ages 15-49 years had a birth in last two years preceding the SHHS2. Women with no formal education made up 35 percent of the total women in the survey population while 32 percent had primary education and 28 percent had secondary or higher levels of education. The results in regard to wealth index quintiles show that about 18 percent of women belonged to households in the poorest quintile while women from households in the richest quintile constituted about 23 percent.

<sup>&</sup>lt;sup>2</sup>Unless otherwise stated, "education" refers to educational level attended by the respondent throughout this report when it is used as a background variable.

<sup>&</sup>lt;sup>3</sup> Principal components analysis was performed by using information on the ownership of consumer goods, dwelling characteristics, water and sanitation, and other characteristics that are related to the household's wealth to assign weights (factor scores) to each of the household assets. Each household was then assigned a wealth score based on these weights and the assets owned by that household: The survey household population was then ranked according to the wealth score of the household they are living in, and was finally divided into 5 equal parts (quintiles) from lowest (poorest) to highest (richest). The wealth index is assumed to capture the underlying long-term wealth through information on the household assets, and is intended to produce a ranking of households by wealth, from poorest to richest. The wealth index does not provide information on absolute poverty, current income or expenditure levels. The wealth scores calculated are applicable for only the particular data set they are based on. Further information on the construction of the wealth index can be found in*Filmer, D. and Pritchett, L., 2001. "Estimating wealth effects without expenditure data – or tears: An application to educational enrolments in states of India".Demography 38(1): 115-132. Gwatkin, D.R., Rutstein, S., Johnson, K. ,Pande, R. and Wagstaff. A., 2000.Socio-Economic Differences in Health, Nutrition, and Population. HNP/Poverty Thematic Group, Washington, DC: World Bank. Rutstein, S.O. and Johnson, K., 2004. The DHS Wealth Index. DHS Comparative Reports No. 6. Calverton, Maryland: ORC Macro.* 

Table 3.4: Women's background characteristics     Percent and frequency distribution of women age 15-49 years by selected characteristics. Sudan, 2010									
referre and frequency distribution of wor	Weighted percent	Number	of women						
		Weighted	Unweighted						
State of residence									
Northern	2.0	351	1223						
River Nile	3.7	637	1179						
Red Sea	2.8	477	1081						
Kassala	5.8	1004	1077						
Gadarif	4.5	773	1090						
Khartoum	17.5	3005	1327						
Gezira	16.2	2791	1385						
White Nile	5.3	906	1165						
Sinnar	3.9	675	1131						
Blue Nile	3.3	566	1186						
North Kordofan	10.3	1765	1155						
South Kordofan	4.1	700	1066						
North Darfur	5.4	930	1024						
West Darfur	3.9	672	1000						
South Darfur	11.2	1923	1085						
Area of residence			The second se						
Urban	34.0	5842	5807						
Bural	66.0	11332	11367						
Are groun		11002	11507						
15-10	20.7	2550	3///7						
20-24	10.3	2271	3286						
25-24	19.5	2176	2210						
20.24	10.5	2120	3215						
25.20	14.2	2159	2250						
33-39	14.2	1466	2430						
40-44	8.5	1466	1441						
45-49	6.2	1067	1073						
		11000	11100						
	64.1	11006	11182						
Widowed	1.7	295	309						
Divorced	3./	627	645						
Separated	.3	50	37						
Never married/in union	30.2	5193	4997						
Missing	0	4	4						
Motherhood status		a a theory and the	the triplation ga						
Ever gave birth	62.3	10708	10840						
Never gave birth	7.4	1274	1337						
Never married/in union	30.2	5193	4997						
Birth in last two years	SP BLACKER - Develop	and the second							
Had a birth in last two years	32.9	5646	5730						
Had no birth in last two years	36.9	6336	6447						
Never married/in union	30.2	5193	4997						
Education status		¢ 1							
None	35.3	6062	6313						
Primary	32.4	5570	5555						
Secondary +	28.0	4803	4464						
Adult education/Khalwa/Sunday education	4.3	739	842						
Wealth index quintiles			· · · · · · · · · · · · · · · · · · ·						
Poorest	17.5	3013	2647						
Second	18.5	3176	3474						
Middle	19.6	3375	3737						
Fourth	21.0	3604	3686						
Richest	23 3	4006	3630						
	100.0	17174	17174						

## **Children's Background Characteristics**

Some background characteristics of children under five years of age are presented in Table 3.5. These include the distribution of children by several attributes: sex, state of residence, area of residence, age group, mothers' or caretakers' education level, and wealth index quintiles.

Number of children           Weighted percent         Number of children           Weighted percent         Weighted         Unweighted           Sex         0         0         0           Male         50.8         6742         6735           Female         49.2         6540         6547           State of residence         0         0         0           Northern         1.3         170         607           River Nile         3.0         404         765           Red Sea         2.1         281         625           Kassala         5.9         780         818           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         5.1         681         1020           South Kordofan         5.1         682         967           South Kordofan         5.1<	Table 3.5: Backgro Percent and frequency distribution of ch	ound characteristics of ildren under five years 2010	under-five children s of age by selected ch	aracteristics, Sudan,
Weighted percent         Tumber of the second s		2010	Number	of children
Sex         Integrate         Integrate           Male         50.8         6742         6735           Female         49.2         6540         6547           State of residence         1.3         170         607           Northern         1.3         170         607           River Nile         3.0         404         765           Red Sea         2.1         281         625           Kassala         5.9         780         818           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         5.1         682         967           South Kordofan         5.1         682         967           South Kordofan         5.1         682         967           South Kordofan         5.1         682         957           South Kordofan         5.1         682         957           Rere of residence         117		Weighted percent	Weighted	Unweighted
Nale         50.8         6742         6735           Female         49.2         6540         6547           State of residence	Sex	Treighten persent		
John         John <thjohn< th="">         John         John         <thj< td=""><td>Male</td><td>50.8</td><td>6742</td><td>6735</td></thj<></thjohn<>	Male	50.8	6742	6735
State of residence         Intervention         Interve	Female	49.2	6540	6547
Northern         1.3         170         607           River Nile         3.0         404         765           Red Sea         2.1         281         625           Kassala         5.9         780         818           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         13.8         1829         1034           Area of residence	State of residence			
Instruct         Instruct         Instruct         Instruct         Instruct           River Nile         3.0         404         765           Red Sea         2.1         281         625           Kassala         5.9         780         818           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Kordofan         27.6         3669         3771           Rural         72.4         9613         9511           Age group	Northern	13	170	607
Internation         Internation         Internation         Internation           Red Sea         2.1         281         625           Kassala         5.9         780         818           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           Vest Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence	River Nile	3.0	404	765
Inc.         Inc. <thinc.< th="">         Inc.         Inc.         <thi< td=""><td>Red Sea</td><td>21</td><td>281</td><td>625</td></thi<></thinc.<>	Red Sea	21	281	625
Activation         Activation         Activation         Activation           Gadarif         5.1         678         901           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence	Kassala	5.9	780	818
Data         Data         Data         Data           Khartoum         14.1         1868         828           Gezira         13.2         1750         839           White Nile         5.1         675         856           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence           1020           Urban         27.6         3669         3771           Rural         72.4         9613         9511           Age group           10.6         1408         1440           12-23 months         10.6         1408         1440         12-23         24-35         2652         2746           36-47 months         21.2         2811         2802         2804         280	Gadarif	5.5	678	901
Interview         Interview <thinterview< th="">         Interview         <thinterview< th="">         Interview         <thinterview< th=""> <thinterview< th=""> <thint< td=""><td>Khartoum</td><td>14.1</td><td>1868</td><td>878</td></thint<></thinterview<></thinterview<></thinterview<></thinterview<>	Khartoum	14.1	1868	878
State         Data         Data <thdata< th="">         Data         Data         <th< td=""><td>Gezira</td><td>13.2</td><td>1750</td><td>839</td></th<></thdata<>	Gezira	13.2	1750	839
Number         J.1         J.1         J.1           Sinnar         3.9         517         843           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence           27.6         3669         3771           Rural         72.4         9613         9511         488         967         500           Age group           24.2         967         500         1034           Area of residence           36.4         1034         404         39511         488         9613         9511         496         511         612         41         611         10.6         1408         1440         12-23         30.4         20.8         2762         2746         36-47         2011         2802         48-59         30.4         2111         <	White Nile	5 1	675	856
Data         D.5         D.7         D.7           Blue Nile         4.5         595         1234           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence	Sinnar	39	517	843
Brite Hile         1.5         12.5           North Kordofan         10.7         1425         902           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence           2           Urban         27.6         3669         3771           Rural         72.4         9613         9511           Age group           2           0-5 months         11.7         1556         1524           6-11 months         10.6         1408         1440           12-23 months         20.8         2762         2746           36-47 months         21.2         2811         2802           48-59 months         16.0         2131         2118           Mother's or caretaker's education              None         55.4         7359         7553           Primary         30.4         4044         3934           Secondary         <	Blue Nile	4.5	595	1234
North Nordofan         10.7         1125         1020           South Kordofan         5.1         681         1020           North Darfur         7.1         947         1043           West Darfur         5.1         682         967           South Darfur         13.8         1829         1034           Area of residence              Urban         27.6         3669         3771           Rural         72.4         9613         9511           Age group               0-5 months         11.7         1556         1524           6-11 months         10.6         1408         1440           12-23 months         20.8         2762         2746           36-47 months         21.2         2811         2802           48-59 months         16.0         2131         2118           Mother's or caretaker's education              None         55.4         7359         7553           Primary         30.4         4044         3934           Secondary         13.4         1785         1708 <t< td=""><td>North Kordofan</td><td>10.7</td><td>1425</td><td>902</td></t<>	North Kordofan	10.7	1425	902
South North Darfur         D.1         D01         D043           West Darfur         7.1         947         1043           West Darfur         13.8         1829         1034           Area of residence              Urban         27.6         3669         3771           Rural         72.4         9613         9511           Age group               0-5 months         11.7         1556         1524           6-11 months         10.6         1408         1440           12-23 months         20.8         2762         2746           36-47 months         21.2         2811         2802           48-59 months         16.0         2131         2118           Mother's or caretaker's education              None         55.4         7359         7553           Primary         30.4         4044         3934           Secondary         13.4         1785         1708           Missing/DK         0.7         94         87           Poorest         24.2         3213         2803	South Kordofan	5 1	681	1020
Note Output       5.1       682       967         South Darfur       13.8       1829       1034         Area of residence	North Darfur	71	947	1043
Note         D.1         D.1         D.1         D.1           South Darfur         13.8         1829         1034           Area of residence	West Darfur	5.1	682	967
South Darks         15.0         16.5         16.5           Area of residence	South Darfur	13.8	1829	1034
Nicol resource         27.6         3669         3771           Rural         72.4         9613         9511           Age group	Area of residence	13.8	1025	1034
Rural       72.4       9613       9511         Age group       11.7       1556       1524         6-11 months       10.6       1408       1440         12-23 months       19.7       2613       2652         24-35 months       19.7       2613       2652         24-35 months       20.8       2762       2746         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education	Urban	27.6	3669	3771
Age group       72.4       3013       3311         Age group       11.7       1556       1524         6-11 months       10.6       1408       1440         12-23 months       19.7       2613       2652         24-35 months       20.8       2762       2746         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education	Rural	72 /	9613	9511
Age group         11.7         1556         1524           6-11 months         10.6         1408         1440           12-23 months         19.7         2613         2652           24-35 months         20.8         2762         2746           36-47 months         21.2         2811         2802           48-59 months         16.0         2131         2118           Mother's or caretaker's education		/2.4		
6-11 months       10.6       1408       1440         12-23 months       19.7       2613       2652         24-35 months       20.8       2762       2746         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education       10.6       1344       3934         None       55.4       7359       7553         Primary       30.4       4044       3934         Secondary       13.4       1785       1708         Missing/DK       0.7       94       87         Wealth index quintiles       21.1       2800       3123         Poorest       24.2       3213       2803         Second       21.8       2901       3185         Middle       21.1       2800       3123         Fourth       18.7       2490       2461         Richest       14.1       1878       1710	0-5 months	11 7	1556	1574
12-23 months       19.7       2613       2652         24-35 months       20.8       2762       2746         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education       13.4       7359       7553         Primary       30.4       4044       3934         Secondary       13.4       1785       1708         Missing/DK       0.7       94       87         Wealth index quintiles       11.8       20.3       2803         Second       21.8       2901       3185         Middle       21.1       2800       3123         Fourth       18.7       2490       2461         Richest       14.1       1878       1710	6-11 months	10.6	1408	1440
112 15 months       10.7       101.5       101.5         24-35 months       20.8       2762       2746         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education       16.0       2131       2118         None       55.4       7359       7553         Primary       30.4       4044       3934         Secondary       13.4       1785       1708         Missing/DK       0.7       94       87         Wealth index quintiles       11.1       2803       2803         Second       21.8       2901       3185         Middle       21.1       2800       3123         Fourth       18.7       2490       2461         Richest       14.1       1878       1710	12-23 months	10.0	2613	2652
24-55 months       21.2       2811       2802         36-47 months       21.2       2811       2802         48-59 months       16.0       2131       2118         Mother's or caretaker's education	24-35 months	20.8	2762	2052
30 47 months       21.2       2011       2002         48-59 months       16.0       2131       2118         Mother's or caretaker's education            None       55.4       7359       7553         Primary       30.4       4044       3934         Secondary       13.4       1785       1708         Missing/DK       0.7       94       87         Wealth index quintiles            Poorest       24.2       3213       2803         Second       21.8       2901       3185         Middle       21.1       2800       3123         Fourth       18.7       2490       2461         Richest       14.1       1878       1710	36-47 months	20.8	2702	2740
None       55.4       7359       7553         Primary       30.4       4044       3934         Secondary       13.4       1785       1708         Missing/DK       0.7       94       87         Wealth index quintiles	48-59 months	16.0	2011	2002
None         55.4         7359         7553           Primary         30.4         4044         3934           Secondary         13.4         1785         1708           Missing/DK         0.7         94         87           Wealth index quintiles	Mother's or caretaker's education	10.0		2110
Nonc     30.4     1335     1335       Primary     30.4     4044     3934       Secondary     13.4     1785     1708       Missing/DK     0.7     94     87       Wealth index quintiles	None	55 4	7359	7552
Secondary     13.4     1785     1708       Missing/DK     0.7     94     87       Wealth index quintiles     0.7     94     87       Poorest     24.2     3213     2803       Second     21.8     2901     3185       Middle     21.1     2800     3123       Fourth     18.7     2490     2461       Richest     14.1     1878     1710	Primary	30.4	4044	3934
Secondary     13.4     1705     1705       Missing/DK     0.7     94     87       Wealth index quintiles     24.2     3213     2803       Poorest     24.2     3213     2803       Second     21.8     2901     3185       Middle     21.1     2800     3123       Fourth     18.7     2490     2461       Richest     14.1     1878     1710	Secondary	13.4	1785	1708
Wealth index quintiles     0.7     0.4     0.7       Poorest     24.2     3213     2803       Second     21.8     2901     3185       Middle     21.1     2800     3123       Fourth     18.7     2490     2461       Richest     14.1     1878     1710	Missing/DK	0.7	94	87
Poorest     24.2     3213     2803       Second     21.8     2901     3185       Middle     21.1     2800     3123       Fourth     18.7     2490     2461       Richest     14.1     1878     1710       TOTAL     100.0     13282     13282	Wealth index quintiles	0.7	54	
Zi.2         SZIS         Zi03           Second         21.8         2901         3185           Middle         21.1         2800         3123           Fourth         18.7         2490         2461           Richest         14.1         1878         1710	Poorest	24.2	3213	2803
Z1.0         Z501         3103           Middle         21.1         2800         3123           Fourth         18.7         2490         2461           Richest         14.1         1878         1710           TOTAL         100.0         13282         13282	Second	27.2	2901	3185
Fourth         18.7         2490         2461           Richest         14.1         1878         1710           TOTAL         100.0         13282         13282	Middle	21.0	2301	3103
Iourn         Iourn         2450         2461           Richest         14.1         1878         1710           TOTAL         100.0         13282         13282	Fourth	18.7	2000	2461
ΤΟΤΔΙ 100 13282 13282	Richest	1/ 1	1878	1710
	ΤΟΤΔΙ	100.0	13282	13282

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Children under the age of five years constituted about 16 percent of the total survey population. Boys constituted 51 percent of the total number of under-five children while girls constituted 49 percent. The proportion of under-five children in urban areas was 28 percent of the total under-five children in the survey population while the proportion of under-five children in rural areas was 72 percent. Children aged 24-35 months and 36-47 months constituted the largest proportion (21 percent each) of under-five children followed by children aged 12-23 months (20percent) while the lowest proportion of under-five children was in the age group 6-11 months (11percent). Under-five children whose mothers had no formal education constituted 55 percent of the surveyed women, while 30 percent of under-five children had mothers with primary education and 13 percent had mothers with secondary or higher level of education. The data relating to the wealth index quintiles showed that about 24 percent of under-five children belonged to households in the poorest quintile while children from households in the richest quintile constituted about 14 percent.

# IV. Child Mortality

One of the overarching goals of the Millennium Development Goals (MDGs) and the World Fit for Children (WFFC) is to reduce infant and under-five mortality. Specifically, the MDGs call for the reduction of under-five mortality by two-thirds between 1990 and 2015. Monitoring progress towards this goal is an important but difficult objective.

In the SHHS2, mortality rates are calculated from information collected in the birth history of the Women's Questionnaire. Women age 15-49 years were asked whether they had ever given birth, and if yes, they were asked to report the number of sons and daughters who live with them, the number who live elsewhere, and the number who have died. In addition, they were asked to provide a detailed birth history of live births of children in chronological order starting with the firstborn. Women were asked whether births were single or multiple, the sex of the children, the date of birth (month and year), and survival status. Further, for living children, they were asked the current age of the child and, if not alive, the age at death.

Intense training and close supervision is required for the administration of the birth history module. Birth history data provide detailed information on mortality and fertility levels, trends and patterns, but may be subject to various types of errors, including out-transference of births, missing data (such as dates of birth or ages at death) and event omission. Several data quality tables are produced in Appendix D on the birth history data for the detection of such errors.

For missing data, imputation procedures are used, if necessary, before the computation of mortality rates. In SHHS, a very large proportion of cases (29 percent) were missing full dates of birth, and imputation was therefore undertaken.

Since the primary causes of childhood mortality change as children age, from mostly biological factors to environmental factors, several mortality rates are calculated by selected age segments and are defined as follows;

- Neonatal mortality (NN): the probability of dying within the first month of life
- Post-neonatal mortality (PNN): the difference between infant and neonatal mortality
- Infant mortality (1q0): the probability of dying between birth and the first birthday
- Child mortality  $(_4q_1)$ : the probability of dying between exact ages one and five
- Under-five mortality (sq0): the probability of dying between birth and the fifth birthday

Childhood mortality rates are expressed as deaths per 1,000 live births, except in the case of child mortality, which is expressed as deaths per 1,000 children surviving to age one.

		Table 4.1: Ch	ild mortality							
Infant and under-five mortality rates by 5 year periods preceding the SHHS2, Sudan, 2010										
Years preceding the survey	Neonatal mortality <sup>[1]</sup>	Post neonatal mortality <sup>[2]</sup>	Infant mortality <sup>[3]</sup>	Child mortality <sup>[4]</sup>	Under five mortality <sup>[5]</sup>					
	Mean	Mean	Mean	Mean	Mean					
0-4	34	26	60	24	83					
5-9	33	28	60	35	93					
10-14	37	35	72	46	115					
<sup>[1]</sup> SHHS2 Indicato	r 4.3		11							
<sup>[2]</sup> SHHS2 Indicator	<sup>-</sup> 4.4									
<sup>[3]</sup> SHHS2 Indicato	r 4.2 MDG Indicat	or 4.2								
<sup>[4]</sup> SHHS2 Indicator	4.5				a 2016) - 2017) - 6 - 61 -					
<sup>[5]</sup> SHHS2 Indicator	4.1 MDG indicato	or 4.1								
Note: Post-neonatal	mortality rates are c	omputed as the differe	nce between the infa	nt and neonatal morta	ality rates					

Table 4.1 presents neonatal, post-neonatal, infant, child, and under-five mortality rates for the most recent five year periods before the survey. Neonatal mortality in the most recent 5-year period is estimated at 34 per 1,000 live births, while the post-neonatal mortality rate is estimated as 26 per 1,000 live births.

The infant mortality rate in the five years preceding the survey is 60 per 1,000 live births and underfive mortality is 83 deaths per 1,000 live births for the same period, indicating that the majority of under-five deaths (72 percent) are infant deaths.

The trend in early childhood mortality since the 1980 can be examined by looking at changes in the mortality rates over successive three five-year periods prior to the survey. The 2010 SHHS2 results imply reductions in mortality rates over the period covered in the table. For example, post-neonatal and child mortality rates during the most recent period (2006–2010) are around 40 percent lower than the levels estimated for the period 10–14 years before the survey (1996–2000). Reductions in mortality rates during these periods of early childhood appear to have been faster than during the neonatal period, as would be expected as high mortality rates are on the decline.

The table shows that at the national level, improvements have taken place during the last 15 years, with under-five mortality at 115 per 1,000 during the 10-14 year period preceding the survey, and 83 per 1,000 live births during the most recent 5-year period, roughly referring to the years 2006-2010. For the 10-14 years before the survey, the infant mortality rate declined from 72 deaths per 1,000 live births to 60 deaths per 1,000 live births for the 5-9 years before the survey and has remained at the same level over the five years preceding the survey. The child mortality rate declined from 46 deaths per 1,000 children aged 1 for the 10-14 years before the survey, and then declined steadily from 35 deaths per 1,000 children respectively for the periods 5-9 to 24 for the 0-4 years before the survey. There is an increasing proportion of infant deaths in the overall under five mortality rates, increasing from 63 percent in the 10-14 years before the survey to 72 percent in the recent years (0-4 years).

The neonatal mortality rate decreased from 37 for 10-14 and remained comparable for 5-9 years and 0-4 years before the survey with 34 and 33 deaths per 1,000 live births, respectively. It is also observed that the proportion of neonatal mortality rate in infant mortality rate has somewhat increased from 32 percent (10-14 years before the survey) to 41 percent (0-4 years before the survey).

The post-neonatal mortality rate declined from 35 deaths per 1,000 live births for the period 10-14 years before the survey to 28 deaths per 1,000 live births during the 5-9 years before the survey, and then remained roughly the same at 26 deaths per 1,000 live births during the 5-year period prior to the survey

Estimates of the neonatal, post-neonatal, infant, child and under-five mortality rates by background characteristics are presented in the following table which provides estimates of child mortality by socioeconomic and demographic characteristics. Infant and under-5 mortality rates are lowest in Gezira while the figures for Blue Nile region are about 60 percent higher than the national average. There are also significant differences in mortality in terms of educational and wealth levels of households, where mortality levels are as expected lowest among children whose mothers have secondary and higher education and among children of mothers from households in the richest quintile.

		2010			
Background characteristics	Neonatal mortality rate (per 1000 live births) <sup>[1]</sup>	Post neo-natal mortality rate (per 1000 live births) <sup>[2]</sup>	Infant mortality rate (per 1000 live births) <sup>[3]</sup>	Child mortality rate (per 1000 live births) <sup>[4]</sup>	Under-five mortality rate (per 1000 live births) <sup>[5]</sup>
Sex					
Male	40	25	66	24	89
Female	28	26	54	23	76
Area				and and a second second	
Urban	35	26	62	18	79
Rural	34	26	60	26	84
State		and the second second			In the Property of
Northern	38	19	56	8	64
River Nile	33	13	46	14	60
Red Sea	32	53	85	41	122
Kassala	28	34	62	27	87
Gadarif	28	37	65	45	107
Khartoum	27	29	55	13	67
Gezira	21	18	39	15	53
White Nile	33	21	54	22	74
Sinnar	23	17	40	23	62
Blue Nile	36	30	66	69	131
North Kordofan	43	21	64	19	82
South Kordofan	40	39	79	48	123
North Darfur	44	19	63	6	69
West Darfur	39	27	66	23	88
South Darfur	48	26	74	23	95
Wealth inde	ex quintiles				
Poorest	38	21	59	29	86
Second	39	31	69	30	97
Middle	35	32	68	29	95
Fourth	35	25	60	18	77
Richest	20	18	37	5	42
SUDAN (Total)	34	26	60	24	83

Table 4.2: Child mortality											
Neonatai, post-neona	Neonatal, post-neonatal, infant, child and under-five mortality rates by background characteristics, Sudan, 2010										
Background	Neonatal	Post neo-natal	Infant	Child mortality	Under-five						
characteristics	mortality rate	mortality rate	mortality rate	rate	mortality rate						
	(per 1000 live	(per 1000 live	(per 1000 live	(per 1000 live	(per 1000 live						
	births) <sup>[1]</sup>	births) <sup>[2]</sup>	births) <sup>[3]</sup>	births) <sup>[4]</sup>	births) <sup>[5]</sup>						
<sup>[1]</sup> SHHS2 indicator 1.1											
<sup>[2]</sup> SHHS2 indicator 1.2											
<sup>[3]</sup> SHHS2 indicator 1.3											
<sup>[4]</sup> SHHS2 indicator 1.4											
<sup>[5]</sup> SHHS2 indicator 1.5				· · · · · · · · · · · · · · · · · · ·							

The demographic characteristics of both mother and child play an important role in the survival probabilities of children. Table 4.3 presents mortality rates by demographic characteristics (i.e., sex of child, mother's age at birth, birth order, and previous birth interval). The SHHS2 findings indicate that mortality rates are higher for males than females, showing expected patterns of differences in mortality between males and females among neonates, which is also manifested in the sex differentials seen in the infant mortality rates of rates at 66 and 54 per 1,000 live births for males and females, respectively.

Typically, the relationship between maternal age at birth and childhood mortality is U-shaped, being relatively higher among children born to mothers under age 20 years and over age 35 years than among mothers in the middle age groups. This pattern is also found in Sudan, where mortality among children born to mothers whose age at birth was more than 35 years, in particular, is high across all mortality rates. The birth order of the child is also an important consideration for children's mortality risks, and the risks for the later births (7+) are significantly higher in all cases. The elevated risks associated with firstborn children are also notable.

Research has shown that short birth intervals significantly reduce a child's chance of survival, and this is confirmed by the SHHS2; children have an elevated risk of dying if they were born within two years of a preceding birth. The risk reduces to its lowest at a birth spacing of three years, but then increases at four years or more between births

	Neonatal mortality rate <sup>[1]</sup>	Post neonatal mortality rate [2]	Infant mortality rate <sup>[3]</sup>	Child mortality rate <sup>[4]</sup>	Under five mortality rate <sup>[5]</sup>
Male	40	26	66	24	89
Female	28	26	54	23	77
<20	39	25	63	31	93
20-34	29	23	53	21	73
35+	52	39	91	30	118
1	39	22	62	15	76
2-3	23	21	44	24	67
4-6	30	25	55	25	79
7+	57	39	96	32	125
	Male Female <20 20-34 35+ 1 2-3 4-6 7+	Neonatal mortality rate         Mortality rate           Male         40           Female         28           <20	Neonatal mortality rate         Post neonatal mortality rate           Male         40         26           Female         28         26           <20	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

Table 4.3: Early childhood mortality rates by socioeconomic characteristics Neonatal, post-neonatal, Infant, child and under-five mortality rates for the five year period preceding the survey, by socioeconomic characteristics, Sudan, 2010

Previous birth interval*	<2 years	52	38	90	36	123	
	2 years	27	18	45	23	67	
	3 years	18	23	41	19	60	
	4+ years	24	27	51	15	65	
Total		34	26	60	24	83	

<sup>[1]</sup> SHHS2indicator 1.3 <sup>[2]</sup> SHHS2 indicator 1.4

<sup>[3]</sup> SHHS2indicator 1.2; MDG indicator 4.2

<sup>[4]</sup> SHHS2indicator 1.5

<sup>[5]</sup> SHHS2 indicator 1.1; MDG indicator 4.1

\* Excludes first order births

Post-neonatal mortality rates are computed as the difference between the infant and neonatal mortality rates

Figure 4.1 shows the series of U5MR estimates of the survey, and includes data from other recent surveys and the Censuses. The SHHS2 estimates are in agreement with a general decline in mortality during the last 15 years. The most recent U5MR estimate (per thousand live births) from SHHS2 is about 18 percent lower than the estimate from SHHS for the same year (conducted in 2006), while the trend indicated by the survey results follow the general trend with previous surveys and Censuses conducted in the past fifteen years, but diverge from those estimated in 2006. These findings are in general agreement to the estimates produced by the Inter-Agency Group for Mortality Estimations (IGME) - which uses existing data to produce "best" estimates for individual countries. However, care should be made in interpreting these trends as national level estimates may refer to data prior to secession and therefore will include estimates for the areas which are now not included in the SHHS2.

Further gualification of these apparent declines and differences as well as its determinants should be taken up in a more detailed and separate analysis.





## V. Nutrition

## **Nutritional Status**

Children's nutritional status is a reflection of their overall health. When children have access to an adequate food supply, are not exposed to repeated illness, and are well cared for, they reach their growth potential and are considered well nourished.

Malnutrition is associated with more than half of all child deaths worldwide. Undernourished children are more likely to die from common childhood ailments, and for those who survive, have recurring sicknesses and faltering growth. Three-quarters of the children who die from causes related to malnutrition were only mildly or moderately malnourished – showing no outward sign of their vulnerability. The Millennium Development Goal target is to reduce by half the proportion of people who suffer from hunger between 1990 and 2015. A reduction in the prevalence of malnutrition will also assist in the goal to reduce child mortality.

In a well-nourished population, there is a reference distribution of height and weight for children under age five. Under-nourishment in a population can be gauged by comparing children to a reference population. The reference population used in this report is based on the WHO growth standards<sup>4</sup>. Each of the three nutritional statuses can be expressed in standard deviation units (z-scores) from the median of the reference population.

Weight-for- age is a measure of both acute and chronic malnutrition. Children whose weight for age is more than two standard deviations below the median weight for age of the WHO growth standard are considered *moderately or severely underweight* while those whose weight for age is more than three standard deviations below the median weight for age of the WHO growth standard are classified as *severely underweight*.

*Height-for-age* is a measure of linear growth. Children whose height for age is more than two standard deviations below the median weight for age of the WHO growth standard are considered short for their age and classified as *moderately or severely stunted*. Those whose height for age is more than three standard deviations below the median weight-for-age of the WHO growth standard are classified as *severely stunted*. Stunting is a reflection of chronic malnutrition as a result of failure to receive adequate nutrition over a long period and recurrent or chronic illness.

Children whose *weight for height* is more than two standard deviations below the median weight for height of the WHO growth standard are classified as *moderately or severely wasted*, while those whofall more than three standard deviations from median are classified as *severely wasted*. Wasting is usually the result of a recent nutritional deficiency. The indicator may exhibit significant seasonal shifts associated with changes in the availability of food or disease prevalence.

Finally, the weight for height z-scores (WHZ) and the presence of bilateral pitting oedema among children age 6-59 months provides a measure of acute malnutrition in the population. This is conventionally expressed in terms of Global Acute Malnutrition (GAM) prevalence, Moderate Acute Malnutrition (MAM) prevalence and Severe Acute Malnutrition (SAM) prevalence. Indicators of

<sup>&</sup>lt;sup>4</sup>http://www.who.int/childgrowth/standards/second\_set/technical\_report\_2.pdf

acute malnutrition (GAM, MAM and SAM) prevalence are estimated on the basis of the weight for height z-scores (WHZ) and/or oedema in regard to children age 6-9 months. Global Acute Malnutrition (GAM) is defined in terms low weight for height z-scores (<-2SD from the median weight for height of the WHO growth standard) and/or oedema. Moderate Acute Malnutrition (MAM) is defined in terms low weight for height z-scores (<-2SD and >\_3SD from the median weight for height of the WHO growth standard) and no oedema, while Severe Acute Malnutrition (GAM) is defined in terms very low weight for height z-scores (<-3SD from the median weight for height of the WHO growth standard) and no oedema, while Severe Acute Malnutrition (GAM) is defined in terms very low weight for height z-scores (<-3SD from the median weight for height of the WHO growth standard) and no oedema.

In SHHS2, weights and heights of all children under five years of age were measured using anthropometric equipment recommended by UNICEF (<u>www.childinfo.org</u>). Findings in this section are based on the results of these measurements.

Table 5.1 shows the percentages of children aged 0-59 months who were classified into each of the above described categories, based on the anthropometric measurements that were taken during fieldwork. Additionally, the table includes the percentage of children who are overweight, which takes into account those children whose weight for height is more than two standard deviations above the median of the reference population, and mean z-scores for all three anthropometric indicators.

	Table 5.1: Nutritional status of children												
Percentage of childrer	n under age 5	by nutrition	nal status a	ccording to	three anth	nropometric	indices: w	eight for ag	e, height fo	or age, and	weight for	height, Sud	an, 2010
Background characteristics	Weight	Weight for	Weight for	Weight for	Height	Height	Height	Height	Weight for	Weight for	Weight for	Weight for	Weight for
	for age:	age:	age:	age:	for age:	for age:	for age:	for age:	height:	height:	height:	height:	height:
	-2 SD (1)	% below -3	Mean Z- Score (SD)	Number of children		% below -3	Mean Z-	Number of children	% below -2	% below -3	% above +2	Mean Z-	Number of children
Sex	-20011	00.4	00010 (00)	Gilluren	-2.00 (5)		00010 (00)	Спистен	00 10				Grindren
Male	33.6	13.7	-1.4	6228	37.4	17.3	-1.5	6046	17.9	5.9	3.2	8	6021
Female	30.7	11.4	-1.3	6038	32.6	14.0	-1.3	5886	14.8	4.6	2.5	8	5877
Area													
Urban	23.6	8.7	-1.1	3348	25.3	9.5	-1.0	3254	14.0	4.4	2.6	6	3249
Rural	35.4	14.0	-1.5	8919	38.7	18.0	-1.5	8678	17.3	5.6	3.0	9	8649
State													
Northern	22.2	6.8	-1.0	159	24.0	9.9	9	155	12.9	6.4	3.9	7	155
River Nile	32.2	12.3	-1.3	347	30.3	14.1	-1.2	336	18.5	5.4	1.8	9	337
Red Sea	49.2	32.7	-1.8	201	54.1	30.6	-2.0	184	28.5	14.7	6.2	-1.0	183
Kassala	38.5	19.0	-1.7	712	49.1	26.9	-1.9	703	16.7	5.6	3.0	8	701
Gadarif	38.6	17.3	-1.6	642	39.7	20.3	-1.7	629	17.1	6.4	2.4	8	635
Khartoum	19.9	6.1	-1.0	1732	21.9	7.8	9	1706	12.8	3.9	2.2	6	1712
Gezira	23.5	7.2	-1.1	1638	29.7	12.4	-1.1	1614	13.2	4.4	2.6	6	1601
White Nile	34.1	12.7	-1.5	617	37.0	20.0	-1.5	606	18.1	7.8	4.4	8	600
Sinnar	42.6	18.6	-1.6	482	47.1	26.4	-1.7	469	21.6	8.5	3.9	-1.0	467
Blue Nile	31.7	11.8	-1.5	569	37.1	15.1	-1.5	560	16.2	4.3	2.4	9	562
North Kordofan	41.4	18.9	-1.6	1292	46.7	24.5	-1.8	1224	18.1	6.7	4.8	8	1218
South Kordofan	40.3	16.7	-1.5	599	36.6	16.9	-1.5	552	17.4	4.4	3.1	9	550
North Darfur	35.7	11.5	-1.6	897	35.3	12.2	-1.4	891	21.6	6.5	3.2	9	886
West Darfur	33.1	13.1	-1.5	649	36.6	17.5	-1.4	637	18.6	6.7	3.8	-,9	636
South Darfur	31.2	10.6	-1.4	1731	31.1	9.5	-1.4	1665	14.0	2.3	1.0	9	1656
Age groups													
0-5 months	27.2	17.5	7	1399	16.9	8.5	3	1238	17.6	7.6	6.6	6	1218
6-11 months	27.0	9.7	-1.2	1321	20.3	6.4	8	1289	19.9	5.0	2.0	9	1290
12-23 months	36.2	12.9	-1.5	2419	38.9	17.2	-1.6	2374	20.6	6.7	2.2	-1.0	2372
24-35 months	35.4	14.4	-1.5	2583	43.4	21.1	-1.7	2540	15.4	4.7	2.9	8	2520
36-47 months	31.6	11.2	-1.5	2575	40.5	17.2	-1.6	2546	13.1	4.4	2.4	8	2535
48-59 months	30.7	9.9	-1.5	1970	33.4	15.4	-1.5	1946	13.7	4.1	2.6	8	1964
Mother's education													
None	35.9	15.1	-1.5	6774	40.0	18.8	-1.6	6568	17.4	5.9	3.3	9	6578
Primary	29.4	10.6	-1.3	3754	31.4	13.1	-1.3	3659	15.6	4.7	2.3	7	3628
Secondary	23.2	6.8	-1.1	1650	22.9	9.0	9	1617	14.1	4.0	2.6	8	1604
Missing/DK	29.2	4.5	-1.2	88	35.3	8.4	-1.2	88	12.1	.6	.6	8	88
Wealth index quintile									1.5.5				
Poorest	40.0	15.6	-1.7	3017	42.1	18.6	-1.7	2917	18.8	5.9	2.7	-1.0	2911
Second	39.7	17.0	-1.6	2662	43.8	21.3	-1.7	2586	18.4	6.2	3.8	9	2582
Middle	32.4	13.1	-1.4	2560	38.1	17.6	-1.5	2484	16.0	5.6	3.3	7	2475
Fourth	24.5	7.9	-1.2	2312	27.4	11.2	-1.2	2263	14.1	4.0	2.2	7	2262

Table 5.1: Nutritional status of children													
Percentage of children under age 5 by nutritional status according to three anthropometric indices: weight for age, height for age, and weight for height, Sudan, 2010													
Background characteristics	Weight	Weight for	Weight for	Weight for	Height	Height	Height	Height	Weight for	Weight for	Weight for	Weight for	Weight for
1.00	for age:	age:	age:	age:	for age:	for age:	for age:	for age:	height:	height:	height:	height:	height:
	% below	% below -3	Mean Z-	Number of	% below	% below -3	Mean Z-	Number of	% below -2	% below -3	% above +2	Mean Z-	Number of
	-2 SD [1]	SD [2]	Score (SD)	children	-2 SD [3]	SD [4]	Score (SD)	children	SD <sup>[5]</sup>	SD [6]	SD	Score (SD)	children
Richest	16.5	5.8	8	1715	15.0	5.2	6	1682	12.7	3.8	2.0	7	1668
SUDAN (Total)	32.2	12.6	-1.4	12266	35.0	15.7	1.4	11932	16.4	5.3	2.9	8	11898
<sup>[1]</sup> SHHS2 indicator 2.1a and MDG indicato	r 1.8; [2] SHHS2 ir	ndicator 2.1b; [3] S	HHS2 indicator 2.	2a; 14] SHHS2 india	cator 2.2b 15 SHI	IS2 indicator 2.3a;	16] SHHS2 indical	or 2.3b					

and a second second

Children whose full birth date (month and year) were not obtained, and children whose measurements were outside a plausible range are excluded from Table 5.1. Children are excluded from one or more of the anthropometric indicators when their weights and heights have not been measured, whichever applicable. For example if a child has been weighed but his/her height has not been measured, the child is included in underweight calculations, but not in the calculations for stunting and wasting. Percentages of children by age and reasons for exclusion are shown in the data quality tables DQ.6 and DQ.7 in Appendix D.

Overall 93 percent of children had both their weights and heights measured (Table DQ.6), 7.1 percent of children did not have their weight measured and another 9 percent did not have their height measured. Table DQ.7 shows that due to incomplete dates of birth, implausible measurements, and missing weight and/or height, one percent of children have been excluded from calculations of the weight-for-age indicator, while the figures are four percent for the height-for-age indicators.

#### Underweight prevalence

#### Underweight prevalence (moderate and severe)

Almost one in three children (32 percent) under age five in Sudan were found to be moderately or severely underweight (Table 5.1). There was a slight difference in terms of those who were moderately or severely underweight among boys (34 percent) and girls (31 percent). The proportion of moderately or severely underweight children was higher in rural areas (35 percent) than in urban areas (24 percent). The percentage of children classified as moderately or severely underweight decreases with increasing levels of education of the mother. For instance, the percentage of moderately or severely underweight children was 36 percent among children of mothers with no formal education compared to 29 percent among children of mothers with primary education and 23 percent among children of mothers with secondary or higher levels of education. The percentage of children classified as moderately or severely underweight children was 40 percent for children from households in the poorest quintile compared to 17 percent for children was 40 percent for children from households in the poorest quintile compared to 17 percent for children was 40 percent for children from households in the poorest quintile compared to 17 percent for children belonging to households in the richest quintile. The proportion of children who were moderately or severely underweight was lowest in Khartoum State (20 percent) and the highest in Red Sea State (49 percent). The results by states are presented in Table 5.1 and Figure 5.1 below.



Figure 5.1 Underweight prevalence (moderate and severe) SHHS 2010:

#### Underweight prevalence (severe)

Almost one in eight (13 percent) under age five in Sudan could be classified as severely underweight (Table 5.1). There was a marginal difference in terms of those who were severely underweight among boys (14 percent) and girls (11 percent). The proportion of severely underweight children was higher in rural areas (14 percent) than in urban areas (9 percent). The percentage of children classified as severely underweight decreases with increasing levels of education of the mother. For instance, the percentage of severely underweight children was 15 percent among children of mothers with no formal education compared to 11 percent among children of mothers with primary education, and 7 percent among children of mothers with secondary or higher levels of education. The percentage of severely underweight children also decreases with increasing levels of economic status of the households. The percentage of severely underweight children was 16 percent among children belonging to households in the poorest quintile compared to 6 percent among children belonging to households in the richest quintile. The proportion of children who were severely underweight was lowest in Khartoum state (6 percent) and the highest in Red Sea state (33 percent) (Table 5.1 and Figure 5.2)



#### Figure 5.2: Underweight prevalence (severe) among under-five children, Sudan, 2010

#### Stunting prevalence (moderate and severe)

The SHHS2 findings indicated that about 35 percent of children under age five in Sudan were moderately or severely stunted i.e too short for their age (Table 5.1). There was some difference in terms of those who were severely and moderately stunted among boys (37 percent) and girls (33 percent). The proportion of moderately or severely stunted children was higher in rural areas (39 percent) than in urban areas (25 percent). The percentage of children classified as moderately or severely stunted decreases with increasing levels of education of the mother. For instance, the percentage of moderately stunted children was 40 percent for children of mothers with no formal education, 31 percent for children of mothers with primary education, and 23 percent among children of mothers with secondary or higher levels of education. The percentage of moderately or

severely stunted children also decreases with increasing levels of economic status of the households. The percentage of moderately or severely stunted children was 42 percent among children from households in the poorest quintile compared to 15 percent among children belonging to households in the richest quintile. The proportion of children who were moderately or severely stunted was the lowest in Khartoum State (22 percent) and the highest in Red Sea State (59 percent) as shown in Table 5.1 and Figure 5.3.



Figure 5.3 Stunting prevalence (moderate and severe) among under- five children, Sudan, 2010

#### Stunting prevalence (Severe):

The SHHS2 findings indicated that about 16 percent of children under age five in Sudan were severely stunted (Table 5.1). There was some difference between boys (17 percent) and girls (14 percent) in terms of those who were severely stunted. The proportion of severely stunted children was higher in rural areas (18 percent) than in urban areas (10 percent). The percentage of severely stunted children decreases with increasing levels of education of the mother. For instance, the percentage of severely stunted children was 19 percent among children of mothers with no formal education, 13 percent among children of mothers with primary education, and 9 percent among children of mothers with secondary or higher levels of education. The percentage of children classified as severely stunted also decreases with increasing economic status of the households. The percentage of severely stunted children was 19 percent among those from households in the poorest quintile compared to 5 percent among children belonging to households in the richest quintile. The proportion of children who were severely stunted was lowest in Khartoum (8 percent) and the highest in Red Sea State (31 percent) (See Table 5.1 above and Figure 5.3).

### Wasting prevalence

Wasting prevalence (moderate and severe): Approximately one out of six under-five children (16 percent) in Sudan were found to be moderately or severely wasted i.e. too thin for their height (Table 5.1). Wasting is usually the result of a recent nutritional deficiency related to, for example, recent illness or inadequate diet intake. The prevalence estimate may exhibit significant seasonal shifts associated with changes in the availability of food or disease prevalence. There was some

difference in terms of those who were moderately or severely wasted among boys (18 percent) and girls (15 percent). The proportion of moderately or severely wasted children was higher in rural areas (17 percent) than in urban areas (14 percent). The percentage of moderately or severely wasted children was found to decrease with increasing levels of education of the mother. For instance, the percentage of moderately or severely wasted children was 18 percent among children of mothers with no formal education, compared to 16 percent among children of mothers with primary education, and 14 percent among children of mothers with secondary or higher levels of education. The percentage of moderately or severely wasted children also decreases with increasing levels of economic status of the households. The percentage of moderately or severely wasted children also decreases with increasing levels of economic status of the households in the poorest quintile compared to 13 percent among children belonging to households in the richest quintile. The proportion of children who were moderately or severely wasted was lowest in Khartoum State (13 percent) and the highest in Red Sea State (29 percent) (Table 5.1 and Figure 5.4).



Figure 5.4 Wasting prevalence (moderate and severe) among under- five children, Sudan, 2010

## Wasting prevalence (Severe)

Approximately 5 percent of under-five children in Sudan were found to be severely wasted (Table 5.1). There was a difference in terms of those who were severely wasted among boys (6 percent) and girls (5 percent). The proportion of severely wasted children was higher in rural areas (6 percent) than in urban areas (4 percent). The percentage of severely wasted children was found to decrease with increasing levels of education of the mother. For instance, the percentage of severely wasted children of severely wasted children of mothers with no formal education, 5 percent among children of mothers with primary education, and 4 percent among children of mothers with secondary or higher levels of education. The proportion of children who were severely wasted was highest in Red Sea State (15 percent) and the lowest in Khartoum (4 percent) (Table 5.1)

#### Overweight prevalence

The SHHS2 findings indicated that about 3 percent of under-five children were found to be overweight (Table 5.1) showing no differentials by sex. The percentage of children classified as overweight was highest in Red Sea State (6 percent) and the lowest in Khartoum State (2 percent)

## Nutritional status by age group

Figure 5.5 presents the status in relation to the proportion of under-five children who were severely underweight, stunted, wasted by different age groups. The figure shows that the prevalence of peaks in the age group 24-35 months where are undernourished according to two of the three indices (underweight and stunting) in comparison to children who are younger and older (Figure 5.5). This pattern is usually related to the age at which many children cease to be breastfed and appears that children at this age are exposed to contamination in water, food, and environment. Wasting is highest among children in the age category of 0-5 months which indicates that children of this age are more prone to effects of disease or poor nutrition.

# Figure 5.5 Children Nutritional status by age group (percentage of children who are severely underweight, stunted, wasted), Sudan, 2010



## Prevalence of acute malnutrition

The weight for height z-scores (WHZ) and the presence of bilateral pitting oedema among children age 6-59 months provides a measure of acute malnutrition in the population. This is conventionally expressed in terms of Global Acute Malnutrition (GAM) prevalence, Moderate Acute Malnutrition (MAM) prevalence and Severe Acute Malnutrition (SAM) prevalence. Indicators of acute malnutrition (GAM, MAM and SAM) prevalence are estimated on the basis of the weight for height z-scores (WHZ) and/or oedema in regard to children age 6-9 months. Global Acute Malnutrition (GAM) is defined in terms low weight for height z-scores (<-2SD from the median weight for height of the WHO growth standard) and/or experience oedema. Moderate Acute Malnutrition (MAM) is defined in terms low weight for height z-scores (<-2SD and >\_3SD from the median weight for height

of the WHO growth standard) and no oedema, while Severe Acute Malnutrition (GAM) is defined in terms very low weight for height z-scores (<-3SD from the median weight for height of the WHO growth standard) and/or oedema.

The SHHS2 findings indicated that the overall Global Acute Malnutrition prevalence was estimated at 16 percent, Moderate Acute Malnutrition prevalence at 11 percent and Severe Acute Malnutrition prevalence at 5 percent. (Table 5.1a shows the prevalence of acute malnutrition among children aged 6-59 months by age and background variables. In all cases, prevalence rates were higher among male children and those living in rural areas. These rates were found to decrease with increasing levels of education of the mother and increasing levels of household wealth. State level variations were significant for all three indicators.

## Acute malnutrition prevalence by age group:

The SHHS2 data indicates that the GAM, MAM and SAM prevalence among children age 6-59 months varies with age. The age pattern shows that prevalence rates were highest among children age 6-17 months and the lowest among children age 30-41 months with the exception of SAM prevalence which was lowest among children age 42-53 months

	Table 5.1a: Prevalence of acute malnutrition										
Prevalence o	f Globa	Acute	Aalnutri	tion (GA	M), Mo	derate Ad	cute Ma	Inutritio	n (MAM	) and Sever	e Acute
	N	1alnutrit	ion (SAN	A) amor	ng childro	en age 6-	59 mon	ths, Sud	an, 2010	1	
Background	Preva	lence of	GAM	Preva	lence of	MAM	Preva	lence of	SAM	Number	Number
characteristics	(Weig	ht for he	eight: <-	(Weig	ght for	height:	(Weig	ht for h	eight: <-	of cases	of
	2z	score	and/or	(<-2a	and $>_3$	z score	3z	score	and/or	of	children
	oeder	na)	1	and n	o oeden	na L	oeder	na)		oedema	age
	%	95%	95%	%	95%	95%	%	95%	95%		b-59
			CI			CI			CI		months
For		lower	upper	2 A.	lower	upper		lower	upper		
Mala	172	16.2	10.2	17.2	11 4	12 1	E 1	<u> </u>	<b>E 7</b>	77	5220
Fomala	1/.5	12.5	16.5	10.3	11.4	15.1	5.1	4.5	5.7	62	5529 E170
Area of resid	14.1	15.1	15.0	10.2	9.4		5.0	5.5	4.4	02	21/0
Urban	12.2	110	1//	0.2	07	10.4	20	27	16	<b>52</b>	2004
Bural	16.7	15.0	175	12.0	11.2	12.7	3.5	1.2	5.2	07	7620
State of recid	0.7 00.7		17.5	12.0	11.5		4./	4.2	J.2	07	7020
Northern	10.7	51	16.0	71	27	11 /	27	0.4	60	2	122
River Nile	17.8	13.4	22.2	12.2	95	17.2	15	2 1	6.8	2	296
Red Sea	29.7	22.6	36.7	14.9	9.5	20.4	14.8	93	20.3	15	162
Kassala	16.3	13.4	19.7	11.0	8.6	13.5	53	3.5	7.0	6	622
Gadarif	15.7	12.6	18.7	10.9	83	13.5	4.8	3.0	6.6	3	554
Khartoum	11.8	10.1	13.4	8.3	6.9	9.7	3.5	2.6	4.4	21	1500
Gezira	12.6	10.9	14.3	9.2	7.7	10.8	3.4	2.4	4.3	17	1402
White Nile	16.0	12.9	19.2	10.2	7.6	12.8	5.8	3.8	7.8	5	525
Sinnar	18.2	14.5	22.0	11.3	8.2	14.4	6.9	4.5	9.4	2	409
Blue Nile	17.3	14.0	20.6	11.2	8.4	13.9	6.1	4.0	8.2	18	499
N. Kordofan	17.4	15.1	19.7	11.8	9.9	13.7	5.6	4.2	7.0	24	1057
S.Kordofan	16.7	13.4	20.0	13.3	10.3	16.3	3.4	1.81	5.0	4	490
North Darfur	21.5	18.6	24.4	16.4	13.9	19.0	5.1	3.5	6.6	5	783
West Darfur	17.1	13.9	20.2	12.7	9.9	15.5	4.4	2.7	6.1	5	541
South Darfur	14.6	12.8	16.4	12.1	10.4	13.7	2.5	1.7	3.3	8	1532
Age group									(Sector)		
6-17 months	20.5	19.0	22.0	14.6	13.2	15.9	5.9	5.0	6.8	45	2654
18-29 months	16.7	15.3	18.2	12.3	11.0	13.6	4.4	3.6	5.2	32	2515
30-41 months	12.8	11.5	14.1	8.3	7.3	9.4	4.4	3.6	5.2	44	2562
42-53 months	12.9	11.5	14.3	10.1	8.8	11.4	2.8	2.1	3.4	10	2149
54-59 months	13.2	10.5	15.9	9.0	6.7	11.2	4.2	2.6	5.8	8	624
6-29 months	18.7	17.6	19.7	13.5	12.5	14.4	5.2	4.6	5.8	77	5170
30-59 months	12.9	12.0	13.8	9.1	8.4	9.9	3.7	3.2	4.2	62	5335
Education	<u> 30</u> 22 S									学校学校院	
None	16.6	15.6	17.5	11.7	10.9	12.6	4.8	4.3	5.4	84	5810
Primary	14.9	13.7	16.1	10.8	9.7	11.9	4.1	3.4	4.8	38	3174
Secondary+	14.4	12.6	16.2	10.5	8.9	12.0	3.9	2.9	4.9	18	1439
Missing/DK	10.5	3.8	17.1	9.8	3.3	16.3	0.68	-1.1	2.5	1	81
Wealth index qu	intile	and the second		nerrik - Frak		E. C. Barris		and the long			
Poorest	18.0	16.5	19.5	13.3	12.0	14.6	4.7	3.9	5.5	20	2618
Second	18.2	16.6	19.8	12.5	11.1	13.8	5.7	4.8	6.7	38	22/3
	14.8	13.3	16.3	10.4	9.1	11.7	4.4	3.5	5.3	3/	2132
Pichost	12.8	11.4	14.3	10.0	8./	11.4	2.8	2.1	3.5	16	1990
SUDAN TOTAL	15.1	11.4	14.8	ð./	7.3 /10.7	10.2	4.3	5.5 // 1	5.4	120	1492

## **Breastfeeding and Infant and Young Child Feeding**

## **Breast feeding**

Breastfeeding for the first few years of life protects children from infection, provides an ideal source of nutrients, and is economical and safe. However, many mothers stop breastfeeding too soon and there are often pressures to switch to infant formula, which can contribute to growth faltering and micronutrient malnutrition and is unsafe if clean water is not readily available.

WHO/UNICEF have the following feeding recommendations:

- Exclusive breastfeeding for first six months;
- Continued breastfeeding for two years or more;
- Safe and age- appropriate complementary foods beginning at 6 months;
- Frequency of complementary feeding: 2 times per day for 6-8 month olds; 3 times per day for 9-11 month olds;

It is also recommended that breastfeeding be initiated within one hour of birth.

The indicators related to recommended child feeding practices are as follows:

- Early initiation of breastfeeding (within 1 hour of birth)
- Exclusive breastfeeding rate (< 6 months)
- Predominant breastfeeding (< 6 months)</li>
- Continued breastfeeding rate (at 1 year and at 2 years)
- Duration of breastfeeding
- Age-appropriate breastfeeding (0-23 months)
- Introduction of solid, semi-solid and soft foods (6-8 months)
- Minimum meal frequency (6-23 months)
- Milk feeding frequency for non-breastfeeding children (6-23 months)
- Bottle feeding (0-23 months)

Definitions of these indicators are found in Annex E.

## Early initiation of breastfeeding

Table 5.2 provides the proportion of children born in the two years preceding the SHHS2 who were ever breastfed, those who were first breastfed within one hour and one day of birth and those who received a prelacteal feed. Although a very important step in management of lactation and establishment of a physical and emotional relationship between the baby and the mother, only 73 percent of babies were found to have been breastfed for the first time within one hour of birth. However, 93 percent of new-borns in Sudan started breastfeeding within one day of birth.

	Table 5.2: Initial breastfeeding								
Percentage of children born in the 2 years preceding the survey who were ever breastfed and percentage									
	who were bro	eastfed within one hour o	of birth, Sudan, 2010	••••••••••••••••••••••••••••••••••••••					
Background	Percentage	Percentage who were	Percentage who	Number of children					
characteristics	ever breastfed	first breastfed: Within	were first breastfed:	born in the two					
	[1]	one hour of birth <sup>[2]</sup>	Within one day of	years preceding					
			birth	the survey					
State of residence									
Northern	99.2	71.1	99.2	75					
River Nile	99.2	85.1	99.2	164					
Red Sea	98.3	85.9	96.5	128					
Kassala	98.3	87.3	97.9	296					
Gadarif	99.0	76.3	97.7	281					
Khartoum	98.4	80.0	97.6	741					
Gezira	99.6	69.9	96.3	788					
White Nile	98.1	68.0	94.3	298					
Sinnar	99.6	81.7	91.2	213					
Blue Nile	99.8	67.0	86.1	253					
North Kordofan	99.1	73.0	91.3	590					
South Kordofan	98.2	73.8	91.1	296					
North Darfur	98.9	70.8	85.7	357					
West Darfur	88.1	63.0	76.4	275					
South Darfur	99.7	65.0	89.5	727					
Area of residence									
Urban	98.7	75.7	95.5	1478					
Rural	98.4	72.3	91.5	4004					
Education leve	l of mother								
None	97.9	71.7	91.4	2955					
Primary	98.9	73.7	92.9	1710					
Secondary	99.6	77.4	96.4	776					
Missing/DK	(100.0)	(80.2)	(93.9)	42					
		Wealth index quintil	e						
Poorest	98.4	70.4	89.6	1243					
Second	98.6	73.0	91.0	1201					
Middle	98.0	74.2	92.5	1228					
Fourth	98.3	76.1	94.7	1033					
Richest	99.4	72.5	97.1	777					
SUDAN (TOTAL)	9875	1. 1. 7372. A. A. A. A.	97.66 S.	2.a.a. 5932					
<sup>(1)</sup> SHHS2 indicator 2.4,									
<sup>[2]</sup> SHHS2 indicator 2.5									

The percentage of babies who were breastfed for the first time within one hour of birth ranged between 87 percent in Kassala State and 63 percent in West Darfur State. The percentage of infants who were first breastfed within one day of birth ranged between 99 percent in Northern and River Nile States and 76 percent in West Darfur State.

The SHHS2 findings indicate that the percentage of babies who were breastfed for the first time within one hour and one day of birth increases with the increasing level of mother's education. For instance, the percentage of babies who were breastfed for the first time within one hour of birth was 72 percent for babies who had mothers with no formal education compared to 77 percent for babies who had mothers with secondary or higher levels of education. Similarly, the percentage of babies who were breastfed for the first time within one day of birth was 91 percent for babies who had mothers with no formal education compared to 96 percent for babies who had mothers with no formal education compared to 96 percent for babies who had mothers with

secondary or higher level of education. Similar variations were noted in the indicators when disaggregated by wealth quintiles. The percentage of babies who were breastfed for the first time within one hour of birth or within one day of birth varied between babies belonging to the poorest and richest households. For instance, the percentage of babies who were breastfed for the first time within one hour of birth was 70 percent among babies of mothers belonging to the poorest households as compared to 73 percent among babies of mothers belonging to the richest time within one day of birth i.e. it was 90 percent among babies of mothers belonging to the poorest households compared to 97 percent among children of mothers belonging to the richest households.

#### Breastfeeding status by age group

Table 5.3 presents breastfeeding status for selected age groups. The breastfeeding status is based on the reports of mothers/caretakers of children's consumption of food and fluids during the previous day or night prior to the interview. *Exclusively breastfed* refers to infants who received only breast milk (and vitamins, mineral supplements, or medicine). The table shows exclusive breastfeeding of infants during the first six months of life, as well as continued breastfeeding of children at 12-15 and 20-23 months of age.

Table 5.3: Breastfeeding Percentage of living children according to breastfeeding status at selected age groups. Sudan, 2010									
	Ch	ildren 0-5 months	nonths Children 12-15 months Children 20-23						
	Percent	Percent	Number	Percent	Number	Percent	Number		
	exclusively	predominantly	of	breastfed	of	breastfed	of		
	breastfed	breastfed <sup>[2]</sup>	children	(Continued	children	(Continued	children		
	[1]	Breastrea	onnaren	breastfeeding		breastfeeding			
				at 1 year) [3]		at 2 years) <sup>[4]</sup>			
Sex						energia de la compacta de la compact			
Male	40.3	79.4	775	87.9	526	37.4	358		
Female	41.7	80.3	781	87.3	524	43.2	319		
State of resid	ence								
Northern	*	*	21	*	15	*	9		
River Nile	(40.0)	(72.7)	46	(94.5)	30	*	22		
Red Sea	(35.5)	(82.5)	26	(90.0)	33	*	17		
Kassala	47.1	83.9	82	92.8	64	(52.3)	28		
Gadarif	38.5	84.8	77	90.7	53	(26.7)	46		
Khartoum	38.0	74.0	206	88.7	146	32.3	75		
Gezira	45.0	70.1	222	85.1	143	38.0	105		
White Nile	32.4	77.7	79	87.1	60	(39.0)	48		
Sinnar	39.1	85.9	64	(90.8)	40	*	19		
Blue Nile	39.1	81.3	67	(94.6)	35	(33.0)	42		
N. Kordofan	37.2	82.3	179	84.3	102	47.0	82		
S.Kordofan	32.3	79.2	83	86.9	51	(30.3)	42		
North Darfur	70.3	87.7	106	88.9	85	(47.3)	32		
West Darfur	47.9	79.8	84	78.3	57	(23.4)	34		
South	33.6	88.0	214	85.5	137	51.1	75		
Area of reside	nce				. Hand Handel				
Urban	40.2	73.8	391	90.8	307	38.6	173		
Rural	41.3	81.9	1165	86.3	743	40.6	505		
Mother's edu	cation		1100						
None	37.7	80.5	847	87.0	602	40.7	251		
Primary	44.2	81.4	501	88.6	305	37.0	224		
Secondary	46.8	73.2	199	87.6	139	47.5	90		
Missing/DK	*	*	8	*	3	*	12		
Wealth index	quintiles				100000				
Poorest	40.7	86.0	360	87.2	257	47.3	132		
Second	38.1	81.6	344	84.2	236	39.0	159		
Middle	42.1	81.6	351	89.7	218	39.6	180		
Fourth	41.8	75.1	301	87.7	215	39.2	111		
Richest	43.7	69.9	200	91.0	123	34.0	95		
SUDAN	41.0	79.8	1556	87.6	1058	40.1	677		
TOTAL [1] SHHS2 indicator 2.6;									
<sup>12]</sup> SHHS2 indicator 2.9;									
<sup>[4]</sup> SHHS2 indicat	or 2.7;								
SHHS2 indicat	or 2.8								

## Exclusive breastfeeding under six months

The SHHS2 data indicated that approximately 41 percent of children aged 0-5 months were exclusively breastfed, a level considerably lower than recommended. There was only a marginal

difference in the exclusive breastfeeding rates between children aged 0-5 months in urban areas (40 percent) and rural areas (41 percent). The exclusive breastfeeding rates for children aged 0-5 month increases with the increasing level of mother's education. For instance, the exclusive breastfeeding rates for children aged 0-5 months was 38 percent for children of mothers with no education, compared to 44 percent for children of mothers with primary education and 47 percent for children of mothers with secondary or higher level of education. Similar differences were found when comparing household wealth e.g. the rates were 41 percent among children belonging to households in the poorest and 44 percent among children belonging to households in the richest quintile. Breastfeeding rates for children age 0-5 months at the State level needs to be interpreted with caution due to the low number of cases.

#### Predominant breastfeeding under six months

The SHHS2 data indicated that about four in five (80 percent) infants aged 0-5 months were predominantly breastfed (Table 5.4). The percentage of children aged 0-5 months who were predominantly breastfed was higher among children in rural areas (82 percent) than those in urban areas (74 percent). Similar patterns in these rates were observed when comparing education levels of mothers and household wealth where these rates significantly decrease when mothers have higher levels of education and households belong to the richest quintile.

#### Continued breastfeeding rate at one year

The SHHS2 data indicated that about 88 percent of children age 12-15 months were still being breastfed at one year, the percentage being higher urban areas (91 percent) than in rural areas (86 percent) and among children belonging to households in the richest quintile(91 percent) compared 87 percent in the poorest quintile.

#### Continued breastfeeding rate at two year

The SHHS2 data also indicated that about 40 percent of children by age 20-23 months are still breastfed. Girls were more likely to be breastfed than boys. The percentage of girls aged 20-23 months who were still being breastfed was 43 percent as compared to 37 percent for boys of the same age. There were also some differences for this indicator among children living in urban areas (39 percent) and rural areas (41 percent). Notable differences were observed for children age 20-23 months who continued breastfeeding for two years among those whose mothers had no education (41 percent) compared with those whose mothers had primary education (37 percent) and mothers with secondary or higher level of education (48 percent) and those belonging to the households in the poorest quintile (47 percent) compared with 34 percent of those from the richest households (34 percent).

Figure 5.6 shows that the detailed pattern of breastfeeding by the child's age in months. The findings indicate that only 65 percent of 0-1 month old children were exclusively breastfed in Sudan. Even at the earliest ages, a large proportion of children were receiving liquids or foods other than breast milk. About three percent of children aged 2-3 months were weaned (not breastfed). The percentage of children that were exclusively breastfed was only 18 percent among children aged 4-5 months, though exclusive breastfeeding is considered as adequate feeding up to six months. By the end of the sixth month, the percentage of children exclusively breastfed is below eight percent.

Few mothers continued breastfeeding up to 23 months. Only about 29 percent of children are receiving breast milk after 2 years.



Figure 5.1 Feeding patterns by age (percent distribution of children age 0-23 months by feeding pattern), Sudan, 2010

## **Duration of breastfeeding**

Table 5.4 shows the median duration of breastfeeding by selected background characteristics. Among children under age 3, the median duration was 20 months for any breastfeeding, 2 months for exclusive breastfeeding, and 5 months for predominant breastfeeding. The mean for all children in the age group 0-35 months was 19 months for any breastfeeding, 3 months for exclusive breastfeeding, and 6 months for predominant breastfeeding.

Table 5.4: Duration of breastfeeding								
Median duration (in months) of any breastfeeding, exclusive breastfeeding, and predominant								
breastfeeding among children age 0-35 months, 2010								
Background	ackground Median duration (in months) of							
characteristics	teristics Any Exclusive Predominant							
	breastfeeding	breastfeeding	breastfeeding	months				
Sex								
Male	20.0	1.6	5.3	4222				
Female	20.4	1.9	5.5	4117				
Area of residence								
Urban	20.3	1.7	4.8	2309				
Rural	20.2	1.8	5.6	6031				
Mother's education	level							
None	20.2	1.4	5.7	4556				
Primary	20.1	2.1	5.3	2587				
Secondary+	20.7	2.3	4.5	1136				
Wealth index quintil	es							
Poorest	20.7	1.7	6.1	1933				
Second	20.2	1.7	6.2	1808				
Middle	19.7	1.7	5.2	1812				
Fourth	20.6	1.9	4.7	1597				
Richest	19.7	2.2	4.4	1189				
Median	20.2	1.8	5.4	8339				
Mean for all.			and a second state					
children	. 18.9	2.6 generation	6.2	1997 (1983) 994 (Based)				
(0-35 months)								
<sup>(1)</sup> SHHS2 indicator 2.10								

No significant differences were noted among boys and girls, or by area of residence. Some difference was noted for those children belonging to households in the poorest quintiles (21 percent) and those living in households belonging to the richest quintile (20 percent).

There was very little impact of educational status of mothers on the duration of breast feeding. Among children (under age 3) of mothers with no education, the median duration was 20 months for any breastfeeding, 1 month for exclusive breastfeeding, and 6 months for predominant breastfeeding, while among children (under age 3) of mothers with secondary education or more, the median duration was 21 months for any breastfeeding, 2 months for exclusive breastfeeding, and 5 months for predominant breastfeeding. Among children (under age 3) belonging to the poorest households, the median duration was 21 months for predominant breastfeeding, while among children (under age 3) belonging to the poorest households, the median duration was 21 months for any breastfeeding, while among children (under age 3) belonging to the richest households, the median duration was 20 months for any breastfeeding, while among children (under age 3) belonging to the richest households, the median duration was 20 months for any breastfeeding, 2 months for any breastfeeding, 3 months for exclusive breastfeeding, and 4 months for predominant breastfeeding.

Fig 5.7: Duration of breastfeeding; Median duration (in months) of any breastfeeding, exclusive breastfeeding, and predominant breastfeeding among children age 0-35 months, Sudan, 2010



#### Age-appropriate breastfeeding

The adequacy of infant feeding in children under 24 months is provided in Table 5.5. It presents the proportion of children age 0-23 months who were appropriately breastfed on the day before the SHHS2.

Different criteria of adequate feeding are used depending on the age of the child. For infants aged 0-5 months, exclusive breastfeeding is considered as age-appropriate feeding, while infants aged 6-23 months are considered to be appropriately fed if they are receiving breast milk and solid, semi-solid or soft food. According to these feeding patterns, only 41 percent children aged 0-5 months were being appropriately fed at the time of the SHHS2. There was very little difference between male and female children aged 0-5 months in terms of adequacy of feeding (i.e. those exclusively breastfed), the proportion of male and female children adequately fed being 40 percent and 42 percent respectively. Similarly, there was only a marginal difference between children aged 0-5 months in rural and urban areas in terms of adequacy of feeding, the proportion of male and female children exclusively breastfed being 40 percent and 41 percent respectively.

The proportion of appropriately fed children aged 0-5 months varied between children of mothers with no education and children of mothers with secondary and higher level of education. The SHHS2 data indicated that proportion of appropriately fed children aged 0-5 was only 38 percent whose mothers had no education compared to 44 percent among children whose mothers had secondary education or higher level of education. The SHHS2 data also indicated that there were some differences in the proportion of appropriately fed children (aged 0-5 months) between children from the poorest and richest households. About 44 percent of children (aged 0-5 months) belonging to the richest households were appropriately fed compared to 41 percent of children from the poorest households.

The percentage of children age 0-5 months that were being appropriately fed ranged between 70 percent in North Darfur State and 32 percent in White Nile State (Table 5.7).

The SHHS2 findings indicated that according to the feeding patterns, only 53 percent of children aged 6-23 months were being appropriately fed at the time of the SHHS2. There was no difference between male and female children aged 6-23 months in terms of adequacy of feeding. There was, however, a significant difference between children aged 6-23 months in rural and urban areas in terms of adequacy of feeding, the proportion of male and female children exclusively breastfed being 59 percent and 50 percent respectively. The proportion of appropriately fed children aged 6-23 months varied between children of mothers with no education and children of mothers with secondary and higher level of education. The SHHS data indicated that proportion of appropriately fed children aged 6-23 months was only 50 percent who had mothers with no education compared to 60 percent among children who had mothers with secondary or higher level of education. The SHHS2 data also indicated that there was some difference in the proportion of appropriately fed children (aged 6-23 months) between children from the poorest and richest households. About 56 percent of children (aged 6-23 months) belonging to the richest households were appropriately fed compared to 46 percent of children from the poorest households.

The percentage of children aged 6-23 months who were being appropriately fed ranged between 69 percent in Northern State and 24 percent in West Darfur State.

The SHHS2 findings also indicated that as a result of these feeding patterns, only 49 percent of children aged 0-23 months were being appropriately breastfed. There was no difference between male and female children aged 0-23 months who were appropriately breastfed. There was, however, a significant difference between children aged 0-23 months in rural (47 percent) and urban areas (54 percent) who were appropriately breastfed. The proportion of appropriately breastfed children aged 6-23 months varied between children of mothers with no education and children of mothers with secondary and higher level of education. The SHHS2 data indicated that proportion of appropriately breastfed fed children aged 6-23 months was only 46 percent who had mothers with no education compared to 57 percent among children who had mothers with secondary or higher level of education. The proportion of appropriately breastfed children (aged 0-23 months) between children from the poorest and richest households. About 53 percent of children from the poorest households.

	Tab	ole 5.5: Age-a	ppropriate breas	tfeeding			
Percentage of child	dren age 0-23 n	nonths who w	vere appropriate	ly breastfed o	luring the previo	ous day of	
Children age 0-5 months Children age 6-23 months Children age 0-23 months							
	Percent	Number of	Percent	Number of	Percent	Number o	
	exclusively	children	currently	children	appropriately	children	
	breastfed <sup>[1]</sup>		breastfeeding		breastfed <sup>[2]</sup>		
			and receiving				
	[		solid, semi-				
			solid or soft				
			foods				
Sex							
Male	40.3	775	52.7	2034	49.3	2809	
Female	41.7	781	52.6	1987	49.5	2768	
State of residence			A State Institution				
Northern	*	21	69.1	55	59.3	76	
River Nile	(40.0)	46	55.6	120	51.3	166	
Red Sea	*	26	49.8	103	46.9	129	
Kassala	47.1	82	51.3	217	50.1	299	
Gadarif	38.5	77	54.4	204	50.1	281	
Khartoum	38.0	206	63.4	545	56.5	750	
Gezira	45.0	222	51.9	581	50.0	804	
White Nile	32.4	79	64.1	227	55.9	305	
Sinnar	39.1	64	59.6	151	53.5	215	
Blue Nile	39.1	67	60.9	191	55.3	258	
North Kordofan	37.2	179	51.6	425	47.3	604	
South Kordofan	32.3	83	49.8	223	45.0	305	
North Darfur	70.3	106	44.9	263	52.2	369	
West Darfur	47.9	84	24.0	198	31.1	282	
South Darfur	33.6	214	46.9	518	43.1	732	
Area of residence					Sector Sector		
Urban	40.2	391	59.4	1119	54.4	1510	
Rural	41.3	1165	50.0	2902	47.5	4067	
Mother's educati	ion level						
None	37.7	847	49.6	2160	46.2	3008	
Primary	44.2	501	54.5	1234	51.6	1736	
Secondary	46.8	199	60.1	593	56.8	792	
Missing/DK	*	8	(44.5)	34	(46.3)	42	
Wealth index quintiles							
Poorest	40.7	360	46.4	910	44.8	1271	
Second	38.1	344	49.1	872	45.9	1216	
Middle	42.1	351	53.3	900	50.2	1251	
Fourth	41.8	301	60.7	758	55.3	1059	
Richest	43.7	200	56.2	580	53.0	780	
SUDAN (TOTAL)	41.0	1556	52,6	4021	49.4	5577	

<sup>[2]</sup> SHHS2 indicator 2.14

## **Complementary feeding**

Appropriate complementary feeding of children from 6 months to two years of age is particularly important for growth and development and the prevention of under nutrition. Continued breastfeeding beyond six months should be accompanied by consumption of nutritionally adequate, safe and appropriate complementary foods that help meet nutritional requirements when breast milk is no longer sufficient. This requires that for breastfed children, two or more meals of solid, semi-solid or soft foods are needed if they are six to eight months old, and three or more meals if they are 9-23 months of age. For children 6-23 months and older who are not breastfed, four or more meals of solid, semi-solid or soft foods or milk feeds are needed.

Table 5.6 indicates information related to the introduction of solid, semi-solid or soft food. Overall, 51 percent of children aged 6-8 months received solid, semi-solid, or soft foods. Among currently breastfeeding children, this percentage was 52 percent. Overall, 56 percent of male children aged 6-8 months and 47 percent of female children received solid, semi-solid, or soft foods, while of the total number of children aged 6-8 months surveyed in urban and rural areas, 59 percent of children in urban areas and 48 percent of children in rural areas received solid, semi-solid, or soft foods.

Table 5.6 Introduction of solid, semi-solid or soft food Percentage of infants age 6-8 months who received solid, semi-solid or soft foods during the previous day									
Sudan 2010									
Currently breastfeeding Currently not All breastfeeding									
		Percent receiving solid, semi- solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi- solid or soft foods	Number of children age 6-8 months	Percent receiving solid, semi- solid or soft foods <sup>[1]</sup>	Number of children age 6-8 months		
Sex	Male	56.4	348	*	7	55.7	360		
	Female	46.9	363	*	3	46.5	369		
Area	Urban	59.9	185	*	6	58.6	191		
	Rural	48.6	526	*	4	48.4	538		
Total		51.5	711	*	10	51.1	729		
<sup>[1]</sup> SHHS: * Less t	<sup>[1]</sup> SHHS2 indicator 2.12 * Less than 25 cases								

## Minimum meal frequency

Table 5.7 presents the minimum meal frequency for children aged 6-23 months, i.e. proportion of children aged 6-23 months who received solid, semi-solid or soft foods (and milk feeds for non-breastfeeding children) the minimum number of times or more during the day or night preceding the interview by breastfeeding status (see the note in Table 5.9 for a definition of minimum number of times for different age groups.

Among currently breastfeeding children aged 6-23 months, nearly one-fourth (25 percent) of them were receiving solid, semi-solid and soft the minimum number of times. There were no gender differentials but a slightly higher proportion of infants living in urban areas were achieving the minimum meal frequency (28 percent) compared to their rural counterparts (24 percent).

There is also a difference in these rates among currently breastfeeding children aged 6-23 months who received solid, semi-solid and soft foods between those belonging to the poorest (20 percent) and richest households (27 percent).

Table 5.7: Minimum meal frequency								
Percentage of chi	ildren age 6-23 m	onths who	received soli	d, semi-solid, d	or soft food	is (and milk fe	eds for	
non-preastreeding children) the minimum number of times or more during the previous day, according to breastfeeding status, Sudan, 2010								
Currently breastfeeding Currently not breastfeeding All								
	Percent	Number	Percent	Percent	Number	Percent	Numbe	
Background	receiving solid,	of	receiving	receiving	of	with	rof	
characteristics	semi-solid and	children	at least 2	solid, semi-	children	minimum	childre	
characteristics	soft foods the	age 6-23	milk feeds	solid and soft	age 6-23	meal	n age	
	minimum	months	[1]	foods or milk	months	frequency	6-23	
	number of times			feeds 4 times			months	
Sex	Construction of the second second			ormore				
Male	24.7	1578	55.3	49.0	456	30.1	2034	
Female	25.1	1602	56.4	52.4	385	30.4	1987	
Age group								
6-8 months	33.4	711	53.7	32.5	18	33.4	729	
9-11 months	15.6	647	69.7	48.9	33	17.2	680	
12-17 months	23.5	1301	65.3	54.7	216	27.9	1517	
18-23 months	28.3	521	51.5	49.7	574	39.5	1095	
State of residence								
Northern	(33.3)	46	*	*	9	34.9	55	
River Nile	27.9	101	*	*	19	32.3	120	
Red Sea	14.5	87	*	*	16	20.8	103	
Kassala	22.1	187	(49.3)	(53.6)	30	26.4	217	
Gadarif	40.6	153	61.5	76.6	51	49.6	204	
Khartoum	34.0	440	65.8	68.3	104	40.6	545	
Gezira	19.2	464	63.7	45.2	117	24.5	581	
White Nile	26.3	171	73.3	68.3	55	36.6	227	
Sinnar	28.9	122	(42.8)	(41.7)	29	31.3	151	
Blue Nile	42.2	144	39.3	51.6	47	44.5	191	
North Kordofan	20.0	331	38.4	36.0	94	23.5	425	
South Kordofan	31.9	172	51.1	48.6	50	35.7	223	
North Darfur	16.2	218	(43.0)	(35.8)	46	19.6	263	
West Darfur	17.6	124	51.0	37.4	74	25.0	198	
South Darfur	17.6	419	62.7	46.0	99	23.1	518	
Area of res	idence							
Urban	27.6	900	58.3	57.2	219	33.4	1119	
Rural	23.8	2280	54.9	48.2	622	29.0	2902	
Mother's educ	ation level							
None	25.1	1694	50.3	47.0	466	29.8	2160	
Primary	26.9	968	62.8	54.6	267	32.9	1234	
Secondary	20.0	494	66.6	59.7	98	26.6	593	
Missing/DK	29.7	24	17.0	17.0	10	26.0	34	
Wealth index	quintiles					<u></u>		
Poorest	20.1	731	47.0	40.0	179	24.0	910	
Second	25.1	677	50.0	47.8	195	30.2	872	
Middle	30.7	687	58.4	55.4	214	36.6	900	
Fourth	22.6	621	56.4	49.6	137	27.5	758	
Richest	26.5	464	73.6	63.4	116	33.9	580	
SUDAN (TOTAL)	24.9	3180	55.8	50.5	841	30.3	4021	
<sup>[2]</sup> SHHS2 indicator 2.15								

For those children aged 6-23 months currently not breastfeeding, nearly half (51 percent) of them received solid, semi-solid and soft foods or milk feeds 4 times or more a day. This proportion was higher among female children (52 percent) than among male children (49 percent) and among urban areas (57 percent) compared to rural areas (48 percent).

The differences were more evident when comparing wealth status of households where only 47 percent of children from the poorest households received solid, semi-solid and soft foods or milk feeds 4 times or more a day, while 63 percent children belonging to the richest households received the minimum meal requirements. The SHHS2 findings also indicated that mother's education level had an influence on the frequency of feeding as it was 47 percent among children of mothers who had no education compared to 60 percent among children of mothers who had secondary or higher level of education.

The SHHS2 data also indicated that among children aged 6-23 months currently not breastfeeding, more than half (56 percent) of them received at least two milk feeds a day. This percentage was slightly higher among female children (56 percent) than among male children (55 percent). Similar differentials were noted in urban areas (58 percent) compared to children in rural areas (55 percent) and for the wealth status of households where this proportion ranged from 47 percent in the poorest households to 74 percent in the richest households.

Overall, less than one-third (30 percent) of the children age 6-23 months were receiving solid, semisolid and soft foods the minimum number of times. A higher proportion of children aged 6-23 months were in urban areas (33 percent) met the minimum meal requirements compared to children in rural areas (29 percent). Similarly, of all children aged 6-23 months, 34 percent of those children belonging to the richest households were receiving solid, semi-solid and soft foods the minimum number of times and this proportion was only 24 percent for those children belonging to the poorest households.

#### Bottle feeding

Table 5.10 indicates the percentage of children age 0-23 months that were fed with a bottle with a nipple during the previous day of the interview. The continued practice of bottle-feeding is a concern because of the possible contamination due to unsafe water and lack of hygiene in preparation.

The SHHS2 findings indicate that 5 percent of children aged 0-23 months were fed using a bottle with a nipple on the previous day of the interview. Thepercentage of children aged 0-23 months who were fed with a bottle with a nipple was slightly higher for male children (6 percent) than that for female children (5 percent) and much higher for children in urban areas (11 percent) than for children in rural areas (3 percent). The findings indicate that as expected the percentage of children aged 0-23 months who were fed with a bottle with a nipple decreased from 7 percent in the case of children aged 0-5 months to 6 percent for children aged 6-11 months and to 4 percent for children aged 12-23 months.

However, the percentage of children age 0-23 months who were fed with a bottle with a nipple showed an increasing trend with the level of mother's educational status and the economic status of the households. Thepercentage of children that were fed with a bottle with a nipple was only 5 percent for children of mothers with no education compared to nine percent for children whose mothers had secondary or higher level of education. Similarly, the percentage of children aged 0-23 months who were fed with a bottle with a nipple was less than one percent for children from the poorest households compared to 15 percent for children from the richest households and ranging from one percent in Blue Nile state to 15 percent in Khartoum state.

Table 5.8: Bottle feeding								
Percentage of children age 0-23	months who were fed with a bottle with	th a nipple during the previous day,						
	Sudan, 2010							
	Percentage of children age 0-23	Number of children age 0-23						
	months fed with a bottle with a	months						
	nipple "							
Sex								
Male	5.6	2809						
Female	4.5	2768						
Age group								
0-5 months	7.4	1556						
6-11 months	5.5	1408						
12-23 months	3.5	2613						
State of residence								
Northern	10.6	76						
River Nile	11.8	166						
Red Sea	6.7	129						
Kassala	7.7	299						
Gadarif	2.3	281						
Khartoum	15.2	750						
Gezira	5.6	804						
White Nile	5.3	305						
Sinnar	2.0	215						
Blue Nile	.5	258						
North Kordofan	2.1	604						
South Kordofan	2.1	305						
North Darfur	1.3	369						
West Darfur	1.7	282						
South Darfur	1.2	732						
Area of residence								
Urban	10.7	1510						
Rural	3.0	4067						
Mother's education level								
None	4.5	3008						
Primary	4.8	1736						
Secondary	8.5	792						
Missing/DK	.0	42						
Wealth index quintiles								
Poorest	.8	1271						
Second	1.1	1216						
Middle	4.7	1251						
Fourth	7.8	1059						
Richest	15.3	780						
SUDAN (TOTAL)		5577						
<sup>(1)</sup> SHHS2 indicator 2.11								

## Salt Iodisation

lodine Deficiency Disorders (IDD) is the world's leading cause of preventable mental retardation and impaired psychomotor development in young children. In its most extreme form, iodine deficiency causes cretinism. It also increases the risks of stillbirth and miscarriage in pregnant women. Iodine deficiency is most commonly and visibly associated with goitre. IDD takes its greatest toll in impaired mental growth and development, contributing in turn to poor school performance, reduced intellectual ability, and impaired work performance. The indicator is the percentage of households consuming adequately iodized salt ( $\geq$ 15 parts per million).

Table 5.9: lodized salt consumption Borcont distribution of bouseholds by consumption of indized salt. Sudan, 2010								
reiter	Percent of Percent of households with salt							
	households			test resul	t			
	in which		Not	T		1		
	salt was	Number of	iodized 0	>0 and			Number of	
	tested	households	PPM	<15 PPM	15+PPM <sup>[1]</sup>	Total	households	
State of residence					N. BALL			
Northern	99.2	279	96.7	2.3	1.0	100.0	277	
River Nile	99.1	528	96.3	2.1	1.7	100.0	524	
Red Sea	98.9	455	98.5	.4	1.1	100.0	451	
Kassala	98.6	935	97.8	.5	1.7	100.0	922	
Gadarif	97.5	734	92.9	4.8	2.3	100.0	715	
Khartoum	98.0	2167	91.8	5.4	2.8	100.0	2124	
Gezira	99.1	2160	99.4	.4	.2	100.0	2141	
White Nile	99.6	745	98.3	.9	.8	100.0	742	
Sinnar	95.7	619	82.4	10.4	7.3	100.0	592	
Blue Nile	95.8	493	99.2	.6	.2	100.0	473	
North Kordofan	98.9	1620	98.0	.6	1.4	100.0	1602	
South Kordofan	96.3	682	95.9	2.5	1.6	100.0	656	
North Darfur	99.0	907	67.1	11.1	21.8	100.0	898	
West Darfur	98.8	711	58.4	1.4	40.1	100.0	703	
South Darfur	92.0	1742	33.4	23.3	43.2	100.0	1604	
Area of residence					Sheet State			
Urban	97.6	4359	82.1	7.5	10.5	100.0	4256	
Rural	97.6	10419	86.6	4.3	9.1	100.0	10167	
Wealth index quintil	es					1.3.64.00		
Poorest	95.3	3115	74.3	7.7	17.9	100.0	2970	
Second	97.7	3184	85.8	3.9	10.3	100.0	3109	
Middle	98.1	2987	88.9	4.1	7.0	100.0	2930	
Fourth	98.7	2777	89.6	5.4	5.0	100.0	2741	
Richest	98.4	2715	88.3	5.3	6.5	100.0	2673	
SUDAN (TOTAL)	97.6	14778	85.3	5.3	9.5	100.0	14423	
<sup>(1)</sup> SHHS2 indicator 2.16								

Table 5.9 indicates the percent distribution of households by consumption of iodized salt. In about 98 percent of households, salt used for cooking was tested for iodine content by using salt test kits.

In Sudan the salt iodization programme targeting universal coverage was started in 1994. The programme has been reviewed in order to identify the gaps and to initiate affirmative actions in terms of legislative measures, salt production and social mobilization. Based on international standards the country is committed to achieve the use of iodized salt by 90 percent of households; process of iodized salt production from the main sources was initiated to cover 100 percent of households and the banning of production of non-iodized salt after a six-month grace period. The
machines and materials (including potassium iodate) required for the production of iodized salt have already been procured and iodized salt production commenced in June 2007.

However, as evidenced by the findings of the SHHS2, a very small proportion of households (15 percent) were found to be using iodized salt. In only ten percent of households, salt was found to contain 15 parts per million (ppm) or more of iodine, while in the case of 5 percent of households, salt was inadequately iodised and found to contain less than the required 15 parts per million (ppm). About 11 percent of urban households were found to be consuming adequately iodized salt as compared to 9 percent in rural areas. Interestingly, the consumption of adequately iodised salt was higher among the poorest households (18 percent) than among the richest households (7 percent).

### **Children's Vitamin A Supplementation**

Vitamin A is essential for eye health and proper functioning of the immune system. It is found in foods such as milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables, although the amount of vitamin A readily available to the body from these sources varies widely. In developing areas of the world, where Vitamin A is largely consumed in the form of fruits and vegetables, daily per capita intake is often insufficient to meet dietary requirements. Inadequate intakes are further compromised by increased requirements for the vitamin as children grow or during periods of illness, as well as increased losses during common childhood infections. As a result, Vitamin A deficiency is quite prevalent in the developing world and particularly in countries with the highest burden of under-five deaths.

The 1990 World Summit for Children set the goal of virtual elimination of Vitamin A deficiency and its consequences, including blindness, by the year 2000. This goal was also endorsed at the Policy Conference on Ending Hidden Hunger in 1991, the 1992 International Conference on Nutrition, and the UN General Assembly's Special Session on Children in 2002. The critical role of Vitamin A for child health and immune function also makes control of deficiency a primary component of child survival efforts, and therefore critical to the achievement of the fourth Millennium Development Goal: a two-thirds reduction in under-five mortality by the year 2015.

For countries with vitamin A deficiency problems, current international recommendations call for high-dose Vitamin A supplementation every four to six months, targeted to all children between the ages of six to 59 months living in affected areas. Providing young children with two high-dose Vitamin A capsules a year is a safe, cost-effective, efficient strategy for eliminating Vitamin A deficiency and improving child survival. Giving Vitamin A to new mothers who are breastfeeding helps protect their children during the first months of life and helps to replenish the mother's stores of Vitamin A, which are depleted during pregnancy and lactation. For countries with Vitamin A supplementation programs, the definition of the indicator is the percent of children 6-59 months of age receiving at least one high dose Vitamin A supplement in the last six months.

Based on UNICEF/WHO guidelines, the Federal Ministry of Health recommends that children aged 6-11 months be given a high dose vitamin A capsules every six months. Since 2007, Vitamin A capsule supplementation has been provided to children aged 6-11 months in Sudan as a part of the child health week (previously referred to as ACSD which stands for accelerated child survival days) organised on a six-monthly basis as part of the strategy adopted by the Federal Ministry of Health to reduce vitamin A deficiency among children. It is also recommended that mothers take a Vitamin A supplement within eight weeks of giving birth due to increased Vitamin A requirements during pregnancy and lactation. Table 5.10 indicates the percent distribution of children aged 6-23 months who received Vitamin A during the last six months preceding the interview. Within the six months prior to the SHHS2, 61 percent of children aged 6-23 months received a high dose Vitamin A supplement. Thepercentage of children aged 6-23 months that received a high dose Vitamin A supplement was slightly higher for male children (61 percent) than that for female children (60 percent). The SHHS2 findings also indicate that the mother's level of education has an influence on the likelihood of their children receiving Vitamin A supplementation. The percentage of children aged 6-23 months who received a Vitamin A supplement in the last six months increases from 56 percent among children whose mothers had no education to 65 percent of those whose mothers have primary education and 69 percent among children of mothers with secondary or higher levels of education. The economic status of the households was found to have some influence on the likelihood of Vitamin A supplementation. The percentage of children aged 6-23 months who received a high explement among children from the last six months showed an increasing trend from 50 percent among children from the poorest households to 66 percent among children from the richest households.

	Percentage of children who received	Number of children age 6-2
	Vitamin A during the last 6 months (**	months
Sex		
Male	61.2	1331
Female	59.7	1280
State of residence		
Northern	(60.8)	37
River Nile	49.4	79
Red Sea	34.9	75
Kassala	47.4	138
Gadarif	68.5	138
Khartoum	59.4	349
Gezira	73.9	377
White Nile	77.3	158
Sinnar	72.7	95
Blue Nile	82.6	120
North Kordofan	58.8	290
South Kordofan	55.5	136
North Darfur	45.1	161
West Darfur	31.7	124
South Darfur	58.8	334
Area of residence		
Urban	60.7	745
Rural	60.4	1866
Age group		
12-23	60.5	2612
Mother's education level		
None	55.8	1421
Primary	64.5	807
Secondary	69.2	365
Missing/DK	*	19
Wealth index quintile		
Poorest	50.1	579
Second	58.6	577
Viddle	65.3	589
ourth	64.9	503
Richest	66.2	363
HDAN (TOTAL)	COL	3612

Vitamin A supplementation coverage ranged from 32 percent in West Darfur State to 83 percent in Blue Nile State (Table 5.10 and Figure 5.8)



### Figure 5.A: Children's vitamin A supplementation, Sudan, 2010

### Post-partum Mother's Vitamin A supplementation

Table 5.10 indicates the status relating to post-partum mother's Vitamin A supplementation. It shows the percentage of women aged 15-49 years with a birth in the last two years preceding the SHHS2 who received a high dose Vitamin A supplement. The National Nutrition Policy of Sudan (2008) includes a strategy to improve maternal nutrition status, specifying working with Reproductive Health Section of FMOH and other partners to increase availability and access to existing antenatal and postnatal care, including iron/folate and vitamin A supplementation. Accordingly, Vitamin A is administered to post-partum women at their first post-natal contact with a health facility.

The SHHS2 findings indicate that about 22 percentof women aged 15-49 years with a birth in the 2 last years preceding the SHHS received Vitamin A supplement. Thepercentage of women who received Vitamin A supplement was higher in urban areas (31 percent) compared to rural areas (19 percent).

The SHHS2 data indicates that the woman's level of education is related to the likelihood of them receiving Vitamin A supplementation showing an increasing trend from 17 percent among women who had no education to 25 percent among women who had primary education and 32 percent among women who had secondary or higher level of education. The economic status of the households is also related to the likelihood of receiving Vitamin A supplementation. The percentage of women aged 15-49 years with a birth in the 2 last years preceding the SHHS2 who received Vitamin A supplementation increased from 11percent among women belonging to the poorest households to 34 percent among women belonging to the richest households. Vitamin A

supplementation coverage was lowest in South Darfur State (10 percent) and highest in Khartoum State (47 percent).

State of residence       f         Northern       f         River Nile       f         Kassala       f         Gadarif       f         Khartoum       f         Gezira       White Nile         Sinnar       f         Blue Nile       f	a high dose Vitamin A supplement*	n A supplement, Sudan, 201 Not sure if received Vitamin A	0 Number of women aged 15-49 years with live birth in two years
State of residence       F         Northern       River Nile         Red Sea       Kassala         Gadarif       Khartoum         Gezira       White Nile         Sinnar       Blue Nile	Received Vitamin A supplement* 32.2	Not sure if received Vitamin A	Number of women aged 15-49 years with live birth in two years
State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	supplement*	Vitamin A	15-49 years with live birth in two years
State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	32.2	а — ю	birth in two years
State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	32.2	5 0	
State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	32.2	and an	preceding the survey
NorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	32.2		<u> </u>
River NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	and the second the second of t	1.2	83
Red SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue Nile	22.3	2.0	164
Kassala Gadarif Khartoum Gezira White Nile Sinnar Blue Nile	23.9	8.3	134
Gadarif Khartoum Gezira White Nile Sinnar Blue Nile	16.6	5.4	318
KhartoumGeziraWhite NileSinnarBlue Nile	25.0	3.3	283
Gezira White Nile Sinnar Blue Nile	46.7	5.7	752
White Nile Sinnar Blue Nile	21.7	4.8	759
Sinnar Blue Nile	23.1	2.7	316
Blue Nile	19.2	1.0	217
	13.9	1.8	261
North Kordofan	17.7	.9	615
South Kordofan	16.0	2.8	307
North Darfur	21.3	4.2	387
West Darfur	15.3	6.1	278
South Darfur	10.3	3.5	772
Area of residence			
Urban	31.3	3.5	1559
Rural	18.6	3.8	4087
Age group			
15-19	24.7	3.7	419
20-24	24.2	3.7	1288
25-29	20.7	3.5	1622
30-34	20.8	3.0	952
35-39	22.9	3.4	940
40-44	19.7	7.7	333
45-49	18.6	5.3	93
Education level			
None	16.9	3.5	2487
Primary	24.9	3.3	1912
Secondary +	32.0	4.7	974
Adult education/Khalwa	14.6	5.4	273
/Sunday education			
Wealth index quintile			
Poorest		A CONTRACTOR OF A CONTRACTOR O	1707
Second	11.0	3.8	128/
Middle	11.0 18.9	3.8 3.6	1287
Fourth	11.0 18.9 20.8	3.8 3.6 3.3	1287 1245 1255
Richest	11.0 18.9 20.8 31.8	3.8 3.6 3.3 4.1	1287 1245 1255 1073

## VI. Child Health

### Immunization

The Millennium Development Goal (MDG) 4 is to reduce child mortality by two thirds between 1990 and 2015. Immunization plays a key part in this goal. Immunizations have saved the lives of millions of children in the three decades since the launch of the Expanded Programme on Immunization (EPI) in 1974. Worldwide there are still 27 million children overlooked by routine immunization and as a result, vaccine-preventable diseases cause more than 2 million deaths every year.

A World Fit for Children goal is to ensure full immunization of children under one year of age at 90 percent nationally, with at least 80 percent coverage in every district or equivalent administrative unit.

According to UNICEF and WHO guidelines, a child should receive a Bacillis-Calmette-Geuerin (BCG) vaccination to protect against tuberculosis, three combined doses of pentavalent vaccine containing DPT to protect against diphtheria, pertussis, and tetanus, hepatitis B (HB) and Haemophilus Influenza Type B (HIB), three doses of polio vaccine, and a measles vaccination by the age of 12 months. All vaccinations should be received during the first year of life. Taking into consideration this vaccination schedule, the estimates for full immunization coverage from the SHHS2 are based on children aged 12-23 months.

During the SHHS2, mothers were asked to provide vaccination cards for all children under the age of five. If the vaccination card for a child was available, interviewers copied vaccination information from the cards onto the SHHS2 questionnaire. If the child did not have a card, the mother was asked to recall whether or not the child had received the BCG and measles vaccinations and for the combined vaccinations and Polio, how many times.

The final vaccination coverage estimates are based on both, information obtained from the vaccination card and the mother's report of vaccinations received by the child.Table 6.1 indicates the percentage of children aged 12 to 23 months who received each of the vaccinations. The denominator for the table is comprised of children aged 12-23 months so that only children who are old enough to be fully vaccinated are counted. In the top panel, the numerator includes all children who were vaccinated at any time before the survey according to the vaccination card or the mother's report. In the bottom panel, only those who were vaccinated before their first birthday, as recommended, are included. For children without vaccination cards, the proportion of vaccinations given before the first birthday is assumed to be the same as for children with vaccination cards.

Approximately 75 percent of children aged 12-23 months received BCG vaccination by 12 months of age. The first dose of pentavalent vaccine was given to 75 percent of children. However the coverage declined for subsequent doses of pentavalentto 68 percent for the second dose, and 58 percent for the third dose (Figure 6.1). Similarly, 83 percent of children received Polio 1 by 12 months of age and this declined to 77 percent for the second dose and 62 percent by the third dose. The coverage for measles vaccine by 12 months of age was lower than for the other vaccines at 62 percent. This is primarily because, although 70 percent of children received the vaccine, only 62 percent received it by their first birthday. As a result, the percentage of children who had all the recommended vaccinations by their first birthday was low at only 39 percent. An important finding of the SHHS2 is that approximately 9 percent of children had not been reached by health services and provided with vaccinations by their first birthday.

	Vaccinated at any time before the survey according to: Vaccination card	Vaccinated at any time before the survey according to: Mother's report	Vaccinated at any time before the survey according to: Either	Vaccinated by 12 months of age
BCG <sup>[1]</sup>	39.4	37.4	76.8	74.6
Polio 0	26.1	15.3	41.4	40.2
Polio 1	40.3	45.9	86.2	83.3
Polio 2	38.5	41.8	80.3	77.4
Polio 3 <sup>[2]</sup>	37.0	27.8	64.8	62.0
DPT HB HIB 1	40.5	38.2	78.7	74.8
DPT HB HIB 2	38.7	32.4	71.1	68.3
DPT HB HIB 3 <sup>[3]</sup>	37.3	24.0	61.3	58.4
Measles [4]	37.6	32.5	70.1	62.3
All vaccinations	35.5	13.9	49.4	39.3
No vaccinations	.0	8.0	8.0	8.8
Number of children aged 12-23 months	2612	2612	2612	2612

Figure 6.1 Vaccinations in first year of life (Percentage of children aged 12-23 months vaccinated by the 12 months of age), Sudan, 2010



Table 6.2 shows vaccination coverage rates among children 12-23 months by background characteristics. The Table indicates the percentage of children aged 12-23 months vaccinated against childhood diseases at any time up to the date of the survey. The figures are based on information from both the vaccination cards and mothers'/caretakers' reports. Overall, only 41 percent of children had health cards.

		_		Table 6.2	: Vaccinatio	ons by back	ground cha	racteristics					
Packground	Porcontag	Percen	tage of childs	ren aged 12-	23 months cu	urrently vacc	inated again	st childhood	diseases, Suc	lan, 2010		Barcantaga	Number
characteristics	BCG	Polio at birth	Polio 1	Polio 2	Polio 3	DPT HB HIB 1	DPT HB HIB 2	DPT HB HIB 3	Measles	None	All	with vaccination card seen	of children aged 12- 23 months
Sex													CASSAGE.
Male	77.4	44.0	85.3	79.2	63.6	78.6	70.2	60.8	70.2	8.0	48.5	41.3	1331
Female	76.2	38.8	87.2	81.4	66.0	79.0	72.1	61.7	70.1	8.0	50.3	39.9	1280
State of residence						Section Const.			and the second			State State	
Northern	(85.9)	(44.4)	(87.2)	(85.1)	(71.3)	(85.1)	(75.3)	(73.0)	(82.7)	(7.1)	(60.4)	(38.5)	37
River Nile	73.7	37.9	79.9	74.9	55.3	76.3	69.3	55.1	72.1	13.8	40.0	27.2	79
Red Sea	62.3	40.6	69.3	64.9	47.8	62.3	60.2	56.0	57.1	22.3	35.1	18.3	75
Kassala	75.9	49.0	83.8	70.4	54.6	75.1	70.8	58.3	64.5	13.8	40.6	31.4	138
Gadarif	88.2	66.0	92.9	90.2	74.6	84.9	80.1	69.4	80.5	4.8	58.8	46.3	138
Khartoum	84.8	60.6	86.2	82.4	70.1	87.1	83.8	79.0	78.4	6.1	60.9	56.7	349
Gezira	88.8	36.6	93.3	90.5	72.9	92.0	85.5	79.3	85.7	2.8	62.6	36.6	377
White Nile	79.7	44.4	88.8	85.8	70.7	82.8	79.4	72.6	73.8	8.2	54.9	43.6	158
Sinnar	88.5	41.5	87.4	84.9	73.0	87.0	83.2	74.0	78.9	8.6	65.1	47.6	95
Blue Nile	80.7	35.4	84.1	80.2	73.4	80.5	77.7	72.6	74.3	11.3	64.7	51.7	120
North Kordofan	70.9	30.5	84.9	74.7	58.2	75.6	63.9	48.1	56.1	9.0	37.0	41.6	290
South Kordofan	71.7	31.2	83.3	73.1	59.4	72.4	64.2	51.9	64.3	7.5	42.7	42.3	136
North Darfur	73.8	29.3	78.2	76.1	62.6	74.0	62.5	48.6	73.4	13.2	43.4	34.1	161
West Darfur	59.4	29.3	71.5	64.0	52.8	56.3	49.3	45.8	54,4	16.5	38.6	21.6	124
South Darfur	62.6	39.5	92.8	82.6	60.8	68.9	52.5	36.0	56.3	3.6	34.1	39.6	334
Area of residence	an an an an an a'			1. Hereiter			1912 1912 1913		R. Margara Margara		S1952,469	Constant and	
Urban	82.8	51.3	85.4	80.6	66.4	84.1	78.3	70.3	75.9	7.8	56.2	49.7	745
Rural	74.4	37.5	86.6	80.1	64.1	76.6	68.3	57.6	67.8	8.1	46.6	37.0	1866
Education level	and Paralantan a	C. States	S. Halles Sales	1			- Protection of the second		Control States	A La Bolter	C. Starker	a and she she was	Classic Control (
None	69.7	36.5	82.4	75.7	59.2	71.1	63.1	52.3	60.5	11.2	41.3	36.2	1421
Primary	83.9	45.9	90.9	85.9	71.8	86.6	79.3	71.5	79.5	5.0	58.4	46.2	807
Secondary	88.5	51.9	91.0	85.7	71.0	90.6	84.0	73.7	86.8	2.2	60.8	45.2	365
Missing/DK	85.1	25.6	85.1	85.1	65.1	85.1	77.1	55.2	71.5	13.1	52.2	49.9	19
Wealth index	quintiles			12013933244	A Markey Markey			( Alexandre	Contraction of the second	ANY STREET	Minore More	C Transferrer	12000
Poorest	61.4	34.0	83.6	74.0	54.8	64.9	53.2	41.8	52.7	10.7	35.3	33.9	579
Second	71.7	34.6	82.9	76.8	60.8	73.2	64.3	50.8	64.2	10.9	40.5	36.1	577
Middle	78.0	36.3	85.6	79.8	68.3	80.2	72.1	63.8	69.1	9.2	49.8	38.3	589
Fourth	88.1	47.3	90.4	85.9	70.7	89.0	84.3	74.5	82.4	5.0	61.8	48.8	503
Richest	91.6	64.6	90.9	88.9	72.2	93.0	90.8	86.3	92.1	1 7	67.0	510	262
SUDAN (TOTAL)	76.8	414	86.2	80.3	64 Q	70.7	71 1	61.2	70.1	±./	1 10 7	106	1 303

Major differences were noted at the State level for immunisation coverage any time up to the date of the survey; however the results for Northern State need to be interpreted with caution due to the low number of cases.

### Tuberculosis immunisation coverage

The SHHS2 data indicated that 77 percent of children aged 12-23 months had received BCG vaccination at any time up to the date of the survey. There was only a slight difference in BCG vaccination coverage rate by gender, the BCG vaccination coverage for males and females respectively being 77 and 76 percent. The BCG vaccination coverage was higher for children in urban areas (83 percent) than among children in rural areas (74 percent). The BCG vaccination coverage rate, as expected, seems to have a close link with the level of mothers' education. The BCG vaccination coverage ranged from 70 percent for children of mothers with no education to 84 percent for children of mothers with primary education, and to 89 percent for children of mothers with the economic status of the household. The BCG vaccination coverage was 61 percent in the case of children belonging to households in the poorest quintile compared to 92 percent for children from households in the richest quintile. The BCG vaccination coverage rate was more than 80 percent in six States (Northern, Gedarif, Khartoum, Gezira, Sinnar and Blue Nile) and below 70 percent in three States (Red Sea, West Darfur and South Darfur)(Table 6.2).

Figure 6.2: Tuberculosis immunization coverage (Percentage of children aged 12-23 months who received BCG vaccine before their first birth day) Sudan, 2010



### Polio immunisation coverage

The SHHS2 data indicated that 41 percent of children aged 12-23 months had received Oral Polio Vaccine (OPV) at birth, 86 percent received OPV 1, 80 percent received OPV 2 and 65 percent received OPV 3 at any time up to the date of the survey. There was only a slight difference in polio vaccine coverage rate by gender, the polio3 vaccine coverage for males and females being 64 percent and 66 percent respectively. The polio3 vaccine coverage was slightly higher among children in urban areas (66 percent) than among children in rural areas (64 percent). The polio vaccine

coverage rate was only 59 percent for children of mothers with no education compared to 72 percent for children of mothers with primary education, and 71 percent for children of mothers with secondary or higher education. The polio vaccine coverage rate also has a close link with the economic status of the household, the coverage rate being 55 percent in the case of children belonging to households in the poorest quintile compared to 73 percent for children from households in the richest quintile. The Polio 3 vaccination coverage rate ranged from 75 percent in Gedarif State to 48 percent in Red Sea State. The coverage rates were more than 70 percent in seven States (Northern, Kassala, Gedarif, Khartoum, Gezira, White Nile, Sinnar and Blue Nile) and below 60 percent in six States (River Nile, Red Sea, Kassala, North Kordofan, South Kordofan and West Darfur). (Figure 6.3, Table 6.1).

Figure 6.3: Polio immunisation coverage: (Percentage of children age 12-23 months who received three doses of Oral Polio Vaccine (OPV) before their first birth day) Sudan, 2010



### DPT HB HIB (Pentavalent vaccine) immunisation coverage

The SHHS2 data indicated that 79 percent of children aged 12-23 months had received Pentavalent1 vaccine, 71 percent received Pentavalent 2, and 61 percent received Pentavalent 3 at any time up to the date of the survey. There was only a slight difference in coverage rates by gender, the Pentavalent 3 vaccination coverage for males and females being 61 percent and 62 percent respectively. The Pentavalent 3 vaccination coverage was higher among children in urban areas (70 percent) than among children in rural areas (58 percent). Educational status of mothers has a positive correlation with coverage rates which were only 52 percent for children of mothers with no education compared to 72 percent for children of mothers with primary education, and 74 percent for children of mothers with secondary or higher education. The Pentavalent 3 vaccination coverage rate also has a close link with the economic status of the household, the coverage rate being only 42 percent for children from households in the richest quintile. There were significant differences among the states ranging from 79 percent in Gezira State to 36 percent in South Darfur State, with coverage rates above 70 percent in six States (Northern, Khartoum, Gezira, White Nile, Sinnar and

Blue Nile) and below 50 percent in four States (North Kordofan, North Darfur, West Darfur and South Darfur).



Figure 6.4: DPT HB HIB3 immunization coverage: (Percentage of children age 12-23 months who received three doses of Pentavalent vaccine before their first birth day) Sudan, 2010

### Measles immunisation coverage

The SHHS2 data indicated that 70 percent of children aged 12-23 months had received measles vaccination at any time up to the date of the survey. There was no difference in measles vaccination coverage rate by gender. The measles vaccination coverage was higher for children in urban areas (76 percent) than among children in rural areas (68 percent).

As with other antigens, the measles vaccination coverage rate ranged from 61 percent for children of mothers with no education to 805 percent for children of mothers with primary education, and to 87 percent for children of mothers with secondary or higher education. Economic status also influences overall coverage as these were only 53 percent in the case of children belonging to households in the poorest quintile compared to 92 percent for children from households in the richest quintile.

Figure 6.5: Measles immunisation coverage: (Percentage of children aged 12-23 months who received measles vaccination at any time up to the date of the survey) Sudan, 2010



At the level of the States, the measles vaccination coverage rate ranged from 86 percent in Gezira State to 54 percent in West Darfur State. The measles vaccination coverage rate was more than 80 percent in three States (Northern, Gedarif, and Gezira) and below 60 percent in four States (Red Sea, North Kordofan, West Darfur and South Darfur) (Table 6.2 and Figure 6.5).

### Fully immunised children

The SHHS2 data indicated that less than half (49 percent) of Sudan's children aged 12-23 months were fully immunised with BCG vaccine against tuberculosis, three doses of polio vaccine against polio, three doses of pentavalent against DPT (diphtheria, pertussis and tetanus), Hepatitis B (HB), and Haemophilus Inflenzae Type B (HIB) and measles vaccine before their first birthday. This leaves the rest of the children aged 12-23 months unprotected against life-threatening diseases. The percentage of fully immunised children was slightly higher among females (50 percent) than that among male children (49 percent). The percentage of fully immunised children was higher for children in urban areas (56 percent) than among children in rural areas (47 percent). The percentage of fully immunised children ranged from 41 percent for children of mothers with no education to 58 percent for children of mothers with primary education, and to 61 percent for children of mothers with secondary or higher education. The percentage of fully immunised children was only 35 percent in the case of children belonging to households in the poorest quintile compared to 68 percent for children from households in the richest quintile. The percentage of fully immunised children at any time up to the date of the survey ranged from 65 percent in Sinnar State to 34 percent in South Darfur State. The percentage of fully immunised children was more than 60 percent in five States (Northern, Khartoum, Gezira, Sinnar, and Blue Nile) and below 40 percent in four States (Red Sea, North Kordofan, West Darfur and South Darfur) (Table 6.2 and Figure 6.6)

Figure 6.6: Fully immunised children(Percentage of children aged 12-23 months fully immunised against tuberculosis, Polio, DPT, Hepatitis, Haemophilus Influenzae and measles before their first birth day) Sudan, 2010



### **Neonatal Tetanus Protection**

One of the MDGs is to reduce by three quarters the maternal mortality ratio, with one strategy to eliminate maternal tetanus. In addition, another goal is to reduce the incidence of neonatal tetanus to less than 1 case of neonatal tetanus per 1000 live births in every district. A World Fit for Children goal is to eliminate maternal and neonatal tetanus by 2005.

Prevention of maternal and neonatal tetanus is to assure all pregnant women receive at least two doses of tetanus toxoid vaccine. However, if women have not received two doses of the vaccine during the pregnancy, they (and their newborn) are also considered to be protected if they had (i) received at least two doses of tetanus toxoid vaccine, the last within the prior 3 years; (ii) received at least 3 doses, the last within the prior 5 years; (iii) received at least 4 doses, the last within 10 years; and (iv) received at least 5 doses during lifetime.

Table 6.3 shows the protection status from tetanus of women aged 15-49 years who had a live birth within the last 2 years.

Percentage of women aged 15-49 years with a live birth in the last 2 years protected against neonatal tetanus, Sudan, 2010           Background characteristics         Percentage of women who did not receive two or more dose during last pregnancy but received:         Number           2 doses, doses, during last pregnancy         2 doses, the last tate against neonatal live birthin the last 2 years wears         Protected live birthin the last 2 years against the last 2 years against the last 2 years wears the last the last tate against the last 2 years against the last 1 years against the last 2 years against the last 1 years against the last 1 years against the last 2 years against the last 1 years against the last 1 years against the last 2 years against the last 1 years against t	Table 6.3: Neonatal tetanus protection													
Background characteristics         Percentage of women who did not receive two or more doses during last pregnancy but received:         Number of women who did not receive two or more doses during last pregnancy but received:         Number of women within within prior 3         Number of women doses during last pregnancy but received:         Number of women within within prior 10         Number of women doses         Number of women within hitelast         Itelast         the last         the la	Percentage of women aged 15-49 years with a live birth in the last 2 years protected against neonatal													
Background characteristics         Percentage of women who did not not necewe two         Or more dess during last pregnancy but received:         Number of women who did not necewe two received:         Number necewed:         Number of women who did not necewe two received:         Number necewed:         N			tetanu	s, Sudan, 20	010	non-survey function of events and	Т	T						
of more does during last pregnancy but received:         of more does during last pregnancy but received:         Number of women with a the last         Number the last         Number doese pregnancy years         Number uiffetime           Area of residence         2 doses, during last         3 doses, pregnancy years         3 doses, years         4 doses, pror 10         5 or more during pregnancy years         Protected against pregnancy years         14 doses, years         Protected live birth in the last years           Area of residence         14.9         2.0         1.1         0.2         51.9         4087           Rural         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence         7         0.3         52.4         88         88         1.6         0.0         42.7         134           River Nile         34.4         20.8         2.3         1.6         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         41.5         2.8           Sinar         36.4         26.2         2.5         2.4         0.0	Background characteristics	Percentage	Percentag	ge of women	who did not	receive two								
With received at least 2 doses         2 doses, within prior 3         4 doses, bit last within prior 3         4 doses, bit last within prior 3         6 doring during prior 10         For more during lifetime         For more tetanus         For more lifetime         For more during against tetanus         of women within prior 3           Area of residence         34.9         20.8         2.4         3.0         1.0         62.2         1559           Rural         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence         Vears         Vears         Vears         Vears         Vears         Vears         Vears           State of residence         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence         Vears         2.0         1.1         0.2         51.9         4087           State of residence         Vears         2.0         1.1         0.2         52.4         83           Northern         35.3         14.5         15.3         0.7         0.3         52.4         83           Gadarif         28.5         13.6         2.0         1.2         0.3         41.5         2161		orwomen	or mol	re doses duri	ng last pregn	ancy but		Number						
least 2         the least 2         the least 3         the least 3         the least 3         for more during last 3         fo		wito received at	2 dasas	2 docos	dacac	· · · · · · · · · · · · · · · · · · ·	4	ofwomen						
Literast         Unerast         <		least 2	z uoses,	s doses,	4 uoses,	5 or more		with a						
during last prior 3 (years         prior 3 years         prior 3 years         mann years         during prior 3 years         mann prior 3 years <thmann 3<br="" prior="">years         mann prior 3 yea</thmann>		doses	within	within	within	doses	Protected	live birth						
prograncy         years         years         years         iffetting         tetanus         2 years           Urban         34.9         20.8         2.4         3.0         1.0         62.2         1559           Rural         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence		during last	prior 3	prior 5	prior 10	during	against	in the last						
Area of residence         June         June <thjune< th="">         June         June<td></td><td>pregnancy</td><td>vears</td><td>vears</td><td>vears</td><td>lifetime</td><td>tetanus<sup>[1]</sup></td><td>2 years</td></thjune<>		pregnancy	vears	vears	vears	lifetime	tetanus <sup>[1]</sup>	2 years						
Urban         34.9         20.8         2.4         3.0         1.0         62.2         1559           Rural         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence	Area of residence		1000				1977 (1974) - 1979 (1979)							
Rural         33.7         14.9         2.0         1.1         0.2         51.9         4087           State of residence         35.3         14.5         1.5         0.7         0.3         52.4         83           Northern         35.3         14.5         1.5         0.7         0.3         52.4         83           River Nile         34.4         20.8         2.3         1.6         0.0         59.1         164           Red Sea         25.4         15.3         1.2         0.8         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadrif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         40.5         278           South Kordofan         36.9         11.8	Urban	34.9	20.8	2.4	3.0	1.0	62.2	1559						
State of residence         Northern         35.3         14.5         1.5         0.7         0.3         52.4         83           River Nile         34.4         20.8         2.3         1.6         0.0         59.1         164           Red Sea         25.4         15.3         1.2         0.8         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         38.4	Rural	33.7	14.9	2.0	1.1	0.2	51.9	4087						
Northern         35.3         14.5         1.5         0.7         0.3         52.4         83           River Nile         34.4         20.8         2.3         1.6         0.0         59.1         164           Red Sea         25.4         15.3         1.2         0.8         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1	State of residence						1000							
River Nile         34.4         20.8         2.3         1.6         0.0         59.1         164           Red Sea         25.4         15.3         1.2         0.8         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Kordofan         38.4         16.2	Northern	35.3	14.5	1.5	0.7	0.3	52.4	83						
Red Sea         25.4         15.3         1.2         0.8         0.0         42.7         134           Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         38.4         16.2         1.2         0.2         256.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         35.2         10.6         1.5	River Nile	34.4	20.8	2.3	1.6	0.0	59.1	164						
Kassala         36.5         14.9         1.5         0.9         0.0         53.7         318           Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         2         0.0         46.5         278           South Ear's education level         V         V<	Red Sea	25.4	15.3	1.2	0.8	0.0	42.7	134						
Gadarif         28.5         13.6         2.0         1.2         0.3         45.5         283           Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education/Khalwa/Sunday         26.2         12.7 </td <td>Kassala</td> <td>36.5</td> <td>14.9</td> <td>1.5</td> <td>0.9</td> <td>0.0</td> <td>53.7</td> <td>318</td>	Kassala	36.5	14.9	1.5	0.9	0.0	53.7	318						
Khartoum         35.2         23.2         2.6         4.6         1.6         67.2         752           Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Kordofan         38.4         16.2         1.2         0.2         0.6         387           West Darfur         23.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level         28.5         10.6	Gadarif	28.5	13.6	2.0	1.2	0.3	45.5	283						
Gezira         36.4         26.2         2.5         2.4         0.0         67.5         759           White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level         11.5         2.1         1.0         0.5         51.7         772           None         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0	Khartoum	35.2	23.2	2.6	4.6	1.6	67.2	752						
White Nile         28.8         15.9         2.6         1.3         0.4         49.0         316           Sinnar         32.0         13.8         2.4         1.4         0.2         49.9         217           Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mothe?'s education level         Mone         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912      Secondary +	Gezira	36.4	26.2	2.5	2.4	0.0	67.5	759						
Sinnar       32.0       13.8       2.4       1.4       0.2       49.9       217         Blue Nile       30.6       6.3       2.6       1.9       0.3       41.5       261         North Kordofan       36.9       11.8       1.0       0.3       0.3       50.3       615         South Kordofan       38.4       16.2       1.2       0.2       0.2       56.3       307         North Darfur       27.2       17.4       3.1       1.6       0.3       49.6       387         West Darfur       33.2       11.4       1.8       2       0.0       46.5       278         South Darfur       36.6       11.5       2.1       1.0       0.5       51.7       772         Mother's education level       V       V       V       V       V       V         None       28.5       10.6       1.6       0.9       0.3       41.8       2487         Primary       38.7       20.0       2.8       2.2       0.6       64.3       1912         Secondary +       41.4       25.9       2.2       2.2       0.1       71.8       974         Adult       education/Khalwa/Sunday<	White Nile	28.8	15.9	2.6	1.3	0.4	49.0	316						
Blue Nile         30.6         6.3         2.6         1.9         0.3         41.5         261           North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level                 None         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult         education         26.2	Sinnar	32.0	13.8	2.4	1.4	0.2	49.9	217						
North Kordofan         36.9         11.8         1.0         0.3         0.3         50.3         615           South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level                   None         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult         education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           Sec	Blue Nile	30.6	6.3	2.6	1.9	0.3	41.5	261						
South Kordofan         38.4         16.2         1.2         0.2         0.2         56.3         307           North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult         education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           Wealth index quintiles         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -<	North Kordofan	36.9	11.8	1.0	0.3	0.3	50.3	615						
North Darfur         27.2         17.4         3.1         1.6         0.3         49.6         387           West Darfur         33.2         11.4         1.8         .2         0.0         46.5         278           South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level              0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult                273           education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           Wealth index quintiles                273           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Second	South Kordofan	38.4	16.2	1.2	0.2	0.2	56.3	307						
West Darfur       33.2       11.4       1.8       .2       0.0       46.5       278         South Darfur       36.6       11.5       2.1       1.0       0.5       51.7       772         Mother's education level       28.5       10.6       1.6       0.9       0.3       41.8       2487         Primary       38.7       20.0       2.8       2.2       0.6       64.3       1912         Secondary +       41.4       25.9       2.2       2.2       0.1       71.8       974         Adult       education/Khalwa/Sunday       26.2       12.7       2.0       2.4       0.9       44.2       273         Poorest       28.7       9.9       1.8       0.6       0.1       41.1       1287         Second       33.7       12.4       1.2       0.5       0.3       48.1       1245         Middle       35.5       15.7       2.4       1.5       0.4       55.4       1255         Fourth       36.1       23.5       3.1       3.0       1.1       66.8       1073         Richest       38.4       25.5       2.5       3.4       0.3       70.0       787	North Darfur	27.2	17.4	3.1	1.6	0.3	49.6	387						
South Darfur         36.6         11.5         2.1         1.0         0.5         51.7         772           Mother's education level         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           Poorest         28.7         9.9         1.8         0.6         0.1         41.1         1287           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Piddle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Middle         38.4         25.5         2.5         3.4         0.3         70.0         787           SubaN(TOTAL)         33.1	West Darfur	33.2	11.4	1.8	.2	0.0	46.5	278						
Mother's education level         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult         education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           education         26.2         12.7         2.0         2.4         0.9         44.2         273           education         26.2         12.7         2.0         2.4         0.9         44.2         273           education         26.2         12.7         2.0         2.4         0.9         44.2         273           wealth index quintiles         28.7         9.9         1.8         0.6         0.1         41.1         1287           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Second         35.5         15.7         2.4         1.5         0.4         55.4         1255              F	South Darfur	36.6	11.5	2.1	1.0	0.5	51.7	772						
None         28.5         10.6         1.6         0.9         0.3         41.8         2487           Primary         38.7         20.0         2.8         2.2         0.6         64.3         1912           Secondary +         41.4         25.9         2.2         2.2         0.1         71.8         974           Adult         education/Khalwa/Sunday         26.2         12.7         2.0         2.4         0.9         44.2         273           education         26.2         12.7         2.0         2.4         0.9         44.2         273           wealth index quintiles         26.2         12.7         2.0         2.4         0.9         44.2         273           Poorest         28.7         9.9         1.8         0.6         0.1         41.1         1287           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest <td< td=""><td>Mother's education</td><td>level</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Mother's education	level												
Primary       38.7       20.0       2.8       2.2       0.6       64.3       1912         Secondary +       41.4       25.9       2.2       2.2       0.1       71.8       974         Adult       education/Khalwa/Sunday       26.2       12.7       2.0       2.4       0.9       44.2       273         education       26.2       12.7       2.0       2.4       0.9       44.2       273         wealth index quintiles       28.7       9.9       1.8       0.6       0.1       41.1       1287         Second       33.7       12.4       1.2       0.5       0.3       48.1       1245         Middle       35.5       15.7       2.4       1.5       0.4       55.4       1255         Fourth       36.1       23.5       3.1       3.0       1.1       66.8       1073         Richest       38.4       25.5       2.5       3.4       0.3       70.0       787         StDaN(TOTAL)       34.1       16.5       211       1.6       0.4       54.7       5646	None	28.5	10.6	1.6	0.9	0.3	41.8	2487						
Secondary +       41.4       25.9       2.2       2.2       0.1       71.8       974         Adult       education/Khalwa/Sunday       26.2       12.7       2.0       2.4       0.9       44.2       273         education       26.2       12.7       2.0       2.4       0.9       44.2       273         Wealth index quintiles       Poorest       28.7       9.9       1.8       0.6       0.1       41.1       1287         Second       33.7       12.4       1.2       0.5       0.3       48.1       1245         Middle       35.5       15.7       2.4       1.5       0.4       55.4       1255         Fourth       36.1       23.5       3.1       3.0       1.1       66.8       1073         Richest       38.4       25.5       2.5       3.4       0.3       70.0       787         SUDAN (FOTAL)       34.1       16.5       211       1.6       0.4       54.7       5646	Primary	38.7	20.0	2.8	2.2	0.6	64.3	1912						
Adult       26.2       12.7       2.0       2.4       0.9       44.2       273         education       Wealth index quintiles       28.7       9.9       1.8       0.6       0.1       41.1       1287         Second       33.7       12.4       1.2       0.5       0.3       48.1       1245         Middle       35.5       15.7       2.4       1.5       0.4       55.4       1255         Fourth       36.1       23.5       3.1       3.0       1.1       66.8       1073         Richest       38.4       25.5       2.5       3.4       0.3       70.0       787         StDany (TOTAL)       34.1       16.5       211       1.6       0.4       54.7       5646	Secondary +	41.4	25.9	2.2	2.2	0.1	71.8	974						
education/Khalwa/Sunday       26.2       12.7       2.0       2.4       0.9       44.2       273         wealth index quintiles	Adult													
education         Wealth index quintiles         28.7         9.9         1.8         0.6         0.1         41.1         1287           Poorest         28.7         9.9         1.8         0.6         0.1         41.1         1287           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           SUBAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	education/Khalwa/Sunday	26.2	12.7	2.0	2.4	0.9	44.2	273						
Wealth index quintiles         28.7         9.9         1.8         0.6         0.1         41.1         1287           Poorest         33.7         12.4         1.2         0.5         0.3         48.1         1245           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           SUDAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	education		and and the second											
Poorest         28.7         9.9         1.8         0.6         0.1         41.1         1287           Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           JOBAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	Wealth index quintiles						and the second second	1007						
Second         33.7         12.4         1.2         0.5         0.3         48.1         1245           Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           JOAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	Poorest	28.7	9.9	1.8	0.6	0.1	41.1	128/						
Middle         35.5         15.7         2.4         1.5         0.4         55.4         1255           Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           SUDAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	Second	33.7	12.4	1.2	0.5	0.3	48.1	1245						
Fourth         36.1         23.5         3.1         3.0         1.1         66.8         1073           Richest         38.4         25.5         2.5         3.4         0.3         70.0         787           SUDAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	iviladie	35.5	15./	2.4	1.5	0.4	55.4	1255						
Kicnest         38.4         25.5         2.5         3.4         0.3         70.0         787           SUDAN (TOTAL)         34.1         16.5         2.1         1.6         0.4         54.7         5646	Fourth	36.1	23.5	3.1	3.0	1.1	55.8	10/3						
10.5 Z.1 1.0 U.4 54.7 5646	KICNEST	38.4	25.5	2.5	3.4	0.3	70.0	181						
		34.1	16.5	2.1	1.6	. 0.4	54./	3046						

The SHHS2 data indicates that the proportion of women aged 15-49 years with a live birth in the last two years protected against neonatal tetanus was only 55 percent. The percentage of women who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy was only 34 percent.

The percentage of women aged 15-49 years with a live birth in the last two years protected against neonatal tetanus was higher among women in urban areas (62 percent) than those in rural areas (52 percent). However, there was only a marginal difference in the percentage of women who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy between those living in urban areas (35 percent) and those living in rural areas (34 percent). The level of education of the woman

is related to the likelihood of receiving neonatal tetanus protection. For instance, the percentage of women aged 15-49 years who were protected against neonatal tetanus was only 42 percent for women with no education, compared to 64 percent for women with primary education and 72 percent for women with secondary and higher levels of education. Similarly, the percentage of women aged 15-49 years who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy was only 29 percent for women with no education, compared to 39 percent for women with primary education and 41 percent for women with secondary and higher levels of education.

The economic status of the women also plays a key role; the percentage of women age 15-49 years with a live birth in the last two years protected against neonatal tetanus was 70 percent for those from households in the richest quintile compared to 41 percent for those belonging to households in the poorest quintile. Similarly, the percentage of women aged 15-49 years who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy was 38 percent for those from households in the richest quintile compared to 29 percent for those belonging to households in the poorest quintile.

The percentage of women aged 15-49 years who have had a live birth within the last 2 years protected against neonatal tetanus varied significantly by State. The proportion of women protected against neonatal tetanus ranged from 68 percent in Gezira State to 42 percent in Blue Nile State.

Figure 6.7: Neonatal Tetanus Protection: Percentage of women age 15-49 years with a live birth in the last 2 years protected against neonatal tetanus, Sudan, 2010



The percentage of women aged 15-49 years who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy also varied by State. The percentage of women aged 15-49 years who received at least two doses of tetanus toxoid (TT) vaccine during last pregnancy was highest in North Kordofan State (37 percent) and the lowest in Red Sea State (25 percent).

### **Care of Illness**

### Management/treatment of diarrhoea

Diarrhoea is the second leading cause of death among children under five worldwide. Most diarrhoea-related deaths in children are due to dehydration from loss of large quantities of water and electrolytes from the body in liquid stools. Management of diarrhoea – either through oral rehydration salts (ORS) or a recommended home fluid (RHF) - can prevent many of these deaths. Preventing dehydration and malnutrition by increasing fluid intake and continuing to feed the child are also important strategies for managing diarrhoea.

A key goal is to reduce by one half deaths due to diarrhoea among children under five by 2010 compared to 2000 (A World Fit for Children). In addition, the World Fit for Children calls for a reduction in the incidence of diarrhoea by 25 percent.

In the SHHS2 questionnaire, mothers (or caretakers) were asked to report whether their child had had diarrhoea in the two weeks prior to the survey. If so, the mother was asked a series of questions about what was given to the child to drink and eat during the episode of diarrhoea and whether this was more or less than the child usually drank and ate.

### Incidence of diarrhoea

The SHHS2 data indicated that overall, 27 percent of under-five children had diarrhoea in the two weeks preceding the survey (Table 6.4). The peak of diarrhoea prevalence (36 percent) was observed among children aged 12-23 months. There was slight difference in the proportion of under-five children who had diarrhoea in the two weeks preceding the survey in rural and urban areas. The diarrhoea prevalence rate was lower among children in urban areas (23 percent) than among children in rural areas (28 percent). The level of education of the mothers can be seen to be related to the likelihood of diarrhoea among children aged 0-59 months. For instance, the percentage of children aged 0-59 years with diarrhoea in the last two weeks was 28 percent among children of mothers with no education compared to 22 percent for children of mothers with secondary and higher levels of education. Diarrhoea prevalence was reported from all regions, the percentage of children aged 0-59 months who had diarrhoea ranged from 34 percent in South Darfur State to 18 percent in River Nile State.

## Management/treatment of diarrhoea with oral rehydration solutions and recommended homemade fluids

Table 6.4 also shows the percentage of children aged 0-59 months with diarrhea who received treatment with oral rehydration solutions and recommended homemade fluids during the episode of diarrhoea. Since mothers were able to name more than one type of liquid, the percentages do not necessarily add to 100.

Tal Percentage of chi	ble 6.4: Oral r Idren aged 0-5	ehydration so 59 months wi	olutions and r th diarrhoea i	ecommended hom in the last two we	emade fluids eks, and treatme	nt with oral
re	hydration sol	utions and re	commended	homemade fluids,	Sudan, 2010	
	Had	Number	Children wi	th diarrhoea who	ORS or any	Number of
	diarrhoea	of	re	eceived:	recommended	children
	in last two	children	ORS (Fluid	Any	fluid	months
6	weeks	aged 0-59	from ORS	recommended		with
		months	packet,	nomemade		diarrhoea
Sex		1. Same and	URADEA)	nuiu		
Male	26.8	6742	22.1	26.9	40.7	1806
Female	26.8	6540	21.9	24.5	39.4	1750
State of residence					and the second second	
Northern	25.6	170	(20.6)	(46.0)	(54.8)	43
River Nile	17.5	404	26.6	32.7	51.0	71
Red Sea	20.8	281	35.1	18.0	41.3	58
Kassala	26.5	780	29.8	17.7	35.8	207
Gadarif	28.2	678	27.8	23.4	40.7	191
Khartoum	24.0	1868	17.5	39.3	50.7	449
Gezira	20.8	1750	10.5	28.5	33.1	364
White Nile	32.0	675	19.4	36.8	45.6	216
Sinnar	26.5	517	14.6	21.8	34.0	137
Blue Nile	33.6	595	33.3	17.0	41.3	200
North Kordofan	25.7	1425	24.2	24.0	40.8	366
South Kordofan	29.4	681	22.8	22.7	36.0	200
North Darfur	24.2	947	24.1	18.4	33.9	229
West Darfur	29.7	682	32.4	15.0	36.8	202
South Darfur	33.9	1829	19.2	24.4	38.4	621
Area of residence		1023	13.2	2.1.1		
Urban	22.7	3669	23.2	30.0	46.3	833
Rural	28.3	9613	21.6	24.5	38.1	2723
Age group	20.5	5015	21.0	24.5		2125
0-11	7 22	2064	10.7	20.0	24.4	070
12-23	32.7	2904	18.7	20.0		970
24-35	27.2	2015	24.9	28.4	43.4	949
36-47	10.9	2/02	24.5	28.1	43.9	750
48-59	19.8	2811	20.2	28.4	40.1	220
Mother's educati	10.4	2131	20.5	25.0	38.2	329
None	07.0	7050	22.0	22.4	20.0	2020
Brimany	27.6	7359	23.0	23.4	38.0	2028
Cocondonu	27.4	4044	19.9	29.1	42.8	1109
Missing /DK	21.9	1785	23.3	29.7	44.2	390
	30.0	94	(11.2)	(10.0)	(18.8)	28
wealth index qu	mues					
Fourest	33.2	3213	21.1	22.8	36.3	1068
Second	29.2	2901	25.3	18.4	35.8	847
	25.3	2800	22.6	30.3	43.7	709
Fourth	23.4	2490	21.7	31.5	46.3	582
Richest	18.6	1878	15.7	33.7	43.8	349
SUDAN (TOTAL)	26.8	13282	22.0	25.8	40.0	3555

#### Treatment of diarrhoea with oral rehydration salt (ORS)

About 22 percent of children age 0-59 months with diarrhoea (in the last two weeks preceding the survey) received ORS (i.e. fluid from ORS packet, ORADEX). Very little difference was noticed between boys (41 percent) and girls (39 percent) in terms of those who received ORS. The percentage of under-five children with diarrhoea and received ORS increases from 19 percent in the case of children aged below 12 months to 25 percent for children aged 12-23 months and then decreases to 25 percent for children aged 24-35 months, to 20 percent to children aged 36-47 months and to 21 percent for children aged 48-59 months. The percentage of children who had diarrhoea in the two weeks preceding the survey and received ORS was slightly higher among those in urban areas (23 percent) than that for children in rural areas (22 percent). The education level of the mother did not have any influence of children with diarrhoea who received ORS. However, the percentage of children who received fluid from ORS packet was found to be higher among children from households in the second wealth index quintile (25 percent) than those from households in the poorest quintile (21 percent) and those from households in the richest quintile (16 percent).

## Treatment of diarrhoea with any recommended homemade fluid (home management of diarrhoea)

The SHHS2 data shows that about 26 percent of children aged 0-59 months with diarrhoea (in the last two weeks preceding the survey) received recommended homemade fluids. The proportion of children who received recommended homemade fluid increases from 20 percent in the case of children aged below 12 months to 28 percent for children aged 12-23 months, and then decreases to 25 percent for children aged 48-59 months. The percentage of children who had diarrhoea in the two weeks preceding the survey and received any recommended homemade fluid was higher among those in urban areas (30 percent) than that for children in rural areas (25 percent). The level of education of the mothers appears to be related to the likelihood of treatment for children aged 0-59 months with diarrhoea. For instance, the percentage of children aged 0-59 years with diarrhoea who received any recommended homemade fluid was 23 percent for children of mothers with no education, compared to 29 percent for children of women with primary education and 30 percent for children of women with secondary and higher levels of education. The percentage of children who received homemade fluid was higher among children belonging to households in the richest quintile (34 percent) than that among children from households in the poorest quintile (23 percent).

#### Treatment of diarrhoea with ORS or any recommended homemade fluid

Approximately 40 percent of children with diarrhoea received one or more of the recommended home treatments (i.e., they were treated with ORS or any recommended homemade fluid), while 60 percent received no treatment. Very little difference was noticed between boys (41 percent) and girls (39 percent) in terms of those who received ORS or any recommended homemade fluid. The percentage of under-five children who had diarrhoea in the two weeks preceding the survey and received ORS or any recommended homemade fluid was higher among those in urban areas (46 percent) than that for children in rural areas (38 percent). The percentage of children with diarrhoea who received ORS or any recommended homemade fluid increases from 34percent for children aged below 12 months to 43 percent for children aged 12-23 months, to 44 percent to children aged 24-35 months, and then declines to 40 percent for children aged 36-47 months and to 38 percent for children aged 48-59 months. The percentage of under-five children who had diarrhoea in the two weeks preceding the survey and received ORS or any recommended homemade fluid was higher among those in urban areas (46 percent) than that for children in rural areas (38 percent). The level of education of the mothers appears to be related to the likelihood of treatment for children aged 0-59 months with diarrhoea. For instance, the percentage of children aged 0-59 years with diarrhoea who received ORS or any recommended homemade fluid was 38 percent for children of mothers with no education, compared to 43 percent for children of women with primary education and 44 percent for children of women with secondary and higher levels of education. The percentage of

children aged 0-59 years with diarrhoea in the last two weeks who received ORS or any recommended homemade fluid was higher among children from households in the richest quintile (44 percent) than that for those belonging to households in the poorest quintile (36 percent). The percentage of under-five children who had diarrhoea in the two weeks preceding the survey and received ORS or any recommended homemade fluid ranged from 55 percent in Northern State to 34 percent in North Darfur State.

### Feeding practices during diarrhea

Table 6.5 presents the feeding practices during diarrhea, i.e. percent distribution of children aged 0-59 months with diarrhoea in the last two weeks by amount of liquids and food given during episode of diarrhea. The SHHS2 data related to drinking practices of children during diarrhoea indicates that about 42 percent of children with diarrhoea were given less than usual to drink, 31 percent of them were given about the same to drink and 22 percent of them were given more than usual to drink while 5 percent of children were given nothing to drink during the episode of diarrhoea. Very little difference was noted between boys (42 percent) and girls (43 percent) in terms of those who were given less liquid than usual to drink while there was some difference between boys (32 percent) and girls (29 percent) who were given about the same amount to drink. There was also a slight difference between boys (21 percent) and girls (23 percent) who were given more than usual amount of liquid to drink. Very little difference was noticed between boys (5 percent) and girls (4 percent) who were given nothing to drink.

The percentage of children who were given less than usual to drink during the episode of diarrhoea increases from 37 percent in the case of children aged below 12 months to 47 percent among children aged 48-59 months. The percentage of children who were given about the same to drink during the episode of diarrhoea decreases from 33 percent in the case of children aged below 12 months to 29 percent for children aged 48-59 months. The percentage of diarrhoea increases from 17 in the case of children aged below 12 months to 29 percent for children aged 48-59 months. The percentage of diarrhoea increases from 17 in the case of children aged below 12 months to 22 percent for children aged 48-59 months.

There is little influence of educational levels of mothers on the drinking practices during diarrhoea among children aged 0-59 months. However, there is some impact of economic levels of mothers on the drinking practices of children during diarrhoea. The proportion of children who were given less than usual amount of liquids to drink declined from 44 percent for children of mothers from households in the poorest quintile to 39 percent for children of mothers from households in the patterns were noted for other indicators related to drinking practices during an episode of diarrhoea

The SHHS2 data related to eating practices during diarrhoea indicates that about 59 percent of children with diarrhoea were given less than usual to eat, while 25 percent of them were given about the same to eat, 2 percent of them were given more than usual to eat and 4 percent of children with diarrhoea were given nothing to eat during the episode of diarrhoea. The percentage of children who were given less than usual/required amount of food to eat during episode of diarrhoea increases from 40 percent in the case of children aged below 12 months 67 percent among children aged 48-59 months. Similarly, the percentage of children who were given about the same amount of required food to eat during episode of diarrhoea increases from 19 percent in the case of children aged 48-59 months. There is little influence of educational levels of mothers on the eating practices of children during diarrhoea. However, there is some impact of economic levels of mothers on the eating practices of children who were given diarrhoea.

were given less than usual to eat during the episode of diarrhoea declined from 63 percent for children of mothers from households in the poorest quintile to 54 percent for children of mothers from households in the richest quintile. The proportion of children who were given about the same to eat during the episode of diarrhoea increased from 21 percent for children of mothers from households in the poorest quintile to 33 percent for children of mothers from households in the richest quintile to 33 percent for children of mothers from households in the poorest quintile to 33 percent for children of mothers from households in the richest quintile.

	Percent	distribution	of children	age 0-59 m	T onths with c	able 6.5: I	Feeding prac	ctices du	ring diarr	hoea	d given dur	ing episode	of diarrhoea. S	Sudan, 2010		
	Had	Number		Drin	king practice	es during dia	rrhoea:				Eating pra	ictices durin	g diarrhoea:			Number of
	diarrhoea	of	Given	Given	Given	Given	Missing/DK	Total	Given	Given	Given	Stopped	Exclusively	Missing/	Total	children
Second	indast	chyldren	dess	about	more	nothing	0.3	100.0	des.9	appyt	mare to	feod	breastied	P.K	100.0	aged 4-59
Middle	199	39808	4023	198	9758	todignk	1.2	100.0	than	289	eat	4.6	11.2	0.6	100.0	mangh
Fourth	weeks	2490	usualto	sameto	usuatto	5.0	0.6	100.0	usualto	sameto	1.0	5.4	8.8	0.2	100.0	582
Richest	18.6	months	drink	drink	drink	5.4	1.3		eat	\$95	-1.6	3.9	7.4		100.0	diayhoea
SUDAN (Total)	26.8	13282	42.2	30.7	21.9	4.5	0.6	100.0	59.1	25.3	1.8	4.0	9.3	0.5	100.0	3555
iviale	20.8	674Z	41.5	3Z.4	20.8	4.7	<u>U.6</u>	0.001	58.9	25.9	<u> </u>	4.2	8.5	0.6	100.0	1806
Female	26.8	6540	42.9	29.0	23.0	4.4	0.7	100.0	59.3	24.6	1.8	3.7	10.2	0.5	100.0	1750
State of residence											1221 22					
Northern	25.6	170	55.9	29.2	12.5	0.9	1.5	100.0	(68.5)	(21.7)	(0.0)	(7.8)	(2.0)	(0.0)	(100.0)	43
River Nile	17.5	404	41.7	38.2	16.6	3.6	0.0	100.0	56.0	28.7	4.2	4.7	5.4	0.9	100.0	71
Red Sea	20.8	281	50.3	27.6	16.9	2.8	2.4	100.0	55.5	32.4	1.9	3.0	3.8	3.3	100.0	58
Kassala	26.5	780	48.1	37.3	9.3	4.4	1.0	100.0	56.3	27.9	0.5	7.0	7.6	0.8	100.0	207
Gadarif	28.2	678	43.5	37.2	11.9	6.5	0.8	100.0	51.5	31.7	4.4	1.8	10.2	0.4	100.0	191
Khartoum	24.0	1868	39.4	32.6	23.7	2.7	1.6	100.0	57.4	28.6	0.1	7.3	6.2	0.4	100.0	449
Gezira	20.8	1750	33.2	38.9	20.2	7.7	0.0	100.0	46.6	37.5	0.9	4.4	10.6	0.0	100.0	364
White Nile	32.0	675	43.8	34.8	16.2	5.2	0.0	100.0	59.1	28.1	3.0	1.2	8.6	0.0	100.0	216
Sinnar	26.5	517	47.7	31.4	17.4	2.1	1.4	100.0	60.8	23.4	2.1	1.9	10.5	1.2	100.0	137
Blue Nile	33.6	595	29.9	42.5	25.0	2.4	0.2	100.0	50.4	35.6	3.0	3.2	7.8	0.0	100.0	200
North Kordofan	25.7	1425	42.6	26.0	26.3	4.1	1.0	100.0	68.4	15.9	1.6	4.2	9.4	0.5	100.0	366
South Kordofan	29.4	681	43.7	26.9	21.3	8.1	0.0	100.0	57.6	25.9	0.8	3.9	11.8	0.0	100.0	200
North Darfur	24.2	947	37.8	31.7	22.3	7.6	0.6	100.0	52.3	25.9	4.5	3.6	13.4	0.4	100.0	229
West Darfur	29.7	682	55.2	23.3	16.1	4.3	1.1	100.0	63.0	24.1	3.2	.7	7.8	1.1	100.0	202
South Darfur	33.9	1829	44.4	20.7	31.8	3.0	0.0	100.0	69.6	13.5	1.4	3.4	11.4	0.8	100.0	621
Area of residence	l a la filma di	n se statistika	anne i	12194493	States been	Care and Care	<u>, data , 15</u> 1		同界会社の			(lán galá )	A. Carrier and service	a szereketerek fi		
Urban	22.7	3669	41.6	31.0	21.1	5.1	1.2	100.0	57.2	27.3	0.8	5.8	8.2	0.7	100.0	833
Rural	28.3	9613	42.4	30.7	22.1	4.4	0.4	100.0	59.7	24.6	2.1	3.4	9.7	0.5	100.0	2723
Age group	na antara di sila dan Manazarta					and the second									1.22.45%	
0-11	32.7	2964	36.5	32.6	16.6	14.0	0.3	100.0	40.3	19.1	1.6	4.9	33.0	1.1	100.0	970
12-23	36.3	2613	46.1	28.3	23.4	1.7	0.5	100.0	66.6	25.6	2.1	4.4	1.1	0.3	100.0	949
24-35	27.2	2762	40.7	31.8	26.4	0.4	0.7	100.0	65.9	27.5	2.3	3.5	0.1	0.6	100.0	750
36-47	19.8	2811	44.8	30.9	22.4	1.2	0.7	100.0	65.2	30.6	1.7	2.3	0.0	0.2	100.0	557
48-59	15.4	2131	47.1	29.3	21.9	0.0	1.7	100.0	67.1	28.1	1.2	3.5	0.0	0.0	100.0	329
Mother's educati	on level	1. 1. <u>1. 1.</u>	All sec. as	Salation of	No Para de la		A Capital States	an and a start of				a sa Maria				Standard
None	27.6	7359	42.7	31.1	21.6	3.9	0.7	100.0	59.0	25.4	2.1	3.6	9.2	0.7	100.0	2028
Primary	27.4	4044	41.2	29.8	22.7	5.6	0.6	100.0	60.2	24.0	1.2	4.8	9.4	0.3	100.0	1109
Secondary	21.9	1785	42.3	32.2	20.2	5.1	0.2	100.0	56.8	28.7	1.5	3.0	9.8	0.1	100.0	390
Missing/DK	30.0	94	46.4	17.6	33.8	2.2	0.0	100.0	53.5	17.6	12.9	7.7	8.3	0.0	100.0	28
Wealth index qui	ntile	t And This	And the second								South State		1. 2.58. Q. A.			
Poorest	33.2	3213	43.6	27.4	25.3	3.5	0.3	100.0	63.4	21.3	2.4	3.4	8.8	0.7	100.0	1068

There are also differences among states in terms of eating practices during diarrhoea. The proportion of children (age 0-59 months) who were given less than usual to eat during episode of diarrhoea ranged from 70 percent in South Darfur State to 50percent in Blue Nile State. The proportion of children who were given about the same to eat during episode of diarrhoea ranged from 14 percent in South Kordofan State to 38 percent in Gezira State. The proportion of children who were given more than usual to eat during episode of diarrhoea range from 5 percent in North Darfur to less than 1 percent in Khartoum.

### Oral rehydration therapy with continued feeding and other treatments

Table 6.5 presents information on oral rehydration therapy with continued feeding and other treatments for children with diarrhoea. It indicates the percentage of children aged 0-59 months with diarrhoea in the last two weeks preceding the survey who received ORS or increased fluid, oral rehydration therapy (ORT), and oral rehydration therapy with continued feeding, percentage of children with diarrhoea who received other treatments, and percentage of children who were not given any treatment or drug. Very little difference was noticed between boys and girls with diarrhoea who received oral rehydration therapy with continued feeding and other treatments. However, there was noticeable difference between children of different age groups who received oral rehydration therapy with continued feeding and other treatments. The education level of the mothers was found to impact the proportion of children aged 0-59 months with diarrhoea who received oral rehydration therapy with continued feeding. The economic status of the household was found to have some impact on the proportion of children (aged 0-59 months) with diarrhoea who received oral rehydration therapy with continued feeding and other treatments. The education level of the mothers was found to impact the proportion of children aged 0-59 months with diarrhoea who received oral rehydration therapy with continued feeding. The economic status of the household was found to have some impact on the proportion of children (aged 0-59 months) with diarrhoea who received oral rehydration therapy with continued feeding and other treatments. About a quarter of children (25 percent) were not given any treatment or drug during the episode of diarrhoea.

### Children with diarrhoea who received ORS or increased fluid

The SHHS2 data indicated that overall 39 percent of children with diarrhoea received ORS or increased fluids during the episode of diarrhoea. Very little difference was noticed between boys and girls with diarrhoea who received ORS or increased fluids. About 38 percent of boys with diarrhoea received ORS or increased fluid compared to 39 percent of girls. Very little difference was also noticed between children with diarrhoea in rural and urban areas who received ORS or increased fluids. About 38 percent of children in urban areas received ORS or increased fluid compared to 39 percent of children in rural areas. The proportion of children with diarrhoea who received ORS or increased fluids increased from 32 percent among children aged 0-11 months to 38 percent among those aged 48-59 months. The proportion of children with diarrhoea who received ORS or increased fluids was higher among children of mothers with no education (39 percent) than that for children of mothers with secondary or higher level of education (36 percent). The proportion of children with diarrhoea who received ORS or increased fluids showed a declining trend from 41 percent among children from households in the poorest quintile to 35 percent among children from households in the richest quintile. The proportion of children with diarrhoea who received who received ORS or increased fluids during the episode of diarrhoea ranged from 28 percent in Northern State to 49 percent in Blue Nile State.

### Children with diarrhoea who received ORT

The SHHS2 data indicates that overall 52 percent received ORT (ORS or recommended homemade fluids or increased fluids) during the episode of diarrhoea. No differences were noticed between boys and girls, household wealth and very little difference in rural (to 51 percent) and urban areas 54

percent of children in urban areas. The proportion of children with diarrhoea who received ORT increased from 45 percent among children aged 0-11 months to 51 percent among those aged 48-59 months. The proportion of children with diarrhoea who received ORT was lower among children of mothers with no education (50 percent) than that for children of mothers with secondary or higher level of education (54 percent). The proportion of children with diarrhoea who received who received ORT ranged from 41 percent in Kassala State to 61 percent in South Darfur State.

*Children with diarrhoea who received ORT with continued feeding:* The SHHS2 data indicated that overall 11.8 percent received ORT with continued feeding. The proportion of children with diarrhoea who received ORT with continued feeding ranged from 7.4 percent in South Darfur State to 19.4 percent in Blue Nile State (Figure 6.8).

Figure 6.8 Oral rehydration therapy with continued feeding and other treatments: Percentage of children age 0-59 months with diarrhea in the last two weeks who received ORT with continued feeding, Sudan, 2010



Very little difference was noticed between boys and girls with diarrhoea who received ORT with continued feeding. About 12 percent of boys received ORT with continued feeding compared to 11 percent of girls. Very little difference was also noticed between children with diarrhoea in rural and urban areas who received oral rehydration therapy with continued feeding. About 13 percent of children in urban areas received ORT with continued feeding compared to 12 percent of children in rural areas. The proportion of children with diarrhoea who received ORT with continued feeding increased from 8 percent among children aged 0-11 months to 11 percent among those aged 48-59 months. The proportion of children with diarrhoea who received ORT with continued feeding was slightly lower among children of mothers with no education (12 percent) than that for children of mothers with secondary or higher level of education (13 percent). The proportion of children with diarrhoea who received on 11 percent among children from households in the poorest quintile to 17 percent among children from households in the poorest quintile to 20 percent in Blue Nile State (Figure 6.8).

### Children with diarrhoea who received other treatment

The SHHS2 data indicated that overall 59 percent of children with diarrhoea received other treatment, the most common treatment being the use of antibiotic (pill or syrup). About 41 percent of children with diarrhoea received antibiotic (pill or syrup). Very little difference was also noted between children with diarrhoea in rural and urban areas who received antibiotic (pill or syrup). About 40 percent of children in urban areas received antibiotic (pill or syrup) compared to 41 .1 percent of children in rural areas. The proportion of children with diarrhoea who received antibiotic (pill or syrup) increased from 37 percent among children aged 0-11 months to 44 percent among those aged 48-59 months. The proportion of children with diarrhoea who received antibiotic (pill or syrup) was slightly lower among children of mothers with no education (41 percent) than that for children of mothers with secondary or higher level of education (44 percent) and among children from households in the poorest quintile (40 percent) compared to children from households in the richest quintile (44 percent). The proportion of children with diarrhoea who received antibiotic (pill or syrup) ranged from 24 percent in White Nile State to 56 percent in Gadarif State.

			Tabl	e 6.6: Oral	rehydratio	n thera	py with	continued	feeding a	nd other t	reatments	5				
Percentage of	children age	d 0-59 months wit	h diarrhoea	in the last tw	o weeks who	received tre	oral rehy	dration thera Sudan 2010	by with conti	inued feedin	g, and perce	ntage of ch	ildren with d	liarrhoea v	vho receiv	ed other
	Children	with diarrhoea who r	eceived				<u></u> ,	00000, 2020	ther treatmen	it					Not	No. of
	ORS or increased fluids	ORT (ORS or recommended homemade fluids or increased fluids)	ORT with continue d feeding <sup>(1)</sup>	Pill or syrup: Antibiotic	Pill or syrup: Antimotilit	Pill or syrup: Zinc	Pill or syrup: Other	Pill or syrup: Unknown	Injection: Antibiotic	Injection Non- antibiotic	Injection: Unknown	Intra venous	Home remedy/ Herbal medicine	Other	given any treatm ent or drug	children aged 0-59 months with diarrhoea
Sex		in Pa														
Male	37.9	52.1	12.4	41.0	4.1	1.0	0.3	2.7	1.2	0.1	0.1	0.1	3.9	3.0	25.3	1806
Female	39.4	51.8	11.2	40.7	3.7	0.3	0.4	4.3	0.6	0.1	0.2	0.0	4.6	3.6	24.5	1750
State of re	sidence												and the second second			
Northern	(28.2)	(60.8)	(8.4)	(40.0)	(0.9)	(0.0)	(0.0)	(1.2)	(0.6)	(00)	(0.0)	(0.0)	8.4	6.6	23.9	43
River Nile	38.5	55.0	15.8	41.5	1.5	0.0	0.0	1.4	0.0	0.7	0.0	0.0	6.0	6.5	25.1	71
Red Sea	41.3	47.5	16.8	38.1	2.5	0.8	0.9	1.9	0.8	0.0	0.0	0.0	4.0	5.6	35.6	58
Kassala	35.3	41.0	11.3	39.8	2.5	0.4	1.1	6.3	1.5	0.0	1.8	0.0	3.5	1.5	29.6	207
Gadarif	36.0	46.1	15.4	55.9	1.5	0.4	0.4	0.9	0.0	0.0	0.0	0.0	4.4	1.3	23.5	191
Khartoum	36.1	58.9	12.4	43.4	1.0	3.0	0.9	1.4	2.0	0.0	0.0	0.0	2.9	3.1	20.8	449
Gezira	26.5	44.0	15.5	33.5	10.3	0.0	0.0	2.8	1.1	0.0	0.5	0.0	3.0	3.2	29.6	364
White Nile	33.3	53.0	13.7	24.1	30.1	0.0	0.3	0.0	1.2	0.0	0.0	0.0	3.3	4.1	23.1	216
Sinnar	29.5	45.8	10.0	53.4	1.0	0.7	0.0	5.9	1.3	0.0	0.6	0.0	1.9	2.3	23.6	137
Blue Nile	48.5	53.9	19.4	41.5	2.6	0.6	0.2	3.0	1.6	0.0	0.0	0.0	6.3	4.7	23.6	200
N.Kordofan	46.1	54.8	8.5	33.8	1.7	0.7	0.5	10.6	1.4	0.0	0.0	0.4	2.8	1.5	25.4	366
S. Kordofan	38.5	49.0	9.1	44.8	1.6	0.3	0.0	2.7	0.5	0.4	0.3	0.3	8.6	5.6	21.6	200
North Darfur	39.6	46.7	13.0	47.2	0.4	0.3	0.5	2.7	0.0	0.6	0.0	0.0	3.0	4.4	28.0	229
West Darfur	40.3	43.4	11.8	37.6	0.7	0.5	0.0	0.9	0.3	0.0	0.0	0.0	2.7	9.5	30.8	202
South Darfur	45.5	60.9	7.4	43.5	0.4	0.2	0.0	3.6	0.4	0.0	0.0	0.0	6.2	1.2	22.1	621
Area of resider	nce	<ul> <li>A. State of the state of the state of the second biology of the state of the state of the second biology of the state of the state of the second biology of the state of the state of the state of the second biology of the state of the state of the state of the second biology of the state of the state of the state of the second biology of the state of the</li></ul>		70 2.00	12.895 A.S	HAR .	4 stability		Same and			and the second second		1 August 1		
Urban	38.1	54.3	12.6	39.9	5.5	2.0	0.6	1.8	1.6	0.0	0.1	0.0	3.8	3.1	23.4	833
Rural	38.8	51.3	11.6	41.1	3.4	0.3	0.2	4.0	0.7	0.1	0.2	0.1	4.4	3.3	25.4	2723
Age						0.2400									Propriet.	
0-11	31.8	44.7	8.1	36.9	2.3	0.9	0.2	2.8	1.0	0.0	0.1	0.0	3.6	2.7	33.0	970
12-23	41.9	55.6	12.7	42.4	5.3	0.6	0.2	2.5	1.3	0.0	0.2	0.0	3.7	3.0	21.4	949
24-35	44.4	57.5	13.9	41.5	3.4	1.0	0.3	5.1	0.4	0.2	0.0	0.2	4.6	3.6	21.6	750
36-47	38.0	51.6	14.5	41.9	4.9	0.1	0.4	3.7	0.8	0.1	0.7	0.1	6.0	3.1	22.2	557
48-59	37.5	50.6	11.1	44.4	4.2	0.2	1.2	4.0	1.1	0.0	0.3	0.0	3.9	5.3	23.1	329
Mother's educ	ation level	and the second	1 and the start of the						State State		1.4.289					
None	39.4	50.1	11.5	41.1	2.9	0.6	0.3	4.0	0.9	0.1	0.3	0.1	4.8	2.9	26.4	2028
Primary	37.9	54.6	11.6	39.5	5.5	0.5	0.1	2.5	0.7	0.0	0.1	0.0	3.8	4.0	23.4	1109
Secondary	36.9	54.4	13.2	42.7	4.9	1.5	1.2	2.3	1.7	0.1	0.2	0.0	3.1	3.2	21.8	390
Missing/DK	38.4	45.9	23.0	43.9	0.0	0.0	0.0	17.7	0.0	0.0	0.0	0.0	0.0	2.2	16.7	28
Wealth index	quintiles		131.92.20	Alter - Control - St		1.25.1.25.6			A Carloge Sector	Sector and				Carlos A	25,69,60,69	
Poorest	41.3	52.4	10.9	40.0	0.6	0.3	0.2	4.4	0.7	0.0	0.4	0.1	5.3	2.6	26.9	1068

Second	39.3	48.0	10.4	41.8	2.3	0.3	0.3	4.5	0.9	0.1	0.2	0.2	4.2	3.5	27.2	847
Middle	38.5	53.4	12.9	41.3	6.9	0.4	0.1	2.5	1.1	0.3	0.1	0.0	4.1	2.6	22.9	709
Fourth	34.9	55.1	11.4	43.0	7.3	0.0	1.0	2.2	0.8	0.0	0.1	0.0	3.2	3.0	22.9	582
Richest	35.3	52.1	16.8	36.2	6.4	4.3	0.2	2.1	1.9	0.0	0.0	0.0	3.4	6.5	20.9	349
SUDAN	38.6	52.0	11.8	40.8	3:9	0.7	0.3	3.5	0.9	0.1	0.2	0.1	4.2	3.3	24.9	3555
<sup>[1]</sup> SHHS indic	ator 3.8															

### Care Seeking and Antibiotic Treatment of Pneumonia

Pneumonia is the leading cause of death in children and the use of antibiotics for treatment of Under-five children with suspected pneumonia is a key intervention. Children with suspected pneumonia are those who had an illness with a cough, accompanied by rapid or difficult breathing and whose symptoms were not due to a problem in the chest and a blocked nose. A World Fit for Children goal is to reduce by one-third the deaths due to acute respiratory infections.

### Prevalence of suspected pneumonia

Table 6.7 presents the prevalence of suspected pneumonia among children aged 0-59 months and, if care was sought outside the home, the site of care. It also provides information relating to the percentage of children aged 0-59 months with suspected pneumonia in the last two weeks preceding the survey who were taken to a health provider and percentage of children who were given antibiotics. The SHHS2 data indicates that about 19 percent of children aged 0-59 months were reported to have had symptoms of pneumonia during the two weeks preceding the survey. There was slight difference with regard to suspected pneumonia between children from urban areas (18 percent) and children from rural areas (19 percent). There was slight difference with regard to suspected pneumonia between children of mothers with no education (19 percent), children of mothers with primary education (20 percent) and children of mothers with secondary or higher levels of education (16 percent). There was also some difference with regard to suspected pneumonia between children from households in the poorest quintile (25 percent) and children from households in the richest quintile (17 percent). There was some difference between children of different age groups who were reported to have had suspected pneumonia during the two weeks preceding the survey. The proportion of children with suspected pneumonia increased from 19 percent among children aged 0-11 months to 16 percent among those aged 48-59 months. The proportion of children aged 0-59 months reported to have had symptoms of pneumonia during the two weeks preceding the survey ranged from 9 percent in River Nile State to 31 percent in South Darfur State.

### Care seeking for suspected pneumonia

Of the children with suspected pneumonia during the two weeks preceding the survey, 56 percent of them were taken to an appropriate health provider. The percentage of children with suspected pneumonia taken to public sector health facilities (government hospital, government health centre and government health unit), village health worker and mobile/outreach clinic and other public health facility was 48 percent. The percentage of children with suspected pneumonia taken to private facilities such as private hospital/clinic, private physician, pharmacy, mobile clinic and other private medical facilities was 13 percent. Very little difference between boys (57 percent) and girls (55 percent) was observed with regard to children with suspected pneumonia who were taken to an appropriate health provider. The proportion of children age 0-59 years with suspected pneumonia who were taken to an appropriate health provider was higher among children from urban areas (67 percent) that for children from rural areas (52 percent). There was also noticeable difference (with regard to those who were taken to an appropriate health provider) between children of mothers/caretakers with no education (51 percent), children of mothers/caretakers with primary education (59 percent) and children of mothers/caretakers with secondary or higher levels of education (73 percent) who were taken to an appropriate health provider. There was also significant difference (with regard to those who were taken to an appropriate health provider) between children from households in the poorest quintile (40 percent) and children from the households in the richest quintile (71 percent). The proportion of children with suspected pneumonia and who were taken to an appropriate health provider increased from 54 percent among children aged 0-11

months to 52 percent among those aged 48-59 months. The proportion of children aged 0-59 months reported to have had symptoms of pneumonia during the two weeks preceding the survey and taken to an appropriate provider ranged from 80 percent in Red Sea State to 32 percent in South Darfur State.

	Had	Number	Child	dren with	suspect	ed pneun	nonia		C	hildren v	vith susp	pected pn	eumoni	a who	were ta	ken to	:		Any	Percentage	Number of
	suspected	of		who	were tak	en to:													appropriate	of children	children aged
	pneumonia in the last two weeks	children aged 0-59 months	Public sector: Government hospital	Public sector: Government health	Public sector: Government health unit	Public sector: Village health worker	Public sector: Mobile / Outreach clinic	Public sector: Other	Private hospital / clinic	Private physician	Other private medical	Private pharmacy	Mobile clinic (private)	Other private medical	Religious healer	Traditional healer	Relative or friend	Other	provider [1]	with suspected pneumonia who received antibiotics in the last two weeks [2]	0-59 months with suspected pneumonia in the last two weeks
Sex		1. A.	1947			n na si ar na sao si				1997 - 1997 - 1		5225		i san	5 j. 200	19 <sub>10</sub>	(gan a j	19 <sup>1</sup> (8)	다 영화 나 같	dan laja <sup>k</sup>	
Male	18.9	6742	14.2	21.9	5.7	3.8	1.6	0.6	3.4	5.0	0.5	3.7	0.6	0.5	0.2	0.7	0.9	1.2	56.6	65.7	1277
Female	18.5	6540	15.2	21.3	6.3	4.7	1.2	0.5	1.0	3.5	0.4	6.2	1.3	.4	.0	2.1	1.0	0.6	54.9	66.5	1207
State of reside	nce	ha da ang	- 7 - C.	397.2		Line	da a				han <sup>a</sup> da sé	and a second	See Street			<u></u>		1.			
Northern	16.4	170	32.3	33.1	1.4	1.5	0.0	0.0	0.0	0.7	0.0	5.6	0.0	0.0	0.0	1.3	0.4	0.0	68.9	63.9	28
River Nile	8.6	404	13.4	27.9	1.1	7.5	2.7	1.8	2.4	17.4	0.0	1.2	0.0	0.0	0.0	1.2	0.9	2.4	73.0	69.0	35
Red Sea	12.9	281	34.1	35.6	2.8	3.7	0.0	0.0	1.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	79.6	76.5	36
Kassala	20.0	780	17.0	31.7	11.9	4.6	1.3	.0	.6	6.9	0.0	1.4	0.0	0.0	0.0	0.0	0.6	0.0	74.0	80.9	156
Gadarif	14.3	678	18.0	18.5	11.4	2.7	.0	1.0	.0	10.0	0.0	0.7	0.0	0.0	0.8	0.9	1.7	0.0	61.6	65.8	97
Khartoum	19.2	1868	23.8	33.8	2.5	0.0	0.6	0.0	7.2	5.3	0.6	2.0	0.0	0.6	0.0	0.0	0.0	1.3	73.8	74.3	358
Gezira	11.3	1750	17.8	38.6	2.3	2.7	1.1	0.0	1.1	7.8	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.8	68.7	74.7	198
White Nile	27.1	675	11.1	24.4	7.1	7.3	2.7	0.8	1.4	5.6	0.6	3.7	0.0	0.6	0.0	0.6	0.5	0.7	61.0	69.0	183
Sinnar	17.3	517	17.3	18.9	4.9	4.9	4.1	2.1	1.5	3.1	0.0	0.6	0.8	0.0	0.0	1.0	0.8	0.0	57.0	72.3	90
Blue Nile	15.3	595	8.3	17.0	24.5	7.4	0.0	3.3	0.1	1.1	0.7	1.1	0.0	0.7	0.0	2.0	0.0	0.6	60.9	61.9	91
North Kordofan	15.5	1425	14.1	16.7	10.6	8.8	1.6	1.5	1.5	3.1	.8	4.1	0.0	0.8	0.0	0.9	1.6	0.0	58.2	73.7	221
South Kordofan	23.2	681	12.3	10.1	3.8	5.9	3.1	0.0	1.0	0.0	1.0	4.7	2.7	1.0	0.0	0.8	5.0	0.7	39.6	65.2	158
North Darfur	15.9	947	14.6	23.6	3.2	9.6	1.6	0.0	0.0	2.3	0.0	2.7	2.0	0.0	0.8	0.4	0.7	0.9	56.9	65.3	150
West Darfur	16.8	682	19.5	6.8	9.8	1.0	1.3	1.3	11.9	1.2	0.7	3.8	0.7	0.7	0.0	0.0	0.0	5.0	53.0	60.6	114
South Darfur	31.2	1829	6.3	11.8	3.2	3.0	1.0	0.0	0.3	3.1	0.7	13.4	2.6	0.7	0.0	3.9	0.7	1.0	31.8	50.8	570
Area of reside	nce							-					1. 1	1	1975 g					a na an	Section of
Urban	17.6	3669	22.4	26.3	1.8	1.1	0.1	0.2	5.2	9.3	1.1	6.5	0.1	1.1	0.0	0.0	0.8	0.8	66.8	72.5	646
Rural	19.1	9613	11.9	19.9	7.5	5.4	1.8	0.6	1.1	2.5	0.2	4.3	1.3	0.2	0.1	1.8	1.0	1.0	51.9	63.9	1838
Age							2 ap			10 - 20 2 - 20		5 2 6 <sup>1</sup> 7					12 <sup>10</sup> - 1	1		a care a tra	the second stated
0-11	18.6	2964	14.4	20.5	44	3.9	1.7	0.8	14	5.2	1.3	4.6	1.0	1.3	0.0	1.4	0.9	0.9	54.3	61.3	552

12-23	19.6	2613	14.0	25.1	6.9	4.6	1.0	0.2	2.6	3.4	0.0	4.8	2.0	0.0	0.0	0.2	0.4	0.7		59.4	70.0	513
24-35	21.1	2762	17.8	21.0	5.3	4.3	1.3	0.6	2.9	4.1	0.3	4.0	1.0	0.3	0.1	2.5	0.9	0.9		58.5	67.5	582
36-47	18.1	2811	13.1	18.6	7.9	4.5	1.2	0.3	1.9	5.3	0.5	6.1	0.5	0.5	0.2	1.0	1.1	0.6		53.0	66.0	508
48-59	15.5	2131	12.9	23.7	5.5	3.5	1.7	0.7	2.0	2.7	0.0	5.4	0.0	0.0	0.1	1.6	1.7	1.8		52.0	66.1	330
Mothers educat	ion level						1	n	а — 2 а — 14	3	E.	1 a <sup>2</sup> a <sup>- 2</sup>	1.5.2	36 E	а а				5		e. <sup>6</sup> - 5	E. g
None	18.7	7359	13.0	17.4	7.0	5.0	2.1	0.6	2.3	1.9	0.4	4.5	1.5	0.4	0.1	1	.2	0.9	0.9	50.8	61.2	1374
Primary	19.8	4044	15.2	26.0	4.9	3.8	0.7	0.6	2.1	5.3	0.4	4.2	0.4	0.4	0.2	1	.8	0.8	0.9	58.7	69.8	799
Secondary	16.3	1785	22.2	30.4	3.6	0.9	0.0	0.2	2.2	12.9	0.9	6.5	0.2	0.9	0.0	0	.1	1.7	0.4	72.7	78.8	291
Missing/DK	22.1	94	2.3	8.0	10.5	15.3	0.0	0.0	0.0	0.0	0.0	35.1	0.0	0.0	0.0	8	.0	2.3	10.7	29.8	69.5	21
Wealth index qu	intiles	-	2									14 H	N	19 N N	12						e. 1	
Poorest	24.7	3213	7.8	13.7	5.8	6.5	1.8	0.5	1.1	0.6	0.3	7.5	2.0	0.3	0.2	1	.9	1.1	1.0	40.1	55.2	795
Second	17.5	2901	11.9	17.8	11.6	4.7	1.6	0.8	0.9	1.6	0.3	4.8	1.3	0.3	0.0	2	.6	0.9	0.8	52.1	66.1	509
Middle	16.4	2800	19.8	24.1	6.7	3.8	1.6	0.7	1.9	5.3	0.9	3.5	0.3	0.9	0.2	0	.4	1.3	0.3	64.8	72.5	458
Fourth	16.1	2490	19.6	34.3	2.1	3.1	0.6	0.3	2.5	6.2	0.5	3.7	0.0	0.5	0.0	0 0	.1	0.8	1.9	68.8	72.5	400
Richest	17.2	1878	22.5	27.6	1.4	0.0	0.6	0.2	6.9	13.4	0.6	2.2	0.0	0.6	0.0	0 0	.9	0.3	0.5	71.2	76.2	323
SUDAN (TOTAL)	18.7	13282	14.7	21.6	6.0	4.2	1.4	0.5	2.2	4.2	.5	4.9	1.0	0.5	0.1	. 1	.4	1.0	0 <b>.9</b>	55.8	66.1	2485

Figure 6.9 Care seeking for suspected pneumonia: Percentage of children age 0-59 months with suspected pneumonia in the last two weeks who were taken to a health provider, Sudan, 2010



## Antibiotic treatment for suspected pneumonia

Table 6.7 presents the use of antibiotics for the treatment of suspected pneumonia in under-five children by sex, age, region, residence, age, and socioeconomic factors. In Sudan, 66 percent of under-five children with suspected pneumonia during the last two weeks preceding the survey had received an antibiotic. Very little difference between boys (66 percent) and girls (67 percent) was observed with regard to children who had received antibiotics. The percentage of under-five children with suspected pneumonia who had received an antibiotic in the last two weeks preceding the survey was considerably higher in urban areas (73 percent) than that for children in rural areas (64 percent). The proportion of children with suspected pneumonia and who received an antibiotic increased from 61 percent among children aged 0-11 months to 66 percent among those aged 48-59 months. There was also significant difference (with regard to those who received antibiotics) between children of mothers/caretakers with no education (61 percent), children of mothers/caretakers with primary education (70 percent) and children of mothers/caretakers with secondary or higher levels of education (79 percent). The proportion of under-five children with suspected pneumonia during the last two weeks preceding the survey who had received an antibiotic was lower for children belonging to households in the poorest quintile (55 percent) than that for children from households in the richest quintile (76 percent). The proportion of children aged 0-59 months reported to have had symptoms of pneumonia during the two weeks preceding the survey and had received antibiotics ranged from 51 percent in South Darfur State to 81 percent in Kassala State.

Figure 6.10 Antibiotic use during suspected pneumonia: Percentage of children age 0-59 months with suspected pneumonia in the last two weeks who were taken to a health provider, Sudan, 2010



# Care-seeking behaviour of mothers/child caretakers and knowledge of two danger signs of pneumonia

Issues related to knowledge of danger signs of pneumonia are presented in Table 6.8. Obviously, mothers' knowledge of the danger signs is an important determinant of care-seeking behaviour. Overall, 5 percent of women know of the two danger signs of pneumonia – fast and difficult breathing. The mothers/caretakers interview during SHHS2 indicated several symptoms that would lead them to take a child to a health facility. About 74 percent of the mothers indicated that they would take a child immediately to a healthy facility if the child develops a fever. Fourteen percent of mothers identified fast breathing and 20 percent of mothers identified difficult breathing as symptoms for taking children immediately to a health care provider.

Other common symptoms indicated by mothers/caretakers were identified as becoming sicker (44 percent), has blood in stool (7 percent); is drinking poorly (4 percent).

The percentage of mothers/caretakers who recognise the two danger signs of pneumonia was higher among mothers in urban areas (10 percent) than among mothers in rural areas (3 percent). The percentage of mothers/caretakers who recognised the two danger signs of pneumonia was higher among mothers with secondary or higher education (9 percent) that among mothers with primary education (6 percent) and mothers with no education (2 percent). Similarly, the percentage of mothers/caretakers who recognized the two danger signs of pneumonia was higher among mothers from the households in the richest quintile (11 percent) than those belonging to the poor households in the poorest quintile (1 percent). The percentage of mothers/caretakers who recognized the two danger signs of pneumonia was highest in Khartoum (15 percent) and the lowest in South Kordofan (0.2 percent).

-	T	able 6.8	: Know	ledge of	f the tw	o dange	er sign	s of pne	umonia	
Percentage of mo take the child im	thers a mediate br	nd cares ely to a reathing	takers o health i y as sign	of childr facility, s for se	en age ( and per eking ca	0-59 mc centago are imm	onths b e of mo pediate	others v	toms that would who recognize fa an 2010	d cause them to ast and difficult
	Perce show	ntage o uld be ta	f mothe aken im	ers/care mediate chi	takers w ely to a ild:	vho thir health f	nk that acility	a child if the	Mothers/car etakers who	Number of
	to drink or breastfeed	Becomes sicker	Develops a fever	Has fast breathing	difficulty breathing	Has blood in stool	poorly	Has other symptoms	the two danger signs of pneumonia	number of mothers/ caretakers of children aged 0-59 months
State of								985 a		
Northern	47	44.9	73.9	22.1	18.6	31	09	29.3	45	123
River Nile	19.5	52.4	76.1	14.0	13.6	3.8	3.8	22.1	1.5	265
Red Sea	12.5	47.6	66.0	23.0	17.3	10.8	6.3	21.3	8.0	197
Kassala	8.5	50.8	72.7	12.6	16.0	6.3	2.0	11.5	2.5	487
Gadarif	4.3	40.0	80.9	9.2	11.9	1.6	1.2	44.1	1.1	405
Khartoum	9.1	42.4	81.2	23.1	30.4	6.4	4.5	28.4	14.7	1205
Gezira	6.0	41.5	78.2	17.6	20.0	6.1	4.0	21.7	4.6	1105
White Nile	11.0	36.6	87.3	25.1	29.9	4.5	6.0	35.7	10.3	426
Sinnar	11.5	42.9	79.8	11.3	15.7	5.7	1.0	29.3	1.7	323
Blue Nile	14.0	45.7	73.4	7.4	14.6	5.1	5.3	40.0	0.5	354
North Kordofan	6.0	32.7	68.6	11.0	22.9	6.7	3.0	29.5	2.8	868
South Kordofan	9.1	31.0	77.9	10.0	15.0	5.4	2.9	33.9	0.2	412
North Darfur	13.8	53.4	64.9	7.8	11.8	9.0	3.0	26.2	1.0	540
West Darfur	22.3	59.1	62.0	10.1	15.1	16.4	7.0	17.1	1.7	402
South Darfur	9.3	46.4	64.3	7.2	16.9	10.6	2.7	48.4	1.3	1131
Area of residence							6.2			
Urban	10.6	40.2	78.4	19.0	26.9	7.9	5.2	28.8	9.5	2391
Rural	9.5	44.8	71.8	11.9	16.6	6.9	3.0	30.9	2.5	5852
Mother's educat level	tion									
None	10.0	45.5	70.2	10.4	16.0	7.3	3.5	29.8	2.0	3681
Primary	8.0	42.6	76.0	16.3	21.8	7.0	3.1	30.4	6.2	2738
Secondary +	13.4	39.3	79.8	20.5	26.2	7.8	5.3	30.6	8.6	1431
Adult education/Khalw	7.5	46.3	69.4	6.7	12.5	3.5	1.8	33.3	1.7	393
Wealth index quir	tiles			ersectoral	The second	electron d	3.02020	Sec. 3		i ser ja capitalia.
Poorest	10.3	46.1	66.5	7.6	17.0	9.8	3.2	35.7	1.3	1882
Second	10.3	42.9	71.0	11.2	14.4	6.4	2.4	31.7	2.3	1769
Middle	9.0	42.1	76.7	13.5	18.7	5.0	3.4	27.1	3.4	1735
Fourth	8.2	43.4	77.4	19.2	22.6	7.1	4.6	26.8	7.1	1562
Richest	11.5	42.4	79.7	21.4	27.8	7.2	4.9	28.9	10.8	1295
SHDAN /TOTAL	98	125	73 7	1/10	19.6	71	36	30.2	A.C.	82/12

### Solid Fuel Use

More than three billion people around the world rely on solid fuels (biomass fuels such as wood, charcoal, crops or other agricultural waste, dung, shrubs and straw, and coal) for their basic energy needs, including cooking and heating. Cooking and heating with solid fuels leads to high levels of indoor smoke which contains a complex mix of health-damaging pollutants. The main problem with the use of solid fuels is their incomplete combustion which produces toxic products including carbon monoxide (CO), poly aromatic hydrocarbons, sulphur dioxide (SO<sub>2</sub>) among others. Use of solid fuels increases the risks of acute respiratory illness, pneumonia, chronic obstructive lung disease, cancer, and possibly tuberculosis, asthma or cataracts, and may contribute to low birth weight of babies born to pregnant women exposed to smoke.

The primary indicator used in SHHS2 is solid fuel use, i.e, the proportion of household members of the population using solid fuels as the primary source of domestic energy for cooking. Table 6.9 shows the percent distribution of household members according to type of cooking fuel used by the household, and percentage of household members living in households using solid fuels for cooking. Overall, approximately two-thirds (63 percent) of all households in Sudan were found to be using solid fuels for cooking. The table also clearly shows that the overall percentage was high due to high usage of wood (43 percent) for cooking purposes, followed by use of charcoal (19 percent). In all about 37 percent of the households were found to use gas for cooking purposes.

	Percentage of household members in households using::														enne dat Tanta i Andra
	Electricity	Gas	Biogas	Kerosene	Charcoal	Wood	Straw / Shrubs / Grass	Animal dung	Agricultural crop residue	No food cooked in household	Other	Missing	Total	Solid fuels for cooking [1]	Number of households
State of residence		5. (1	1.2		n K. Gruca	S. Markella			All Sales of		alle, idalet				and the second
Northern	0.0	70.2	0.5	0.0	1.2	26.8	1.3	0.0	0.0	0.0	0.0	0.0	100.0	29.3	1538
River Nile	0.3	73.1	0.0	0.4	2.0	21.7	2.5	0.0	0.0	0.0	0.0	0.0	100.0	26.2	3005
Red Sea	0.0	16.4	0.0	0.2	52.7	30.5	0.2	0.0	0.0	0.0	0.0	0.0	100.0	83.4	2249
Kassala	0.0	21.6	0.3	0.0	23.1	53.0	1.6	0.3	0.0	0.1	0.0	0.0	100.0	78.0	5133
Gadarif	0.0	22.3	0.1	0.0	31.9	43.4	2.3	0.1	0.0	0.0	0.0	0.0	100.0	77.6	3978
Khartoum	0.0	84.5	0.0	0.3	12.5	2.5	0.0	0.0	0.1	0.0	0.0	0.0	100.0	15.1	13474
Gezira	0.1	73.6	0.2	0.1	14.8	8.3	1.4	1.3	0.3	0.0	0.0	0.0	100.0	26.0	12614
White Nile	0.7	50.8	0.1	0.0	25.2	17.9	2.7	2.3	0.0	0.0	0.3	0.0	100.0	48.1	4367
Sinnar	0.0	26.7	0.1	0.1	30.7	40.7	1.2	0.2	0.0	0.0	0.0	0.2	100.0	72.8	3486
Blue Nile	0.0	3.9	0.0	0.0	27.4	67.5	1.0	0.1	0.1	0.0	0.0	0.0	100.0	96.1	3026
N. Kordofan	0.0	10.6	0.0	0.1	25.0	63.6	0.6	0.0	0.0	0.1	0.0	0.0	100.0	89.1	8659
S. Kordofan	0.3	1.4	0.0	0.1	24.6	73.0	0.2	0.0	0.0	0.0	0.3	0.1	100.0	97.9	3800
North Darfur	0.1	1.5	0.0	0.0	11.6	85.6	1.1	0.0	0.0	0.0	0.0	0.1	100.0	98.3	5355
West Darfur	0.0	0.3	0.0	0.0	6.4	84.6	8.3	0.0	0.0	0.0	0.0	0.3	100.0	99.3	3616
South Darfur	0.0	1.6	0.0	0.0	16.9	81.5	0.0	0.0	0.0	0.0	0.0	0.0	100.0	98.4	10230
Area of residence	n factor i a													的建筑的新闻	
Urban	0.2	56.2	0.1	0.2	34.0	8.9	0.2	0.0	0.1	0.0	0.0	0.0	100.0	43.3	26672
Rural	0.0	27.4	0.1	0.1	11.9	58.3	1.7	0.5	0.0	0.0	0.0	0.0	100.0	72.4	57858
Mother's education	in level		a da	$\mathbb{E}^{(n)} = n - e_{\frac{n}{2}}^{(n)} = e_{\frac{n}{2}}^{(n)} e_{\frac{n}{2}}^{(n)} w_{\frac{n}{2}}^{(n)} u_{\frac{n}{2}}^{(n)}$	이 영 지금이 같은			$\begin{bmatrix} x_{1} & y_{2} & y_{3} & y_{3} \\ x_{1} & y_{2} & y_{3} & y_{3} \end{bmatrix} $	$\mathbb{C}[0, X_{1, 1}] = \sum_{i=1}^{n} \sum_{j \in \mathcal{J}_{i}} \sum_{i=1}^{n} \sum_{j \in \mathcal{J}_{i}} \sum_{j \in \mathcal{J}$	$\int_{-\infty}^{\infty} u_{hes}^{2} \stackrel{\mathrm{der}}{=} \inf_{\substack{m=0\\m \neq m}} \inf_{\substack{m=0\\m \neq m}} \frac{m_{he}}{m_{m}} \stackrel{\mathrm{der}}{=} \frac{1}{m_{he}}$			$\{ \{ j_i \}_{i=1}^{k}, \dots, j_i \}_{i \in \mathbb{N}} \}_{i \in \mathbb{N}}$		
None	0.0	24.9	0.1	0.0	18.0	54.5	1.7	0.5	0.1	0.0	0.0	0.1	100.0	74.8	47719
Primary	0.2	44.4	0.0	0.1	21.2	33.0	.8	0.2	0.0	0.0	0.0	0.0	100.0	55.3	21475
Secondary +	0.1	62.4	.1	0.3	18.3	18.2	.4	0.0	0.0	0.0	.1	0.0	100.0	37.0	14750
Missing/DK	0.0	29.6	0.0	0.0	14.7	55.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0	70.4	587
Wealth index quintiles				$= p_{1}^{\log (1 + \alpha)} \mathcal{I}_{ep}^{1}$	$= \frac{1}{2} \sum_{\substack{i=1,\dots,n\\j \in \mathbb{N}^{n}}} \frac{1}{2} \sum_{\substack{i=1,\dots,n\atopj \in \mathbb{N}^{n}}} \frac{1}{2} \sum_{\substack{i=1,\dots,n\atopj \in \mathbb{N}^{n}}} \frac{1}{2} \sum_{\substack{i=1,\dots,n\atopj \in \mathbb{N}^{n}}} \frac{1}{2} \sum_{i=1,\dots,n\atopj \in \mathbb$	1.19		and an and a second a second s	and and a start of the second s	<sup>6</sup> na the Ch			lating stranger generation		
Poorest	0.0	0.0	0.0	0.0	.9	97.1	1.7	0.3	0.0	0.0	0.0	0.0	100.0	100.0	16906
Second	0.0	1.3	0.0	0.0	14.0	81.0	2.9	0.8	0.0	0.0	0.0	0.0	100.0	98.7	16907
Middle	0.0	23.8	0.0	0.2	44.1	29.2	1.7	.6	0.1	0.0	0.1	0.1	100.0	75.7	16907
Fourth	0.2	65.1	0.2	0.2	28.5	5.7	0.1	0.0	0.1	0.0	0.0	0.0	100.0	34.3	16905
Richest	0.2	92.1	0.2	0.0	6.8	0.5	0.0	0.0	0.1	0.0	0.0	0.0	100.0	7.4	16906
SUDAN (TOTAL)	0.1	36.5	0.1	0.1	18.9	42.7	1.3	0.3	0.1	0.0	0.0	0.0	100.0	63.2	84530

Use of solid fuels is significantly lower in urban areas (43 percent) than in rural areas where almost three-fourths of the households (72 percent) are using solid fuels. Differentials with respect to educational level of the household head are also significant. The proportion of household members living in households using solid fuels for cooking was 75 percent among households with household head with no education compared to 37 percent among households with household heads with secondary or higher level of education. Similar differentials with respect to household wealth also exist. The findings show that use of solid fuels is very uncommon among the households in the richest quintile (7 percent) while it is universal among households in the poorest quintile (100 percent).

The SHHS2 data shows that the use of solid fuels is very uncommon among households in Khartoum (15 percent) as most of the households in Khartoum have access to cooking gas. It was very common in Blue Nile (96 percent), South Kordofan (98 percent), North Darfur (98 percent), West Darfur State (99 percent) and South Darfur (98 percent)(Figure 6.11)



Figure 6.11 Solid fuel use: Percentage of household members living in households using solid fuels for cooking, Sudan, 2010

### Solid fuel use by place of cooking

Solid fuel use alone is a poor proxy for indoor air pollution, since the concentration of the pollutants is different when the same fuel is burnt in different stoves or fires. Use of closed stoves with chimneys minimizes indoor pollution, while open stove or fire with no chimney or hood means that there is no protection from the harmful effects of solid fuels. Solid fuel use by place of cooking is depicted in Table 6.10 which shows the distribution of household members using solid fuels by place of cooking. Overall, approximately less than one-half (47 percent) of all households in Sudan were found to be cooking in a separate room used as kitchen while 19 percent of household members were cooking elsewhere in the dwelling, 22 percent in a separate building and 9 percent outdoors.
		Table 6.1	LO: Solid fu	el use by pla	ce of cook	ling		
Percent dist	ribution of h	ousehold me	mbers in h	ouseholds us	sing solid f	fuels by pla	ce of cook	ing, Sudan,
		60	Dia	2010	<u>.</u>		· · · · · · · · · · · · · · · · · · ·	Number of
	ln a	Elsowhore	In a	Outdoors	Other	Missing	Total	household
	conarato	in the	soparato		Other	wiissing	TOLA	members
	room	house	building					in
	used as	nouse	Dunung					households
	kitchen							using solid
	harconten							fuels for
								cooking
State of res	sidence		14184 <u>16 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19 </u>					2
Northern	98.2	0.7	0.0	0.2	0.8	0.0	100.0	450
River Nile	30.9	15.0	43.9	8.9	1.3	0.0	100.0	789
Red Sea	36.3	53.4	0.0	9.4	0.9	0.0	100.0	1875
Kassala	38.6	41.8	4.9	12.6	2.1	0.0	100.0	4003
Gadarif	47.6	31.8	1.7	16.8	2.1	0.0	100.0	3087
Khartoum	66.6	26.6	1.3	2.2	3.4	0.0	100.0	2036
Gezira	63.5	24.3	0.0	11.3	0.9	0.0	100.0	3284
Wite Nile	56.9	29.1	4.2	5.0	4.8	0.0	100.0	2102
Sinnar	51.8	30.9	2.9	8.9	5.4	0.0	100.0	2538
Blue Nile	4.5	2.1	43.3	49.3	0.9	0.0	100.0	2907
North Kordofan	59.3	26.9	11.0	2.0	0.8	0.0	100.0	7718
South Kordofan	68.6	20.4	2.3	6.1	2.5	0.1	100.0	3719
North Darfur	89.1	7.0	0.0	3.3	0.5	0.0	100.0	5265
West Darfur	77.5	7.6	0.9	13.6	0.4	0.0	100.0	3590
South Darfur	0.5	2.5	86.6	5.3	5.0	0.1	100.0	10066
Area of residen	ce				<u></u>		·······	
Urban	50.8	16.9	22.1	7.5	2.8	0.0	100.0	11546
Rural	46.0	20.0	21.9	9.9	2.2	0.0	100.0	41884
Education of ho	usehold hea	ıd	-		an en ant treasta n			
None	45.2	20.3	20.3	11.7	2.5	0.0	100.0	35696
Primary	49.6	18.1	24.3	5.8	2.3	0.0	100.0	11867
Secondary +	53.4	15.8	27.1	2.7	1.0	0.0	100.0	5454
Missing/DK	48.3	12.5	33.9	3.8	1.5	0.0	100.0	413
Wealth index qu	uintiles							
Poorest	33.6	17.3	35.1	10.7	3.2	0.0	100.0	16901
Second	49.3	22.1	15.7	11.0	1.9	0.0	100.0	16680
Middle	53.3	21.7	13.6	8.8	2.7	0.0	100.0	12792
Fourth	63.3	14.4	17.4	4.1	0.8	0.0	100.0	5801
Richest	57.0	6.3	34.5	2.3	0.0	0.0	100.0	1257
SUDAN (Total)	47.0	19.3	22.0	9.4	2.3	0.0	100.0	53430

# Cooking in a separate room used as kitchen was found to be significantly higher in urban areas (51 percent) than in rural areas (46 percent). Differentials with respect to educational level of the household head are also significant. The proportion of household members cooking in a separate room used as kitchen was lower (45 percent) among households with household head with no education compared to 50 percent among households with households head with primary education and 53 percent among household head with secondary or higher education levels.

Differentials with respect to household wealth are also significant. The findings show that the proportion of household members cooking in a separate room used as kitchen was more common

among the households in the richest quintile (57 percent) compared to households (34 percent) in the poorest quintile.

The SHHS2 findings show that ccooking in a separate room used as kitchen was more common among households in Northern State (98 percent), North Darfur (89 percent), while it was very uncommon in Blue Nile State (5 percent) and South Darfur (1 percent).

#### Malaria Prevention and Control

Malaria is a leading cause of death of children under age five in Sudan. It also contributes to anaemia in children and is a common cause of school absenteeism. Preventive measures, especially the use of mosquito nets treated with insecticide (ITNs), can dramatically reduce malaria mortality rates among children. In areas where malaria is common, international recommendations suggest treating any fever in children as if it were malaria and immediately giving the child a full course of recommended anti-malarial tablets. Children with severe malaria symptoms, such as fever or convulsions, should be taken to a health facility. Also, children recovering from malaria should be given extra liquids and food and, for younger children, should continue breastfeeding. In Sudan the program strategy is to increase coverage and use of the most effective, available, and evidence-based interventions that meet international standards to achieve high impact. The key strategic interventions for this concept note are:

- Arthemisine-based combination treatment (ACT) rollout in all health facilities, and through home-based malaria management in unreachable communities
- Improve malaria diagnosis through training and using microscopy and RDTs at Health facilities
- Distribution of bed nets (LLINs) for disease prevention through mass campaigns and routine distribution

Significant investments have been made over the past five years in malaria control including the distribution of over 6 million long lasting insecticide treated nets, the supply of artemesinin combination therapies to over 90percent of government health facilities; the scaling up of insecticidal spraying in several areas; and the training of large number of health workers in appropriate malaria case management. LLITNs distribution is focused mainly in Darfur states, Kordofan States, Blue Nile, White Nile, Gadaref and Kassala states based on the prevalence of the vector and the disease.

Indoor residual spraying (IRS) in large irrigated schemes in epidemic prone areas is promoted and the insecticides predominantly used are pyrethriods. Moreover, special programme for IRS is under implementation in north of the country to form as a belt protecting Egypt form malaria and malaria vector in collaboration with the Egyptian Government. The use of IRS has been is mainly in Gezira State, Sinnar state, Kenana Sugar Cane area, New Halfa, Northern State and the Abohamad area in River Nile State.

Questions on the prevalence (proportion of children 0-59 months of age who were ill with fever in the last two weeks) and treatment of fever were asked for all children under age five. The questionnaire for SHHS2 incorporated questions relating to anti-malarial treatment. Mothers were asked to report all of the medicines given to a child to treat the fever, including both medicines given at home and medicines given or prescribed at a health facility.

#### Antimalarial treatment (Children under age five)

The SHHS data indicated that slightly less than one in ten (8 percent) of under five children were ill with fever in the two weeks prior to the survey. The SHHS data indicated that fever prevalence peaked at 12-23 months of age. It ranged from 8 percent among children aged 0-11 months to 10 percent among children aged 12-23. The prevalence of fever was higher in rural areas (9 percent) than in urban areas (6.3 percent).

The prevalence of fever was found to be lower among children whose mothers had secondary or higher education (7 percent) than among children whose mothers had primary education or no education (9 percent). Fever is also more common among children belonging to the poorest households (9 percent) than among those belonging to the richest households (6 percent). State differences in fever prevalence were more marked, ranging from 14 percent in North Kordofan to 3 percent in Khartoum.

The SHHS2 data indicated that overall, 65 percent of children with fever in the last two weeks were treated with an "appropriate" anti-malarial drug. However, only 43 percent received anti-malarial drugs on the same or next day (within 24 hours of onset of symptoms). "Appropriate" anti-malarial drugs include chloroquine, SP (sulfadoxine-pyrimethamine), artemisinin combination drugs, etc. In Sudan, 30 percent of children with fever were given chloroquine (4 percent of children with fever were given chloroquinine injection and 21 percent were given chloroquinine syrup) while 13 percent were given SP/Fansidar tablet. Only 21 percent received artemisinin combination therapy. A large percentage of children (26 percent) were given other types of medicines that are not anti-malarials, including anti-pyretics such as paracetemol, panadol, acetaminophen, aspirin, or ibuprofen.

				Pe	rcentage of	children a	Table 6.14 ged 0-59 mo	: Anti-mali nths who h	arial treat had fever i	ment of o	hildren v t two we	vith anti-ma eks who rec	larial dru eived ant	gs i-malarial drugs,	Sudan, 201	.0	9 W W W			
	Had a	Numbe	1					Children wit	h a fever in	the last tw	o weeks v	who were trea	ted with:	a an ann an Thuân					Percentage	Number
	fever in last two weeks	of childrer age 0- 59 months	Anti- malarials SP/Fansidar tablet	Anti- malarials: Chloroquine tablet	Anti- malarials: Chloroquine injection	Anti- malarials: Chloroquine syrup	Anti- malarials: Amodiaquine tablet	Other medications Antibiotic injection	Anti- malarials: Metacalfin tablet	Anti- malarials: Quínine pills	Anti- malarials: Quinine injection	Anti- malarials: Artemisinin- based combinations	Anti- malarials Any anti- malarial drug <sup>[1]</sup>	Othermedications: Paracetamol/ Panadol/ Acetaminophan	Other medications Asprin	Other medications Ibuprofen	Other medications Others	Don't know	who took an anti- malarial drug same or next day[2]	of children with fever in last two weeks
Sex		9.390			Sector Barrier		1 - A. C.											in the		
Male	8.3	6742	12.2	3.5	6.0	21.9	0.1	2.2	.8	1.7	1.5	21.7	67.2	21.4	1.9	.1	13.6	3.4	45.4	558
Female	8.5	6540	13.2	4.1	3.2	20.3	0.3	1.7	.0	1.2	.2	21.1	62.7	25.3	2.6	.7	11.2	3.1	40.7	558
State of re	sidenc	e	adige ditta				的人员的人		and the second se						$1.27 \pm 10$			14 A S	California (	an da e la da
Northern	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	11
River Nile Red Sea	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	21 9
Kassala	10.2	780	15.3	42	10.4	18.4	0.0	12	0	11	11	30.6	76.6	11.2	12	11	10.6	57	56.6	79
Gadarif	7.6	678	18.8	24	23	14.8	0.0	0.0	0.0	52	0.0	25.7	68.6	39.2	0.0	0.0	11.8	52	44.6	52
Khartoum	32	1868	11.5	0.0	0.0	30.9	0.0	0.00	2.5	0.2	0.0	24.9	69.9	419	32	0.0	6.8	29	49.9	59
Gezira	10.1	1750	22.3	3.1	6.6	5.9	0.0	37	0.00	0.0	23	33.3	75.0	24.7	0.0	0.0	11.4	4.9	52.8	176
White Nile	1110	675	22.1	21	2.5	13.8	0.0	7	7	19	0	25.4	68.5	218	21	0.0	22.5	28	58.6	74
Sinnar	11.6	517	0.8	0.0	1.2	12.4	2.5	42	0.0	9.8	4.5	47.3	80.1	28.5	24	0.0	93	24	47.3	60
Blue Nile	8.1	595	(21.5)	(0.0)	(4.0)	(17.5)	(0.0)	(0.0)	(0.0)	(1.9)	(0.0)	(34.8)	(79.6)	(25.7)	(2.7)	(2.1)	(11.2)	(1.0)	(60.0)	48
N. Kordofan	14.2	1425	4.9	3.9	3.8	25.2	0.0	3.1	0.6	0.6	0.0	14.0	52.8	22.7	3.2	1.3	16.9	0.0	31.5	203
S. Kordofan	11.8	681	4.7	4.3	4.5	36.1	0.7	0.7	0.8	0.7	1.6	18.5	71.4	32.3 .	7.5	0.0	11.6	4.3	43.7	80
North Darfur	4.7	947	(11.9)	(6.1)	(7.2)	(25.4)	(0.0)	(4.8)	(0.0)	(0.0)	(0.0)	(16.3)	(64.5)	(22.5)	(0.0)	(0.0)	(4.3)	(3.3)	(49.0)	44
West Darfur	13.3	682	12.4	8.8	3.6	31.0	0.0	1.2	0.0	0.0	0.8	0.00	47.5	5.0	2.1	0.0	7.3	4.2	22.9	90
South Darfur	5.8	1829	5.5	3.2	3.8	29.4	0.0	0.0	0.0	1.8	0.0	7.7	48.4	18.4	1.6	0.0	12.2	3.5	24.8	107
Area of re	sidenc	e	a the para ist	Y . Margare	A HE HAR			and South	(Bernie)	Section of	A CARLES				A Starting	de Calendar	and the second s			
Urban	6.3	3669	17.3	4.2	4.8	18.7	.2	1.8	0.9	2.3	0.5	26.9	73.3	35.1	2.7	0.4	11.8	1.4	60.0	230
Rural	9.2	9613	11.5	3.7	4.5	21.7	.2	2.0	0.3	1.2	1.0	19.9	62.8	20.2	2.1	0.4	12.6	3.7	38.7	885
Age	C. altanta	Service 1	e Presedentes	n and are	122125.781	The second	APTER - Love Stay	and and and	Carlo Sal	1969) (A.	The come	MARY AND	Des Sector			Call States		Star C		and the second
0-11	7.6	2964	7.9	5.4	2.2	21.2	0.0	3.5	0.3	0.9	0.4	26.7	65.6	27.6	1.4	0.4	13.5	5.2	44.3	225
12-23	9.6	2613	14.1	2.9	5.8	23.6	0.0	.8	.8	.8	1.6	21.3	68.3	21.1	1.9	.5	10.5	3.1	45.7	251
24-35	9.3	2762	12.6	3.9	3.8	21.8	0.6	2.1	0.7	2.5	0.6	20.1	66.4	25.6	2.0	0.5	12.0	1.4	40.2	256
36-47	7.8	2811	13.5	3.8	7.2	20.9	0.2	1.7	0.0	1.3	1.5	19.0	62.8	27.8	1.9	0.5	14.1	4.2	43.4	219
48-59	7.7	2131	15.9	2.8	3.6	16.1	0.0	1.6	0.0	1.6	0.0	19.4	59.6	11.3	4.6	0.0	12.4	2.3	41.1	165
Mother's	educat	ion leve		an a		es (Spail)	ALC: NO	AN 1874		12 199 54					trus dese	BRAN LA				
None	8.8	7359	10.5	2.8	5.2	24.9	0.1	1.6	.7	1.5	.4	18.5	62.5	19.8	2.2	0.1	10.5	3.0	40.0	649
Primary	8.5	4044	14.6	4.0	3.9	17.9	0.2	2.4	0.0	.7	.8	23.2	64.8	27.1	3.1	1.0	12.5	4.5	42.3	342
Secondar	6.5	1785	19.8	9.2	3.6	7.9	0.5	2.8	0.0	3.2	4.1	31.7	79.1	31.5	0.0	0.4	21.6	1.4	60.4	116
Missing/D	K 9.2	94	*	×	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	9

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WARNAME ON THE TREE TO

Wealth inde	c quintiles	Name and a state				B Ski H	C. A. S.	an garda	and the second				Section 201		Second de la second		1000		1. Sector	Nessa de la
Poorest	9.2	3213	7.0	4.1	5.0	24.8	0.2	0.8	0.4	1.0	0.8	12.0	52.0	13.9	2.6	0.0	9.6	2.8	24.1	294
Second	9.3	2901	8.7	2.3	6.6	26.6	0.0	2.2	0.0.0	1.9	0.7	12.6	58.1	26.1	1.3	0.5	13.6	4.0	37.0	269
Middle	8.8	2800	15.6	3.5	3.3	21.5	0.3	1.3	0.5	1.3	0.5	24.0	68.9	22.6	3.9	1.1	11.8	5.4	47.6	247
Fourth	7.7	2490	14.7	5.3	4.7	15.5	0.3	4.7	0.0	1.2	1.5	37.9	81.9	26.7	2.2	0.0	15.7	1.5	58.5	193
Richest	6.0	1878	27.3	4.7	1.2	6.8	0.0	1.1	1.8	2.1	1.4	32.9	77.7	37.1	0.0	0.5	12.5	0.9	70.8	112
SUDAN (TOTAL)	8.4	13282	12.7	3.8	4.6	21.1	0.2	1.9	0,4	1.4	0.9		65.0	23.3	2.2	. 0,4	12.4	32	43.0	1115

The SHHS2 data indicated that the proportion of children who were treated with an appropriate anti-malarial drug was higher for children in urban areas (73 percent) than that of those in rural areas (63 percent). The proportion of boys who were treated with an appropriate anti-malarial drug was higher (67 percent) than that of girls (63 percent). The proportion of children who were treated with an appropriate anti-malarial drug decreased from 66 percent among children aged 0-11 months to 60 percent among children aged 48-59 months.

The proportion of children who were treated with an appropriate anti-malarial drug increased from 63 percent among children whose mothers had no education to 80 percent among children whose mothers had secondary or higher levels of education. The proportion of children who were treated with an appropriate anti-malarial drug was also much higher among children belonging to households in the richest quintile (78 percent) than that for children from households in the poorest quintile (52 percent).

Overall, children with fever in the States where malaria is known to be most prevalent are the most likely to have received an appropriate anti-malarial drug while those in other States are the least likely to receive an appropriate drug.

# Antimalarial treatment (Children under age five) within 24 hours of onset of symptoms or on the next day

The SHHS2 data also indicated that the proportion of children who were treated with an appropriate anti-malarial drug the same or next day was higher in urban area (60 percent) than in rural areas (39 percent). The proportion of boys who were treated with an appropriate anti-malarial drug the same or next day was slightly higher (45 percent) than that of girls who were treated with an appropriate anti-malarial drug (41 percent). The proportion of children who were treated with an appropriate anti-malarial drug the same or next day decreased from 44 percent among children aged 0-11 months to 41 percent among children aged 48-59 months.

The proportion of children who were treated with an appropriate anti-malarial drug the same or next day increased from 40 percent among children whose mothers had no education to 60 percent among children whose mothers had secondary or higher levels of education. The proportion of children who were treated with an appropriate anti-malarial drug was also much higher among children belonging to households in the richest quintile (71 percent) than among children from households in the poorest quintile (24 percent).

#### Malaria diagnostic usage

Table 6.15 also provides information relating to malaria diagnostic usage, i.e. the proportion of children under age five reported to have had fever in the previous 2 weeks who had a finger or heel stick for malaria testing. Overall, 57 percent of children with a fever in the last two weeks prior to the SHHS2 had a finger or heel stick for malaria testing.

	Table 6.15: Malaria diagnostics usag	e
Percentage of children aged 0-59	months who had a fever in the last t	two weeks and who had a finger or
	el stick for malaria testing, sudari, z	Number of children aged 0-59
		months with fever in the last two
	Had a finger or heel stick [1]	weeks
Sex		
Male	62.0	558
Female	52.8	558
State of residence		
Northern	*	11
River Nile	*	21
Red Sea	*	9
Kassala	85.7	79
Gadarif	62.8	52
Khartoum	82.1	59
Gezira	76.4	176
White Nile	80.5	74
Sinnar	60.5	60
Blue Nile	(53.2)	48
North Kordofan	43.2	203
South Kordofan	40.1	80
North Darfur	(48.3)	44
West Darfur	33.1	90
South Darfur	28.7	107
Urban	81.1	230
Rural	51.2	885
Age		
0-11	67.7	225
12-23	60.9	251
24-35	53.5	256
36-47	53.3	219
48-59	49.3	165
Mother's education level		
None	49.0	649
Primary	64.5	342
Secondary	83.6	116
Missing/DK	*	9
Wealth index guintile		
Poorest	29.7	294
Second	45.7	269
Middle	67.1	247
Fourth	81.7	193
Richest	95.0	112
Sudan Total	57.4	1115
<sup>[1]</sup> SHHS2 indicator 3 16		

The SHHS2 data indicated that the proportion of children aged 0-59 months who had a fever in the last two weeks and who had a finger or heel stick for malaria testing in urban areas (81 percent) than in rural areas (51 percent). The proportion of who had a finger or heel stick for malaria testing was higher (62 percent) than that of girls who had a finger or heel stick for malaria testing (53 percent).

The proportion of children who had a finger or heel stick for malaria testing decreased from 68 percent among children aged 0-11 months to 49 percent among children aged 48-59 months.

The proportion of children aged 0-59 months who had a fever in the last two weeks prior to SHHS and who had a finger or heel stick for malaria testing increased from 49 percent among children whose mothers had no education to 65 percent among children whose mothers had primary education and to 84 percent among children whose mothers had secondary or higher levels of education. More children who had a finger or heel stick for malaria testing belonged to households in the richest quintile (95 percent) than children belonging to households in the poorest quintile (30 percent).

# VII. Water and Sanitation

Safe drinking water is a basic necessity for good health. Unsafe drinking water can be a significant carrier of diseases such as trachoma, cholera, typhoid, and schistosomiasis. Drinking water can also be tainted with chemical, physical and radiological contaminants with harmful effects on human health. In addition to its association with disease, access to drinking water may be particularly important for women and children, especially in rural areas, who bear the primary responsibility for carrying water, often for long distances.

The MDG goal (7, C) is to reduce by half, between 1990 and 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. The World Fit for Children goal calls for a reduction in the proportion of households without access to hygienic sanitation facilities and affordable and safe drinking water by at least one-third.

The list of indicators used in this survey is as follows:

Water

- Use of improved drinking water sources
- Use of adequate water treatment method
- Time to source of drinking water
- Person collecting drinking water

Sanitation

- Use of improved sanitation
- Sanitary disposal of child's faeces

For more details on water and sanitation and to access some reference documents, please visit the UNICEF childinfo website<sup>5</sup>

#### Sources of drinking water

Table 7.1 indicates the percent distribution of household members/population according to main source of drinking water. It also shows the percentage of household population using improved drinking water sources. The population using *improved sources* of drinking water are those using any of the following types of supply: piped water (into dwelling, compound, yard or plot, public tap/standpipe), tube well/borehole, protected well, protected spring, and rainwater collection. Bottled water is considered as an improved water source only if the household is using an improved water source for other purposes, such as hand washing and cooking. Water sources such as unprotected well, unprotected spring, unfiltered water, water transported by tanker/carts from improved/unimproved sources are considered as unimproved sources of drinking water.

<sup>&</sup>lt;sup>5</sup>http://www.childinfo.org/wes.html.

Pe	ercent dist	ribution of	house	hold pop	ulation	accordin	ig to main sour	Table 7.1 ce of drinki	L: Use of in ing water	mproved and per	f water sources centage of house	ehold population	using improve	d drink	ing wa	ter sou	rces, Su	dan, 2010	
	Main so	urces of dri	nking v	vater (In	proved	sources	)		Main so	urces of	drinking water (	Unimproved sou	rces)					<i>и</i> о с т	
	Piped into dwelling	Piped into compound yard or plot	Public tap / standpipe	Water yard/ hand pump	Protected/ covered well	Protected spring	Filtered (river,stream dam, hafir, lake, pond, canal or rain	Bottled water	Unprotected well	Unprotected spring	Unfiltered (river, stream, dam, hafir, lake, pond, canal	Transported by tankers/ carts from improved source	Transported by tankers/ carts from unimproved	Bottled water	Other	Missing	otal	Percentage Ising improved Irinking water ource <sup>[1]</sup>	lumber of Iousehold nembers
State of residen	ce					and a starting				1.								Storage Max	
Northern	14.5	66.9	3.1	5.1	.3	0.0	1.1	0.1	.6	0.0	5.5	2.2	0.2	0.0	0.4	0.0	100.0	91.0	1538
River Nile	9.1	56.2	.2	8.0	4.0	0.1	0.4	0.0	6.9	0.5	4.7	3.1	5.7	0.0	1.1	0.0	100.0	78.0	3018
Red Sea	3.1	4.3	4.0	4.3	11.7	0.0	0.1	0.0	9.2	1.2	0.0	58.2	3.6	0.0	0.4	0.0	100.0	27.4	2249
Kassala	1.5	27.1	2.2	12.4	3.9	0.0	0.9	0.0	2.0	0.1	16.2	20.5	12.7	0.0	0.4	0.0	100.0	48.0	5135
Gadarif	1.0	12.2	1.1	13.0	.2	0.0	0.5	0.0	7.5	0.0	11.3	33.3	19.5	0.0	0.4	0.0	100.0	27.9	3994
Khartoum	29.0	40.4	.7	2.5	.0	0.0	0.0	0.0	.2	0.0	0.0	23.6	1.7	0.0	1.8	0.0	100.0	72.7	13494
Gezira	. 17.0	50.0	9.7	1.5	.2	0.0	0.8	0.0	.1	0.0	1.5	18.4	0.6	0.0	0.1	0.0	100.0	79.2	12569
White Nile	8.2	22.2	.1	7.5	.0	0.0	0.5	0.0	.8	0.0	8.9	25.8	24.3	0.1	1.6	0.0	100.0	38.5	4391
Sinnar	11.3	23.5	7.6	17.9	.0	0.0	0.3	0.0	.0	2.3	3.3	21.7	10.8	0.0	1.1	0.1	100.0	60.7	3474
Blue Nile	1.8	10.3	0.8	26.5	.0	0.0	0.5	0.0	4.8	3.2	22.8	14.1	13.8	0.0	1.4	0.0	100.0	39.9	3018
North Kordofan	2.4	4.3	.6	37.3	4.4	0.1	4.0	0.7	12.0	0.2	2.0	25.1	5.6	0.2	1.2	0.0	100.0	53.8	8638
South Kordofan	0.0	0.2	0.4	47.9	0.3	0.0	1.0	0.0	15.3	0.6	7.1	23.1	4.1	0.0	0.0	0.1	100.0	49.7	3816
North Darfur	1.0	2.4	1.3	51.8	2.8	0.2	0.3	0.0	15.7	3.3	0.0	18.5	0.6	0.0	1.9	0.1	100.0	59.8	5352
West Darfur	2.4	2.3	3.4	33.6	2.2	0.5	0.0	0.0	39.3	4.4	0.0	10.0	1.5	0.0	0.0	0.3	100.0	44.5	3615
South Darfur	.4	8.0	.6	58.3	1.9	0.2	0.0	0.0	16.5	0.4	0.0	13.3	0.3	0.0	0.2	0.0	100.0	69.4	10231
Area of residen	ce		1000			$= \frac{1}{2} $													a an
Urban	20.5	39.0	2.0	4.6	0.4	0.0	0.1	0.0	0.6	0.0	0.8	27.7	2.5	0.0	1.7	0.0	100.0	66.6	26714
Rural	4.2	16.5	2.9	30.5	2.3	0.1	1.1	.1	11.1	1.1	5.4	17.3	6.8	0.0	0.4	0.0	100.0	57.7	57818
<b>Education level</b>	of house	hold head	1044		1. 1. 2017)	and the second							1917 - 1968 <sup>10</sup>		A Strand		(at set		
None	7.3	16.6	2.8	25.9	2.1	0.1	0.9	0.0	10.9	1.0	5.1	19.9	6.4	0.0	0.9	0.0	100.0	55.8	47717
Primary	8.7	2.8.7	2.5	20.5	1.3	0.1	1.0	0.0	4.9	0.6	3.1	22.6	5.0	0.0	1.0	0.0	100.0	62.9	21474
Secondary +	17.4	38.8	2.2	12.8	1.0	0.0	0.1	0.3	2.1	0.3	1.6	19.7	2.9	0.0	0.6	0.0	100.0	72.7	14753
Missing/DK	1.5	21.1	2.8	32.6	.0	0.0	0.0	0.0	7.3	0.2	1.6	25.0	8.0	0.0	0.0	0.0	100.0	57.9	587
Wealth index q	uintile		1.00	a Madada		(Inspire)			일이야하는										
Poorest	.0	.0	6	56.4	3.3	0.3	0.8	0.1	23.1	2.0	3.5	7.0	2.6	0.1	0.3	0.0	100.0	61.5	16892
Second	.2	1.0	3.3	34.4	2.7	0.0	1.8	0.1	12.3	1.4	8.8	22.5	10.8	0.0	0.7	0.0	100.0	43.5	16907
Middle	2.3	15.0	6.4	15.4	1.7	0.0	1.0	0.2	3.1	.4	5.8	37.4	9.8	0.0	1.4	0.1	100.0	41.9	16909
Fourth	8.8	46.1	2.3	4.9	.7	0.0	0.2	0.0	0.6	.0	1.4	29.7	3.6	0.0	1.8	0.0	100.0	63.0	16910
Richest	35.6	56.0	.6	.4	.1	0.0	0.1	0.0	0.1	0.	0.3	6.2	0.6	0.0	0.	0.0	100.0	92.8	16915
SUDAN (TOTAL)	9:4	23.6	2.6	22.3	1.7	0.1	D.8	0.1	7.8	0.8	5.e., 4.0 2	20:6	5:5	0.0	8.07	0.0	100.0	60.5	84532
1 <sup>14</sup> SHHS2 indica	tor4.1: MI	DG indicato	r 7.8																

The SHHS2 data indicated that of about nine percent of the overall household population used drinking water that was piped into dwelling and 24 percent used drinking water that was piped into their compound, yard or plot while three percent used drinking water that was piped into public tap/standpipe. In all, more than one third (36 percent) of the household members used drinking water that was piped into their dwelling or into their compound, yard or plot or into public tap/standpipe. Other improved sources of drinking water used by the household members include water yard/hand pump (22 percent), protected/covered well 92 percent, and use of spring, filtered water and bottled water are all less than one percent. The other sources of drinking water used by the household members include unprotected well (8 percent), unprotected spring (1 percent), unfiltered water (4 percent), water transported by tanker/carts from improved source (21 percent), water transported by tanker/carts from unimproved source (6 percent), and other unimproved sources (1 percent) (Figure 7.1.).





The source of drinking water for the population varied widely by the State of residence (7.1). More than four-fifths (81 percent) in Northern State and about two-thirds (69 percent) of household population in Khartoum State, Gezira State (67 percent) and River Nile State (65 percent) used drinking water that was piped into their dwelling or into their compound, yard or plot. About one-third of household population in Sinnar State (35 percent) and White Nile State (30 percent) used drinking water that was piped into their dwelling or into their compound, yard or plot. Water Yard/hand pump was found to be a main source of drinking water in States like South Darfur (58 percent), North Darfur (52 percent), South Kordofan (48 percent), North Kordofan (37 percent) and West Darfur (34 percent).

Water transported by tankers/carts from improved/unimproved sources was found to be the main source of drinking water for several States like Northern State (62 percent), Red Sea (53 percent), Khartoum (50 percent), River Nile (33 percent), Gezira State (33 percent), Sinnar State (31 percent) and White Nile State (28 percent). A significant proportion of household population in West Darfur (39 percent), South Darfur (17 percent), North Darfur (16 percent) and North Kordofan (12 percent) used water from unimproved sources viz unprotected well. River or stream water was found to be a main source of drinking water in States like Kassala (16 percent) and Blue Nile (23 percent).

The SHHS2 findings indicated that overall, 61 percent of the population was using an improved source of drinking water at the time of the survey. The percentage of household population using an improved source of drinking water was higher for household members in urban areas (67 percent) than that for household members in rural areas (58 percent). The percentage of household population using improved sources of drinking water increases with the educational level of the household head. The percentage of household population using improved sources of drinking water showed an increasing trend from 56 percent in the case of households which had household heads with no education to 63 percent in the case of households which had household heads with secondary or higher level of education. The percentage of household population using improved sources of drinking water showed an increases with the family wealth. The percentage of household population using improved sources of drinking water showed an increasing trend from 59 percentage of household population using improved sources of drinking water also increases with the family wealth. The percentage of household population using improved sources of drinking water showed an increasing trend from 62 percent in the case of households in the population using improved sources of drinking water showed an increasing trend from 62 percent in the case of households in the richest quintile.

Figure 7.2: Use of improved drinking water sources by mother's education and by wealth index quintile, Sudan, 2010



The percentage of household population using improved sources of drinking water varied widely by State, ranging from 91 percent in Northern State and 48 percent in Kassala to 27 percent in Red Sea (Figure 7.3).

Figure 7.3: Use of improved water source Percentage of household members/population using improved drinking water source, Sudan, 2010



### Household water treatment

Use of in-house water treatment is presented in Table 7.2. Household members were asked of ways they may be treating water at home to make it safer to drink – boiling, adding bleach or chlorine, using a water filter, and using solar disinfection were considered as proper treatment of drinking water.

The table shows water treatment by all households and the percentage of household members/population using unimproved water sources but using appropriate water treatment methods.

The SHHS2 findings indicated that only one percent of household members using unimproved drinking water sources used an appropriate water treatment method. Nationwide, about 4 household members used strain through a cloth, or used water filter and 8 percent allowed letting water stand and settle. The percentage of household members in households using unimproved drinking water sources and using an appropriate water treatment method were above the national average in Gedarif State (5 percent), Sinnar State (2 percent), and White Nile (1 percent). The percentage of household members in households who used none of the water treatment method was lowest in Northern State (35 percent) and highest in North Darfur State (98 percent) (Table 7.2). The percentage of household members who used none of the water treatment method was lower among household members in urban areas (83 percent) than that for household members in rural areas (88 percent). The percentage of household members who used no water treatment method was found to be lower among those from households in the richest quintile (83 percent) than among those from households in the porcent).

Percentage of house	hold populatio	on by drinki	ng water trea	tment meth	Tal od used in the	ble 7.2: Househo household, and	ld water tre for househo	atment old members	living in ho	useholds where	an unimproved drinking v	vater source is used. the
				percen	tage who are	using an appropr	riate treatm	ent method,	Sudan, 201	0		
			Wa	ater treatme	nt method use	d in the househo	ld				Percentage of	Number of household
	None	Boil	Add bleach / chlorine	Strain through a cloth	Use water filter	Solar disinfection	Let it stand and settle	Other	Don't know	Number of household members	household members using an appropriate water treatment method <sup>[1]</sup>	members in households using unimproved drinking water sources
State of residence						Res and see of				1 - Jan A		
Northern	34.9	0.0	0.8	3.8	0.5	0.1	60.5	0.1 -	0.0	1538	1.8	138
River Nile	77.7	0.0	0.2	1.0	0.2	0.0	21.0	0,0	0.0	3018	0.1	665
Red Sea	76.1	0.6	0.1	22.1	0.3	0.0	0.5	0.2	0.2	2249	0.8	1633
Kassala	96.2	0.4	0.3	2.3	0.1	0.0	0.2	0.3	0.1	5135	0.4	2669
Gadarif	88.2	0.1	3.4	4.6	0.2	0.3	3.9	0.1	0.0	3994	4.6	2878
Khartoum	75.7	0.1	0.0	0.5	3.8	0.0	19.9	0.2	0.0	13494	0.4	3687
Gezira	96.4	0.0	0.1	1.8	0.0	0.0	1.5	0.2	0.0	12569	0.5	2616
White Nile	75.5	0.0	0.9	21.7	0.1	0.0	2.3	0.0	0.0	4391	1.1	2700
Sinnar	95.6	0.0	0.6	2.8	0.1	0.0	0.7	0.2	0.0	3474	1.5	1366
Blue Nile	42.6	0.1	0.1	1.9	0.0	0.0	53.4	2.5	0.1	3018	0.4	1813
North Kordofan	91.6	0.0	0.4	6.5	0.0	0.0	1.0	0.5	0.1	8638	0.1	3995
South Kordofan	92.9	0.2	0.0	5.8	0.2	0.1	1.0	0.0	0.1	3816	0.8	1919
North Darfur	97.7	0.0	0.0	1.6	0.3	0.0	0.3	0.1	0.0	5352	0.6	2149
West Darfur	95.5	0.0	0.1	0.4	0.0	0.2	3.6	0.1	0.0	3615	0.3	2006
South Darfur	93.5	0.0	0.3	3.1	0.0	0.0	2.6	0.3	0.1	10231	0.0	3134
Area of residence		1										
Urban	82.8	0.2	0.3	3.3	2.0	0.0	11.3	0.3	0.1	26714	0.7	8914
Rural	88.0	0.0	0.4	4.5	0.1	0.0	6.7	0.3	0.0	57818	0.9	24452
Education level of hou	usehold head											
None	86.4	0.0	0.5	4.1	0.8	0.0	7.8	0.3	0.1	47717	0.8	21110
Primary	87.1	0.1	0.2	4.4	0.1	0.1	8.1	0.1	0.0	21474	0.6	7975
Secondary +	85.1	0.3	0.3	3.7	1.1	0.0	9.3	0.3	0.0	14753	1.8	4034
Missing/DK	85.4	0.0	0.6	2.0	0.0	0.0	12.0	0.0	0.0	587	0.8	247
Wealth index quintile												
Poorest	92.8	0.0	0.2	3.5	0.0	0.0	3.2	0.3	0.1	16892	0.0	6511
Second	88.1	0.0	0.5	5.4	0.0	0.0	5.6	0.6	0.0	16907	0.7	9552
Middle	84.6	0.1	0.5	6.9	0.1	0.1	7.8	0.2	0.1	16909	1.3	9828
Fourth	83.2	0.1	0.3	3.4	0.1	0.0	12.8	0.2	0.0	16910	1.2	6252
Richest	83.4	0.1	0.3	1.5	3.3	0.0	11.4	0.2	0.0	16915	1.2	1222
SUDAN (TOTAL)	86.4	0.1	0.4	4.1	0.7	0.0	8.2	0.3	0.0	84532	0.9	33366
<sup>[1]</sup> SHHS2 indicator 4.2	Percentage o	fhousehold	members in	households	using unimpro	ved drinking wate	er sources al	nd using an a	oppropriate v	water treatment	method	

#### Time to source of drinking water

The amount of time it takes to obtain water is presented in Table 7.3. It may be noted that these results refer to one round trip from home to drinking water source. Information on the number of trips made in one day was not collected.

Table 7.3 shows that for users of improved drinking water sources, about one-third (33 percent) of them had a drinking water source on the premises of their residence. For about 14 percent of all households using an improved drinking water source, it took less than 30 minutes to get to the water source and bring water, while 13 percent of households spent 30 minutes or more for this purpose. In rural areas, for users of improved drinking water sources, only 21 percent of them had a drinking water source on the premises compared to 60 percent for those in urban areas. The proportion of the household population wh0 spend more than 30 minutes to get to the water source and return was 18 percent for those in living in rural areas compared to 2 percent for those in urban areas.

Table 7.3 also shows that for users of unimproved drinking water sources, about one-fourth (26 percent) of them used water transported by tankers/carts. For about 5 percent of all households using an unimproved drinking water source, it took less than 30 minutes to get to the water source and bring water, while 8 percent of households spent 30 minutes or more for this purpose. In urban areas, for users of unimproved drinking water sources, about 30 percent of them used water transported by tankers/carts compared to 24 percent of those in rural areas. The proportion of the household population which spend more than 30 minutes to get to the water source and return was 12 percent in rural areas compared to 1 percent in urban areas.

The SHHS2 data indicated that for users of improved drinking water sources, the proportion of household members who had a drinking water source on the premises of their residence ranged from 24 percent in the case of household members who had household head with no education to 37 percent in the case of household members who had household head with primary education and 56 percent in the case of household members who had household head with secondary or higher level of education. The proportion of household members who spent 30 minutes or more to go to the source of drinking water and return home was lower among household members from households in the richest quintile (8 percent) than that for household members from households in the poorest quintile (16 percent).

The SHHS2 data also indicated significant differences in the availability of drinking water in the premises which varied from not having any water in the premises in the case of household members belonging to households in the poorest quintile to 92 percent in the case of household members belonging to households in the richest quintile. The household members who spent 30 minutes or more to go to the source of drinking water and return home was 35 percent in the case of household members belonging to households in the poorest quintile compared to only less than one percent in the case of those belonging to household members who spent 30 minutes or more to go to the sources, the households in the richest quintile. For the users of unimproved drinking water sources, the household members who spent 30 minutes or more to go to the source of drinking water and return home was 21 percent in the case of household members belonging to household members who spent 30 minutes or more to go to the source of drinking water and return home was 21 percent in the case of household members belonging to household members who spent 30 minutes or more to go to the source of drinking water and return home was 21 percent in the case of household members belonging to households in the richest quintile.

Figure 7.4: Time to source of drinking water: Percent distribution of household population according to time to go to source of drinking water, get water and return, for users of improved and unimproved drinking water sources, Sudan, 2010



Percent distribution of hou	isehold populat	ion according to	Tab time to go to se	le 7.3: Time to ource of drinki	source of drinking ng water, get wate	; water er and return, fo	r users of impro	ved and unimpr	oved drinking v	vater sources,
				Suc	an, 2010					
	lisere	of improved dri	nking water sou	rces	Lisers of	f unimproved d	inking water so	irces		
	Water on premises	Less than 30 minutes	30 minutes or more	Missing/DK	Transported water by tankers/carts	Less than 30 minutes	30 minutes or more	Missing/DK	Total	Number of household members
State of residence				2012/12/12/12/22		har a kara a				
Northern	81.4	6.1	2.7	0.7	2.4	1.1	5.5	0.0	100.0	1538
River Nile	65.2	3.9	8.7	0.1	8.8	5.4	6.6	1.2	100.0	3018
Red Sea	7.3	6.0	3.7	10.3	61.8	3.8	6.5	0.5	100.0	2249
Kassala	28.7	10.6	7.6	1.2	33.2	7.8	10.7	0.3	100.0	5135
Gadarif	13.2	8.8	5.7	0.2	52.8	9.3	9.9	0.1	100.0	3994
Khartoum	69.4	2.1	0.6	0.6	25.3	1.2	0.6	0.2	100.0	13494
Gezira	67.0	5.6	6.2	0.5	19.1	1.3	0.5	0.0	100.0	12569
Wite Nile	30.4	6.4	1.7	0.0	50.2	4.8	6.4	0.0	100.0	4391
Sinnar	34.9	17.4	7.2	1.2	32.5	4.7	1.9	0.2	100.0	3474
Blue Nile	12.2	14.8	12.9	0.0	27.9	11.9	17.8	2.5	100.0	3018
North Kordofan	6.7	26.5	20.4	0.2	30.7	7.8	7.7	0.1	100.0	8638
South Kordofan	0.2	28.8	19.3	1.4	27.3	6.4	16.3	0.3	100.0	3816
North Darfur	3.4	26.6	28.8	1.1	19.1	5.6	15.0	0.5	100.0	5352
West Darfur	4.7	26.3	13.0	0.5	11.5	14.8	28.3	0.9	100.0	3615
South Darfur	8.4	21.0	40.0	0.0	13.6	2.7	14.3	0.0	100.0	10231
Area of residence					the state of the					Sector Sector
Urban	59.5	4.2	2.3	.7	30.2	1.9	1.1	0.2	100.0	26714
Rural	20.7	17.9	18.3	.8	24.1	. 6.2	11.6	0.4	100.0	57818
Education level of househo	old head			ALC: NO.						
None	23.9	15.4	15.5	0.9	26.3	6.0	11.5	0.4	100.0	47717
Primary	37.4	13.2	11.7	0.6	27.6	4.2	5.0	0.3	100.0	21474
Secondary +	56.3	8.0	7.8	0.6	22.7	2.1	2.5	0.0	100.0	14753
Missing/DK	22.6	16.7	17.1	1.5	33.0	4.0	5.0	0.0	100.0	587
Wealth index quintile										
Poorest	.0	26.2	34.5	0.7	9.6	7.9	20.8	0.3	100.0	16892
Second	1.2	21.8	19.2	1.4	33.3	8.8	13.7	0.6	100.0	16907
Middle	17.2	14.2	9.7	0.8	47.3	5.2	5.3	0.4	100.0	16909
Fourth	54.9	4.8	2.4	0.9	33.2	2.3	1.2	0.2	100.0	16910
Richest	91.5	0.8	0.4	0.0	6.8	0.1	0.3	0.0	100.0	16915
SUDAN (TOTAL)	33.0	13.6	13.2	0.8	26.1	4.9	8.2	03	100 0	84532

The SHHS2 data indicated that for users of improved drinking water sources, the proportion of household members who had a drinking water source on the premises of their residence varied widely by State. The proportion of household members who had an improved drinking water source on the premises of their residence ranged from 0.2 percent in South Kordofan State to 69 percent in Khartoum State. The household members who spent 30 minutes or more to go to the source of drinking water and return home ranged from 0.6 percent in Khartoum State to 40 percent in South Darfur State. Similarly, in the case of users of unimproved drinking water sources, the household members who spent 30 minutes or more to go to the source of drinking water sources, the household members who spent 30 minutes or more to go to the source of drinking water sources, the household members who spent 30 minutes or more to go to the source of drinking water and return home ranged from 0.5 percent in Kortour State.

#### Person collecting water

Table 7.4 shows the proportion of persons usually collecting drinking water used in the household when the source of drinking water is not on the premises of the residence. The SHHS2 findings indicated that for 50 percent of households, this was usually an adult woman. Adult man collected water in only 26 percent of the households, female children under age 15 years collected water in about 13 percent of the households, while male children under age 15 years collected water in about 10 percent of the households.

The SHHS findings indicated that the practice of adult woman collecting drinking water for the household showed a declining trend with increase in the education level of the household head. The proportion of adult woman collecting drinking water for the household was higher (50 percent) among households which had a household head with no education than that among households which had a household head with secondary or higher level of education (42 percent). Similarly, the proportion of female child collecting drinking water for the household was higher (15 percent) among households which had a household head with no education compared to 10 percent in the case of households which had a household head with secondary or higher level of education. The proportion of adult man collecting drinking water for the household was lower at 23 percent among households which had a household head with no education compared to 35 percent in the case of households which had a household head with secondary or higher level of education.

#### **Use of Improved Sanitation Facilities**

Inadequate disposal of human excreta and personal hygiene is associated with a range of diseases including diarrhoeal diseases and polio. Improved sanitation can reduce diarrheal disease by more than a third, and can significantly lessen the adverse health impacts of other disorders responsible for death and disease among millions of children in developing countries.

An improved sanitation facility is defined as one that hygienically separates human excreta from human contact Improved sanitation facilities for excreta disposal include flush or pour flush to a piped sewer system, septic tank, or latrine; ventilated improved pit latrine, pit latrine with slab, and composting toilet. The data on the use of improved sanitation facilities in Sudan are provided in this report in Table 7.5.

The MDG sanitation indicator excludes users of improved sanitation facilities which are shared between two or more households from having access to sanitation. Therefore, "use of improved sanitation" is used both in the context of this report and as an MDG indicator to refer to improved sanitation facilities, which are not shared. Data on the use of improved sanitation are presented in Tables 7.6 and 7.8.

The SHHS2 findings indicated that 27 percent of the population of Sudan was living in households using improved sanitation facilities. This percentage was 47 percent in urban areas compared to -18 percent in rural areas. The proportion of household members using improved sanitation was highest in Northern State (74 percent) and the lowest in South Darfur State 5 percent)

Table 7.5 also shows that a significant proportion of the household members used Pit latrines; including Ventilated Improved Pit (VIP) latrines (8 percent) and pit latrine with slab (19 percent) both of which are considered to be an improved sanitation facility. The states where more than one-third of the household members using pit latrine with slab include Northern (71 percent), River Nile (41 percent), Khartoum (36 percent), and Gezira (34 percent).

About 29 percent of the household members used pit latrines without slab, i.e. open pit. The states where more than one-third of the household members used pit latrine without slab/open pit include White Nile (36 percent), Blue Nile (62 percent), North Kordofan and South Darfur (53 percent).

Nationwide, about 31percent of the households had no sanitation facilities. The proportion of household members who had no sanitary means of excreta disposal was highest in South Kordofan State (46 percent) and the lowest in Khartoum State (6 percent)

The education level of the household head had an influence on the use of improved sanitation facilities by the household population. The proportion of household members using improved sanitation facilities was much higher (43 percent) among household members who had household head with secondary or higher level of education than household members who had household head with no education (21 percent). The proportion of household members who had no sanitation facility was only 11 percent in the case of household members who had household head with secondary or higher level of education compared to 41 percent among household members who had household household head with no education.

The SHHS2 findings also indicated that the use of improved sanitation had a strong correlation with family wealth. The proportion of households using improved sanitation was much higher in the case of households in the richest quintile (70 percent) than that in the case of households in the poorest quintile (2 percent).

1

							Table 7.5: Types	of sanitation fac	ilities							e.
	1			Percent distri	bution of hous	ehold popu	ulation according	to type of toilet	facility use	d by the ho	usehold, Suc	lan, 2010				and a second and a second
	Improved	sanitation	facility				17 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -	Unimproved sa	nitation faci	lity		r		N -	Total	Number
	mt 34.3.5	-1.1		Flush to	A CONTRACTOR OF A				PIC					INO fe silite :		UI bourobold
	Flush to	Flush	Fluch to	unknown	ventilated	Pit		Fluch to	atrine		Hanging			Buch		mombers
	pipeu	10 contin	FRUSH LO	place /	Dit latring	autite	Compositing	Flush to	dab /		Honging			Eiold		members
	sewer	tank	(latrino)	DK where		dab	toilet	olso	Onen nit	Bucket	latrino	Other	Miccina	rielu		
Chatta al La	system	LdTIK	(latime)	DKWIEIE	(V)P)	Sidu	tonet	eise	Open pit	DUCKEL	Idunie	Second	witssing		NECESSARY.	1011 C. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Northorn		22	4.2	0.0	EO	71.4	0.1	0.4	5.4	0.0	0.0	10	0.0	61	100.0	1538
River Nile	0.2	2.5	4.2 2.1	0.0	5.0	/1.4	0.1	0.4	277	0.0	0.0	3.0	0.0	20.4	100.0	3018
River Mile	0.0	2.7	5.1	0.0	0.0	40.0	0.4	6.7	22.7	0.0	0,1	3.0	0.0	50.8	100.0	22/19
Keu Sea	0.2	1.0	5,4	0.0	9.0	9.0	1.0	0.7	24.1	0.0	0.0	1.0	0.0	46.4	100.0	5125
Gadarif	0.0	4.0	5.7	0.0	7.9	9.1	0.5	0.0	0.0	0.2	0.2	75	0.0	40.4	100.0	3994
Khartoum	5.8	0.5	86	0.0	69	36.0	0.0	0.0	24.6	0.0	0.0	1.6	0.0	5 9	100.0	13494
Gezira	0.1	1.2	0.0	0.0	10.0	33.6	0.5	0.0	16.1	0.0	0.0	2.8	0.0	35.6	100.0	12569
Wite Nile	0.1	55	25	0.0	7 1	12.3	10	0.0	36.0	0.0	0.1	1.3	0.0	34.0	100.0	4391
Sinnar	0.0	1.0	2.0	0.1	7.0	12.4	0.3	1.6	29.3	0.0	0.0	1.0	0.2	45.1	100.0	3474
Blue Nile	0.0	1.5	0.7	0.2	0.3	3.0	0.3	1.4	61.7	0.0	0.0	0.7	0.0	30.1	100.0	3018
N Kordofan	0.0	1.5	1.1	0.0	6.1	7.6	6.4	0.4	52.6	0.3	0.0	3.3	0.0	20.8	100.0	8638
S.Kordofan	0.0	0.0	1.2	0.0	16.4	7.8	0.2	0.1	24.9	0.0	0.1	2.9	0.1	46.3	100.0	3816
N.Darfur	0.0	0.0	3.2	0.0	7.2	11.6	0.4	0.2	13.7	0.3	0.0	29.7	0.1	33.6	100.0	5352
W.Darfur	0.3	0.3	2.6	0.0	7.1	19.8	0.8	0.0	16.6	0.0	0.6	2.5	0.3	49.1	100.0	3615
S.Darfur	0.0	0.8	2.9	0.0	0.6	3.2	0.2	0.1	53.3	0.0	0.0	0.1	0.0	39.0	100.0	10231
Area of re	sidence	2019/014		WHAT THE AND AND		to an in and				14891		CONSTRUCTION OF				
Urban	3.0	8.2	9.2	0.1	10.6	28.3	0.8	1.1	28.0	0.0	0.0	2.5	0.0	8.2	100.0	26714
Rural	0.0	0.4	0.8	0.0	6.2	14.8	1.2	0.1	29.5	0.1	0.1	4.6	0.0	42.2	100.0	57818
Education	(Maleria)	Var Kingstein	A States and		S. S. States				ASSESSES.	1.4.30.200.1						
None	0.9	2.3	2.7	0.0	6.5	13.8	1.2	0.3	27.9	0.0	0.1	3.6	0.1	40.6	100.0	47717
Primary	0.4	2.2	3.5	0.0	8.4	22.7	1.0	0.3	31.7	0.1	0.1	4.5	0.0	25.2	100.0	21474
Sec +	1.9	5.8	5.8	0.0	9.9	30.9	0.9	0.9	28.9	0.1	0.0	4.1	0.0	10.7	100.0	14753
Missing/DK	0.0	.0	.3	0.0	8.8	18.6	0.0	0.0	31.0	0.0	0.0	8.5	0.0	32.7	100.0	587
Wealth inde	ex quintile		Sec. 1					and the second	State of	Second Second	<b>"</b> *	1		and the second		and the second
Poorest	0.0	0.0	0.0	0.0	0.3	0.2	1.8	0.0	25.4	0.0	0.0	4.3	0.0	68.0	100.0	16892
Second	0.0	0.0	0.4	0.0	4.9	5.2	1.8	0.0	35.6	0.1	0.1	6.6	0.0	45.2	100.0	16907
Middle	0.0	0.1	1.3	0.0	10.2	11.8	0.4	0.1	36.1	0.1	0.2	4.8	0.1	34.8	100.0	16909
Fourth	0.0	0.9	4.2	0.1	12.3	34.0	0.8	0.5	34.5	0.1	0.0	3.7	0.0	9.0	100.0	16910
Richest	4.8	13.4	11.2	0.1	10.2	44.2	0.6	1.3	13.7	0.0	0.0	0.3	0.0	0.3	100.0	16915
SUDAN	1.0	2.9	3.4	0.0	7.6	19.1	1.1	0.4	29.1	0.1	0.1	3.9	0.0	31.4	100.0	84532

Figure 7.5: Use of improved sanitation facilities: Percent distribution of household population by users of improved sanitation facilities, Sudan, 2010



					Sudan,	2010					
	Us	ers of improve	d sanitation facilitie	s	User	s of unimpro	oved sanitation facili	ties	Open defecation		
	Not shared <sup>[1]</sup>	Public facility	Shared by other households (not public)	Missing/ DK	Not shared	Public facility	Shared by other households (not public)	Missing/ DK	(no facility, bush field)	Total	Number of household members
State of residence											
Northern	73.5	1.3	9.3	0.0	4.7	0.3	4.8	0.0	6.1	100.0	1538
River Nile	42.4	0.7	10.5	0.0	17.6	1.9	6.5	0.0	20.4	100.0	3018
Red Sea	24.0	1.3	2.8	0.0	9.8	0.0	2.3	0.0	59.8	100.0	2249
Kassala	22.1	0.2	5.4	0.0	17.2	0.7	7.7	0.2	46.4	100.0	5135
Gadarif	28.3	0.0	9.8	0.1	12.9	0.0	4.5	0.0	44.4	100.0	3994
Khartoum	51.3	1.1	14.3	1.1	18.2	0.7	7.2	0.1	5.9	100.0	13494
Gezira	34.4	0.4	10.6	0.1	11.9	0.0	7.1	0.0	35.6	100.0	12569
Wite Nile	20.2	0.1	8.1	0.0	22.0	0.0	15.5	0.1	34.0	100.0	4391
Sinnar	17.3	0.4	5.0	0.1	23.5	0.4	8.1	0.0	45.1	100.0	3474
Blue Nile	5.3	0.0	0.8	0.0	49.5	0.1	14.3	0.0	30.1	100.0	3018
North Kordofan	20.3	0.3	2.1	0.0	44.6	1.4	10.4	0.2	20.8	100.0	8638
South Kordofan	17.0	0.5	8.2	0.0	21.0	0.2	6.8	0.1	46.3	100.0	3816
North Darfur	18.4	0.2	4.0	0.0	41.2	0.2	2.3	0.2	33.6	100.0	5352
West Darfur	23.7	0.6	6.4	0.1	16.4	0.5	3.0	0.0	49.1	100.0	3615
South Darfur	5.0	0.1	2.4	0.0	41.0	1.2	11.3	0.0	39.0	100.0	10231
Area of residence								Sec. 2			107 db.36
Urban	46.9	0.6	12.4	0.4	23.4	0.5	7.8	0.0	8.2	100.0	26714
Rural	17.9	0.4	5.0	0.1	25.7	0.6	8.0	0.1	42.2	100.0	57818
Education level of hous	ehold head				1.1	en Hill	Section Section 19			100 C 100 C	
None	21.2	0.4	5.7	0.2	24.4	0.4	7.0	0.1	40.6	100.0	47717
Primary	29.1	0.4	8.5	0.2	25.1	0.9	10.5	0.1	25.2	100.0	21474
Secondary +	43.2	0.7	11.2	0.2	26.0	0.6	7.4	0.1	10.7	100.0	14753
Missing/DK	24.3	0.0	3.5	0.0	32.2	0.0	7.3	0.0	32.7	100.0	587
Wealth index quintile					1.4			100			
Poorest	2.0	0.2	0.1	0.0	23.4	0.5	5.8	0.0	68.0	100.0	16892
Second	9.0	0.3	3.0	0.0	32.3	0.8	9.2	0.2	45.2	100.0	16907
Middle	15.5	0.5	7.6	0.2	28.4	0.6	12.4	0.0	34.8	100.0	16909
Fourth	38.8	0.8	12.1	0.5	28.1	0.9	9.9	0.0	9.0	100.0	16910
Richest	69.8	0.4	13.7	0.4	12.6	0.2	2.5	0.1	0.3	100.0	16915

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Table 7.6 shows that about 31 percent of users of unimproved sanitation facility resorted to open defecation. Overall 25 percent of the users of unimproved sanitation facilities did not share sanitation facility with others, with minor differences between urban areas 26 percent compared to 23 percent in rural areas. The proportion of household population who resorted to open defecation was 41 percent among those with no education compared to 25 percent among those with primary education and 11 percent among those with secondary or higher level of education. There was a significant difference between household population in the richest and poorest quintiles who practiced open defecation. The proportion of household population who resorted to open defecation was 68 percent among those from households in the poorest quintile and was negligible in households in the richest quintile.

#### Disposal of child's faeces

Safe disposal of a child's faeces is disposing of the stool, by the child using a toilet or by rinsing the stool into a toilet or latrine. Disposal of faeces of children 0-2 years of age is presented in Table 7.7. Overall, the percentage of children whose stools were disposed of safely was 47 percent. The percentages of children whose stools were disposed of safely using an improved and unimproved sanitation facility in the dwelling were 70 percent and 66 percent respectively. There was significant difference between rural and urban areas in the proportion of children whose stools were disposed of safely was 67 percent in urban areas compared to 39 percent in rural areas. There was also a significant difference between the proportion of children whose stools were disposed of safely among children whose mothers had no education (36 percent) and among children whose mothers had secondary or higher level of education (76 percent). Significant difference between those in households in the richest and poorest quintiles was noticed in terms of the proportion of children whose stools were disposed of safely was 76 percent among those from households in the richest quintile compared to only 26 percent among those from households in the richest quintile.

				Table7.7	: Disposal of chi	ld's faeces						
Percent distribution	n of children age	d 0-2 years acco	rding to place o	f disposal of ch	ild's faeces, and	the percent	tage of ch	ildren age	ed 0-2 years v	whose stools	were disposed of sa	afely the
	I			last time the c	child passed sto	ols, Sudan, 2	010			Takal	Description	Number
			Pla	ce of disposal o	f child's faeces		<u>.</u>			Iotal	Percentage of	Number
	toilet / latring	Put / Rinsed	Put / Rinsed	I nrown into	b Buried	Left in	Other	DK	wissing		stools were	children
	tonet / latime	latring	ditch	gainage (sui	iu	the open					disposed of	aged 0-
		latine	uten	waste)							safely <sup>[1]</sup>	2 years
Type of sanitation fa	cility in dwelling	la de la compañía de	an a	and the first of the			in an		a san sa			
Improved	9.8	59.4	3.6	15.2	4.7	3.6	1.6	1.3	.8	100.0	69.2	2489
Unimproved	6.4	59.3	2.6	11.3	9.6	7.0	2.1	.8	.9	100.0	65.7	2840
Open defecation	.6	7.7	1.9	19.2	22.5	40.6	5.5	1.2	1.0	100.0	8.3	2915
State of Residence	in Constitution	line and the second	S. Sameran	4	1			Daris anna		and surface	A CONTRACTOR	
Northern	19.7	58.3	1.4	9.8	3.4	5.1	.9	1.5	.0	100.0	78.0	106
River Nile	5.0	41.7	3.2	20.2	9.4	19.1	1.1	.3	.0	100.0	46.7	256
Red Sea	4.5	20.5	3.7	30.6	9.7	26.8	2.6	.9	.7	100.0	24.9	175
Kassala	3.7	23.0	1.8	22.0	15.6	31.3	2.0	.4	.0	100.0	26.7	475
Gadarif	.9	31.7	1.9	25.6	16.1	11.6	8.7	2.3	1.2	100.0	32.6	415
Khartoum	13.7	50.5	1.3	25.6	1.9	4.0	1.3	1.2	.6	100.0	64.2	1140
Gezira	1.9	47.5	3.8	18.8	9.1	16.4	1.1	.3	1.0	100.0	49.4	1161
White Nile	4.2	42.2	10.6	7.9	6.6	25.9	1.5	.4	.7	100.0	46.4	433
Sinnar	2.9	30.0	6.6	11.2	18.5	25.3	3.1	2.0	.4	100.0	32.9	323
Blue Nile	.7	42.9	2.2	17.9	7.4	25.6	2.6	.7	.0	100.0	43.6	375
North Kordofan	7.7	45.0	1.1	6.5	18.2	11.0	7.1	1.3	2.1	100.0	52.7	880
South Kordofan	4.8	28.2	2.0	13.0	14.9	28.9	5.1	2.1	1.0	100.0	33.0	438
North Darfur	4.0	40.2	1.6	13.1	22.9	11.5	3.0	2.0	1.6	100.0	44.2	537
West Darfur	2.1	31.9	2.9	1.1	25.5	24.6	8.3	1.4	2.2	100.0	34.0	412
South Darfur	4.6	45.5	1.0	8.5	14.4	23.4	1.4	.7	.5	100.0	50.1	1117
Area of Residence	Sector Street			And the second					11 AM		and an and the second second	Sec. Sec. Sec. 1
Urban	11.2	55.8	2.8	17.1	4.0	5.7	1.5	1.2	.7	100.0	67.0	2270
Rural	3.1	35.5	2.6	14.6	15.9	22.5	3.8	1.0	1.0	100.0	38.7	5974
Mother's education	See States					139.94	Con al	1224 State			1	
None	4.0	31.7	1.7	15.6	15.8	25.2	3.9	1.2	.9	100.0	35.7	4495
Primary	6.0	49.5	3.7	14.8	10.8	10.9	2.4	.9	.9	100.0	55.6	2564
Secondary	9.2	59.1	4.0	15.8	4.2	4.2	1.8	.9	.8	100.0	68.3	1126
Missing/DK	9.2	42.0	.0	4.7	17.2	20.6	2.8	2.7	.9	100.0	51.2	60

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Wealth index quintiles												
Poorest	2.0	24.2	1.1	11.3	22.4	32.0	4.9	1.1	1.1	100.0	26.1	1908
Second	2.9	31.3	1.7	14.3	17.3	25.5	4.4	1.5	1.2	100.0	.34.2	
Middle	4.3	39.6	4.2	18.1	12.0	17.4	2.8	.9	.8	100.0	43.8	1789
Fourth	8.2	57.9	3.4	15.9	5.3	5.5	2.0	1.1	.7	100.0	66.1	1573
Richest	12.4	63.3	3.2	17.8	.7	.7	.6	.8	.5	100.0	75.7	1183
Total	5.4	41.1	2.6	15.3	12.7	17.9	3.1	1.1	9	100.0	46.5	8245

#### **Drinking water and sanitation ladders**

In its 2008 report<sup>6</sup>, the JMP developed a new way of presenting the access figures, by disaggregating and refining the data on drinking-water and sanitation and reflecting them in "ladder" format. This ladder allows a disaggregated analysis of trends in a three rung ladder for drinking-water and a fourrung ladder for sanitation. For sanitation, this gives an understanding of the proportion of population with no sanitation facilities at all, of those reliant on technologies defined by JMP as "unimproved," of those sharing sanitation facilities of otherwise acceptable technology, and those using "improved" sanitation facilities.

Table 7.8 presents the percentages of household population by drinking water and sanitation ladders. The table also shows the percentage of household members using improved sources of drinking water and sanitary means of excreta disposal. The SHHS findings indicated that overall, 21 percent of the household population was using both improved drinking water sources and improved sanitation facilities at the time of the survey. The percentage of household population using both improved drinking water sources and improved sanitation facilities was 36 percent in urban areas compared to 14 percent in rural areas.

<sup>&</sup>lt;sup>6</sup>WHO/UNICEF JMP (2008), MDG assessment report -

	Percentage of house	hold population	using:		i by drinking wat		inducis, suddil, z	.010			Number of
	Improved drinki	ng water <sup>[1]</sup>				Ur	nimproved sanitatio	on		Improved drinking	households
	Piped into dwelling, plot or yard	Other improved	Unimproved drinking water	Total	Improved sanitation <sup>[2]</sup>	Shared improved facilities	Unimproved facilities	Open defecation	Total	water sources and improved sanitation	
State of residence						and a star of		ada lank varia		The state of the	
Northern	81.4	9.6	9.0	100.0	73.5	10.6	9.8	6.1	100.0	67.3	1538
River Nile	65.2	12.7	22.0	100.0	42.4	11.2	26.0	20.4	100.0	38.7	3018
Red Sea	7.3	20.1	72.6	100.0	24.0	4.1	12.1	59.8	100.0	7.4	2249
Kassala	28.7	19.4	52.0	100.0	22.1	5.6	25.9	46.4	100.0	18.0	5135
Gadarif	13.2	14.7	72.1	100.0	28.3	9.9	17.4	44.4	100.0	10.2	3994
Khartoum	69.4	3.3	27.3	100.0	51.3	16.5	26.2	5.9	100.0	43.3	13494
Gezira	67.0	12.2	20.8	100.0	34.4	11.1	18.9	35.6	100.0	32.1	12569
White Nile	30.4	8.1	61.5	100.0	20.2	8.2	37.6	34.0	100.0	13.0	4391
Sinnar	34.9	25.8	39.3	100.0	17.3	5.5	32.1	45.1	100.0	13.2	3474
Blue Nile	12.2	27.8	60.1	100.0	5.3	0.8	63.8	30.1	100.0	2.7	3018
North Kordofan	6.7	47.1	46.2	100.0	20.3	2.4	56.5	20.8	100.0	13.4	8638
South Kordofan	0.2	49.5	50.3	100.0	17.0	8.6	28.1	46.3	100.0	9.6	3816
North Darfur	3.4	56.5	40.2	100.0	18.4	4.2	43.9	33.6	100.0	11.7	5352
West Darfur	4.7	39.8	55.5	100.0	23.7	7.1	20.0	49.1	100.0	11.3	3615
South Darfur	8.4	61.0	30.6	100.0	5.0	2.6	53.5	39.0	100.0	3.4	10231
Area of residence	A CARLES AND A CARLE					States and a second			The Art of		
Urban	59.5	7.2	33.4	100.0	46.9	13.3	31.6	8.2	100.0	36.3	26714
Rural	20.7	37.0	42.3	100.0	17.9	5.5	34.4	42.2	100.0	13.6	57818
Education level of ho	usehold head		Alter March 1978 h		and the second						
None	23.9	31.8	44.2	100.0	21.2	6.3	31.9	40.6	100.0	15.5	47717
Primary	37.4	25.5	37.1	100.0	29.1	9.1	36.6	25.2	100.0	22.7	21474
Secondary +	56.3	16.4	27.3	100.0	43.2	12.1	34.0	10.7	100.0	35.3	14753
Missing/DK	22.6	35.4	42.1	100.0	24.3	3.5	39.5	32.7	100.0	17.1	587
Wealth index quintile		ALC: MARK		O.S. Stand				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			1.6434345
Poorest	0.0	61.5	38.5	100.0	2.0	.3	29.7	68.0	100.0	1.7	16892
Second	1.2	42.3	56.5	100.0	9.0	3.3	42.4	45.2	100.0	4.9	16907
Middle	17.2	24.6	58.1	100.0	15.5	8.3	41.4	34.8	100.0	7.2	16909
Fourth	54.9	8.1	37.0	100.0	38.8	13.5	38.8	9.0	100.0	25.6	16910
Richest	91.5	1.2	7.2	100.0	69.8	14.5	15.4	.3	100.0	64.6	16915
SUDAN (TOTAL)	33.0	27.5	39.5	100.0	27.1	8.0		314	100.0 *	20.8	84532

The percentage of household population using both improved drinking water sources and improved sanitation facilities showed an increasing trend with the educational level of the household head. The percentage of household population using both improved drinking water sources and improved sanitation facilities was only 16 percent in the case of households which had household head with no education compared to 23 percent in the case of households which had head of households with primary education and 35 percent in the case of households which had household head with secondary or higher level of education. The percentage of household population using both improved drinking water sources and improved sanitation facilities varied significantly with increase in household wealth. The percentage of household population using both improved drinking water sources and improved sanitation facilities was only 2 percent in the case of the poorest households compared to 65 percent in the case of the richest households.

The percentage of household population using both improved drinking water sources and improved sanitation facilities varied widely by State, ranging from 3 percent in Blue Nile and South Darfur States to 67 percent in Northern State. (Table 7.8 and Figure 7.7)

Figure 7.7 Drinking water and sanitation ladders: Percentage of household population by drinking water and sanitation ladders, Sudan, 2010



The SHHS2 included some key indicators required to assess situation of reproductive health (RH) services that contribute to reproductive health and wellbeing of people by preventing and solving RH problems. The key topics covered by the SHHS2 included early child bearing, contraceptive prevalence rate, unmet need for family planning, antenatal care, content of antenatal care, assistance at delivery, place of delivery, maternal mortality. The key SHHS2 indicators include the following:

#### Fertility

Measures of current fertility are presented in Table 8.1a for the three-year period preceding the survey. A three-year period was chosen for calculating these rates to provide the most current information while also allowing the rates to be calculated for a sufficient number of cases so as not to compromise the statistical precision of the estimates. Age-specific fertility rates (ASFRs), expressed as the number of births per 1,000 women in a specified age group, show the age pattern of fertility. Numerators for ASFRs are calculated by identifying live births that occurred in the three-year period preceding the survey classified according to the age of the mother (in five-year age groups) at the time of the child's birth. The denominators of the rates represent the number of woman-years lived by the survey respondents in each of the five-year age groups during the specified period. The total fertility rate (TFR) is the number of live births a woman would have if she were subject to the current age-specific fertility rates throughout her reproductive years (15-49 years). The general fertility rate (GFR) is the number of live births occurring during the specified period per 1,000 women age 15-49. The crude birth rate (CBR) is the number of live births per 1,000 populations during the specified period.

Table8.1a shows current fertility in Sudan at the national level and by urban-rural area. The TFR for the three years preceding the SHHS2 is 5.7 births per woman. Fertility is considerably higher in rural areas (6.2 births per woman) than in urban areas (4.8 births per woman). As the ASFRs show, the pattern of higher rural fertility is prevalent in all age groups.

The urban-rural difference in fertility is most pronounced for women in the 20-24 years age group (119 births per 1,000 women in urban areas versus 254 births per 1,000 women in rural areas). The overall age pattern of fertility, as reflected in the ASFRs, indicates that childbearing begins early. Fertility is low among adolescents, increases to a peak of 267 births per 1,000 among women age 25-29, and declines thereafter.

Table 8.1a Fertility Rates Adolescent birth rate, age specific fertility rates, the general fertility rate, and the crude birth rate for the three years preceding the survey, by area, Sudan 2010													
Age Urban Rural Total													
15-19 <sup>1</sup>	67	119	102										
20-24	184	254	230										
25-29	240	282	267										
30-34	207	255	238										
35-39	150	188	175										
40-44	87	96	98										
45-49	24	54	39										
Total Fertility Rate (TFR)	4.8	6.2	5.7										
<sup>1</sup> SHHS2 Indicator 5.1, MDG Indicator 5.4													

	Adolescent birth rate <sup>1</sup> (Age specific fertility rate for women aged 15-19)	Total Fertility rate					
Mothers' education							
No education	179	7.1					
Primary	119	5.8					
Secondary+	26	3.8					
Wealth Index Quintile	S						
Poorest	157	7.5					
Second	142	6.8					
Middle	123	6.2					
Fourth	78	5.2					
Richest	27	3.6					
Total	102	-5.7					

## Early childbearing

Sexual activity and childbearing early in life carry significant risks for young people all around the world. Table 8.2 presents some early childbearing indicators for women age 15-19 years and 20-24 years while Table 8.3 presents the trends for early childbearing. The SHHS2 data indicated that 13 percent of women aged 15-19 years have already had a birth, 3 percent were pregnant with their first child, 16percent have begun childbearing and 1 percent has had a live birth before age 15. The SHHS2 findings also indicated that 14 percent of women aged 20-24 have had a live birth before age 18.

Table 8.2: Early childbearing												
Percentage of women age 15-19 years who have had a live birth or who are pregnant with the first child,												
women age 20-24 years who have had a live birth before age 18, Sudan, 2010												
	N	Percentage										
			T		1	of women						
				Have		age 20-24						
				had a	Number	who have	Numb					
		Are		live	of	had a live	er of					
	Have had	pregnant		birth	women	birth	wome					
	a live	with first	Have begun	before	age 15-	before age	n age					
	birth	child	childbearing	age 15	19	18 [1]	20-24					
State of residence												
Northern	6.4	1.5	7.9	0.0	63	2.7	55					
River Nile	13.5	3.1	16.5	0.2	117	7.8	124					
Red Sea	8.5	3.5	12.0	0.9	78	10.2	85					
Kassala	12.0	1.9	14.0	1.2	181	13.6	186					
Gadarif	18.2	2.8	21.0	1.0	176	18.3	157					
Khartoum	7.7	1.8	9.5	0.0	613	10.1	596					
Gezira	9.8	3.4	13.2	1.2	612	9.0	573					
White Nile	14.8	3.5	18.2	0.8	190	16.6	175					
Sinnar	11.0	4.2	15.2	0.8	138	14.2	155					
Blue Nile	23.7	4.0	27.7	4.6	118	26.9	110					
North Kordofan	15.4	1.7	17.1	0.6	363	16.3	362					
South Kordofan	15.0	3.8	18.8	1.8	152	17.9	136					
North Darfur	13.5	2.1	15.6	2.0	184	19.0	162					
West Darfur	20.8	9.3	30.1	1.8	129	16.3	135					
South Darfur	19.5	2.8	22.2	2.4	447	20.4	310					
Area of residence												
Urban	8.9	2.0	10.9	0.6	1240	9.6	1153					
Rural	15.8	3.4	19.2	1.5	2319	16.3	2169					
Education level												
None	28.4	4.5	32.8	3.4	712	22.8	904					
Primary	14.0	2.9	17.0	0.9	1411	19.0	1091					
Secondary +	3.6	1.7	5.3	0.0	1315	2.7	1192					
Adult	23.1	7.9	31.0	3.6	120	15.3	134					
education/Khalwa/					a.							
Sunday education												
Wealth index quintile												
Poorest	20.3	1.6	21.9	3.2	558	23.6	489					
Second	18.2	5.0	23.2	1.4	661	18.7	626					
Middle	17.5	4.3	21.8	1.3	739	17.1	711					
Fourth	10.0	0.7	778	11.8	767							
Richest   4.2   1.7   6.0   0.0   822   2.9   7												
SUDAN (TOTAL)	13.4	2.9	16.3	1.2	3559	14.0	3321					
SHHS2 indicator 5.1												

Some differences were seen among women living in urban and rural areas i.e. 10 percent in urban areas compared to 16 percent in rural areas. The level of education of the woman appears to have an influence on the likelihood of a live birth before age 18. For instance, it was only 3 percent for women with secondary or higher levels of education, compared to 19 percent for women with primary education and 23 percent for women with no education.

The level of household wealth also appears to have an influence on the early child bearing before age 18, being 3percent for those from households in the richest quintile compared to 24 percent for those belonging to households in the poorest quintile.

There were also significant variations by State, ranging from 3 percent in Northern State to 27 percent in Blue Nile State (Figure 8.1).





#### Trends in early childbearing

Table 8.2 provides information relating to the trends in early childbearing. It indicates the percentage of women who have had a live birth by age 15 and 18, by age groups.

Table 8.2: Early childbearing													
Percentage of women age 15-19 who have had a live birth or who are pregnant with the first child,													
women age 20-24 who have had a live birth before age 18, Sudan ,2010													
-		Number of			Percentage								
		Number of	women age 15		of women								
					Number	age 20-24							
		Aro		Have had a	of	who have							
	Have had	nregnant		live hirth	women	hirth	Number						
	a live	with first	Have begun	before age	age	before age	of women						
	birth	child	childbearing	15	15-19	18 [1]	age 20-24						
State of Residence													
Northern	6.4	1.5	7.9	0.0	63	2.7	55						
River Nile	13.5	3.1	16.5	0.2	117	7.8	124						
Red Sea	8.5	3.5	12.0	0.9	78	10.2	85						
Kassala	12.0	1.9	14.0	1.2	181	13.6	186						
Gadarif	18.2	2.8	21.0	1.0	176	18.3	157						
Khartoum	7.7	1.8	9.5	0.0	613	10.1	596						
Gezira	9.8	3.4	13.2	1.2	612	9.0	573						
White Nile	14.8	3.5	18.2	0.8	190	16.6	175						
Sinnar	11.0	4.2	15.2	0.8	138	14.2	155						
Blue Nile	23.7	4.0	27.7	4.6	118	26.9	110						
North	15.4	1.7	17.1	0.6	363	16.3	362						
South	outh 15.0		10.0	1 0	152	17.0	126						
Kordofan	15.0	5.0	10.0	1.0	152	17.5	130						
North Darfur	13.5	2.1	15.6	2.0	184	19.0	162						
West Darfur	20.8	9.3	30.1	1.8	129	16.3	135						
South Darfur	19.5	2.8	22.2	2.4	447	20.4	310						
Area of Reside	nce	Mary Stor Stor	les	I									
Urban	8.9	2.0	10.9	0.6	1240	9.6	1153						
Rural	15.8	3.4	19.2	1.5	2319	16.3	2169						
Education					A 18 8		a di Para						
None	28.4	4.5	32.8	3.4	712	22.8	904						
Primary	14.0	2.9	17.0	0.9	1411	19.0	1091						
Secondary +	3.6	1.7	5.3	0.0	1315	2.7	1192						
Adult	23.1	7.9	31.0	3.6	120	15.3	134						
education													
Khalwa/Sunda													
y education					THE SACESSING STREET	and the second	Carles Citizener						
weath sides quintiles     Poorect   20.2   1.6   21.0   2.2   EE0   22.6   400													
Fourest	20.3	1.0	21.9	3.2	558	23.0	489						
Middlo	17.5	5.0	23.2	1.4	100	17.1	711						
Fourth	10.0	<u>4.5</u> 2.1	12.0	1.5	770	11.0	767						
Richest	10.0	17	<u> </u>	0.7	872	20	720						
SUDAN Total	13.4	79	163	1-2	3559	14.0	3321						

Percentage of women with a live birth before age 15 years: The SHHS2 findings indicated that one percent of women who have had a live birth before age 15. There were some differences among women in urban and rural areas who have had a live birth by age 15. The percentage of women who have had a live birth before age 15 was one percent in urban areas compared to two percent in rural areas. The percentage of women who have had a live birth before age 15 was highest (2 percent) among women age 35-39 years and the lowest (1 percent) among women age 15-19 years indicating a declining trend in early child bearing.

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Percentage of women with a live birth before age 18 years: The SHHS2 findings indicated that about 14 percent of women have had a live birth before age 18. There were some differences in percentage of women in urban and rural areas who have had a live birth by age 18. The percentage of women who have had a live birth before age 18 was 10 percent in urban areas compared to 16 percent in rural areas. The percentage of women who have had a live birth before age 18 was highest (14 percent) among women age 20-24 years and the lowest (8 percent) among women age 45-49 years.

#### Contraception

Appropriate family planning is important to the health of women and children by: (i) preventing pregnancies that are too early or too late; (ii) extending the period between births; and (iii) limiting the number of children. Access by all couples to information and services to prevent pregnancies that are too early, too closely spaced, too late or too many is critical.

Table 8.4 provides information on the use of contraception. It indicates the percentage of women aged 15-49 years currently married who are using (or whose partner is using) a contraceptive method. Current use of contraception was reported by 9 percent of currently married women. The most popular method is the pill which is used by 6 percent of married women in Sudan. The next most popular methods were injectable and IUD (one percent each). In all about 8 percent of women reported the use of any modern method while one percent reported the use of any traditional method.

There was some differences in percentage of women aged 15-49 years in urban and rural areas currently married who were using (or whose partner was using) a method of contraception. About 17percent of women in urban areas reported the use of a contraceptive method (any method) compared to only 5 percent of women in rural areas. Adolescents are far less likely to use contraception than older women. Only about 5 percent of married women aged 15-19 currently use a method of contraception compared to 9 percent of 25-29 year olds and 11 percent of 40-44 year old women.

Women's education level was found to be associated with contraceptive prevalence. For instance, the percentage of women aged 15-49 years currently married and who were using (or whose partner was using) any method of contraception was only 2 percent for women with no education compared to 12 percent among women with primary education and 21 percent among women with secondary or higher level of education. In addition to differences in contraceptive prevalence, the method mix varies by education. The percentage of women who were using (or whose partner was using) any modern method of contraception was only 2 percent for women with no education compared to 10 percent among women with primary education and 20 percent among women with secondary or higher level of education. About 2 percent of contraceptive users with no education used the pill while 15 percent of contraceptive users with secondary or higher level of education used the pill.

The household wealth also appears to have an influence on the likelihood of the use of a contraceptive method. The percentage of women aged 15-49 years currently married and who were using (or whose partner was using) a method of contraception was only one percent among women belonging to households in the poorest households compared to 24 percent for those belonging to households in the richest households. In addition to differences in contraceptive prevalence, the method mix varies by the household wealth. The percentage of women who were using (or whose partner was using) any modern method of contraception was only one percent among women belonging to households in the poorest quintile compared to 22 percent among women from households in the richest quintile. About 1 percent of contraceptive users from households in the richest quintile used the pill while 17 percent of contraceptive users from households in the richest quintile used the pill. Contraceptive prevalence was highest in Northern State at 22 percent and lowest in South Darfur State at 2 percent.

Table 8.4: Use of contraception   Percentage of women aged 15-49 years currently married who are using (or whose partner is using) a contraceptive method. Sudan, 2010																
Percent of women (currently married) who are using (or whose partner is using) a contraceptin											raceptive	Any	Anv	Anv	Number of	
State/other background characteristic	Not using any method	Female sterilization	IUD	Injectables	Implants	Pill	Male condom	Diaphragm/ foam/jelly	Lactational amenorrhoea method (LAM)	Periodic abstinence/ Rhythm	Withdrawał	Other	modern method	traditional method	method	women currently married or in union
Northern	78.4	0.6	1.7	1.4	0.0	14.2	0.0	0.1	1.1	2.2	0.2	0.0	18.1	3.5	21.6	208
River Nile	83.6	0.8	0.9	2.1	0.0	11.8	0.0	0.0	0.6	0.0	0.1	0.2	15.6	0.8	16.4	386
Red Sea	94.2	0.1	0.3	1.4	0.0	3.8	0.0	0.0	0.2	0.0	0.0	0.0	5.6	0.2	5.8	331
Kassala	95.6	0.2	0.1	0.6	0.0	2.9	0.1	0.0	0.3	0.1	0.0	0.0	4.0	0.4	4.4	684
Gadarif	91.3	0.6	1.0	1.1	0.1	4.0	0.0	0.0	1.2	0.5	0.0	0.3	6.7	2.0	8.7	530
Khartoum	78.7	0.8	2.1	1,6	0.1	14.4	0.4	0.0	0.6	0.8	0.1	0.3	19.5	1.8	21.3	1718
Gezira	90.3	0.2	0.1	0.9	0.0	7.9	0.0	0.0	0.2	0.4	0.0	0.1	9.0	0.6	9.7	1574
White Nile	87.2	0.1	0.0	1.6	0.0	10.9	0.0	0.0	0.1	0.1	0.0	0.0	12.6	0.2	12.8	569
Sinnar	92.7	0.2	0.0	1.3	0.0	4.8	0.0	0.0	0.9	0.2	0.0	0.0	6.3	1.1	7.3	418
Blue Nile	97.0	0.1	0.2	0.5	0.0	1.7	0.0	0.0	0.1	0.1	0.0	0.2	2.5	0.5	3.0	425
N. Kordofan	93.4	0.4	0.0	0.4	0.0	4.3	0.0	0.0	0.1	0.5	0.0	0.9	5.1	1.5	6.6	1106
S. Kordofan	96.5	0.3	0.1	0.4	0.0	2.3	0.0	0.0	0.2	0.1	0.0	0.1	3.1	0.4	3.5	511
North Darfur	97.5	0.0	0.0	0.1	0.0	1.6	0.0	0.0	0.5	0.0	0.0	0.2	1.8	0.7	2.5	669
West Darfur	95.8	0.0	0.0	0.4	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.2	4.0	0.2	4.2	513
South Darfur	97.9	0.1	0.0	0.4	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.2	1.9	0.2	2.1	1364
Area of residence		an dinar		1.2.10		A START START		and the second second		684.55						
Urban	82.6	0.6	1.3	1.5	0.1	12.1	0.2	0.0	0.4	0.6	0.1	0.4	15.9	1.5	17.4	3351
Rural	94.6	0.2	0.1	0.6	0.0	3.8	0.0	0.0	0.3	0.2	0.0	0.1	4.7	0.7	5.4	7654
Age group		Sold Solds	1334	1914 1914 19		132330	and the second		Ast 1				Sec. State			C. S. S. S. S. S. S. S.
15-19	95.2	0.0	0.0	0.5	0.1	3.6	0.0	0.0	0.3	0.0	0.0	0.4	4.1	0.7	4.8	838
20-24	92.4	0.0	0.2	0.8	0.1	6.0	0.0	0.0	0.4	0.0	0.0	0.1	7.1	0.5	7.6	1844
25-29	90.8	0.0	0.3	.6	0.0	7.1	0.1	0.0	0.3	0.5	0.0	0.2	8.2	1.0	9.2	2414
30-34	89.7	0.3	0.3	1.1	0.0	7.4	0.0	0.0	0.5	0.4	0.0	0.3	9.1	1.2	10.3	1739
35-39	89.2	0.5	0.4	1.2	0.0	7.4	0.1	0.0	0.5	0.3	0.1	0.3	9.6	1.3	10.8	2054
40-44	88.6	0.8	1.3	1.7	0.0	6.2	0.3	0.0	0.1	0.7	0.0	0.2	10.4	1.0	11.4	1240
45-49	94.1	1.0	1.2	0.4	0.0	3.0	0.0	0.0	0.1	0.2	0.0	0.1	5.5	0.4	5.9	878
Number of Liv	ving Childro	en.		Mar Salar	e Walter				a state of the							Contraction and the
0	99.4	0.0	0.0	0.0	0.0	.3	0.0	0.0	0.0	0.0	0.0	0.3	.3	0.3	0.6	1169
1	91.2	0.0	0.1	0.5	0.2	7.3	0.0	0.0	0.3	0.3	0.0	0.3	7.9	0.9	8.8	1531
2	89.3	0.1	0.4	0.9	0.0	7.9	0.1	0.0	0.6	0.6	0.1	0.0	9.4	1.3	10.7	1691
3	88.7	0.5	0.6	1.3	0.0	7.9	0.2	0.0	0.3	0.3	0.0	0.2	10.6	0.8	11.3	1513
4+	90.2	0.5	0.7	1.1	0.0	6.4	0.1	0.0	0.4	0.3	0.0	0.3	8.8	1.0	9.8	5103
Education lev	el of wom	en -			State Con					Sec. Con						
None	97.2	0.1	0.1	0.4	0.1	1.8	0.0	0.0	0.2	0.1	0.0	0.1	2.4	0.4	2.8	4870
Primary	88.4	0.5	0.2	1.0	0.0	8.6	0.1	0.0	0.5	0.3	0.1	0.3	10.4	1.1	11.6	3569
Secondary	78.6	0.6	2.2	1.9	0.0	14.5	0.2	0.0	0.5	0.8	0.0	0.5	19.5	1.9	21.4	2016

לינטאנאטייב עים זענענאריטינדיט
Wealth quin	index tile															
Poorest	98.6	0.1	0.0	0.2	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	0.2	1.4	2252
Second	97.9	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.3	0.1	0.0	0.1	1.6	0.5	2.1	2296
Middle	94.1	0.2	0.0	0.6	0.0	4.3	0.0	0.0	0.3	0.4	0.0	0.2	5.1	0.8	5.9	2269
Fourth	86.1	0.6	0.4	1.5	0.1	9.8	0.0	0.0	0.7	0.4	0.0	0.4	12.4	1.5	13.9	2114
Richest	76.5	0.8	2.1	1.8	0.0	16.7	0.4	0.0	0.4	0.7	0.1	0.4	21.8	1.6	23.5	2075
SUDAN	91.0	0.3	0.5	0.9	0.0	6.3	0.1	0.0	00.3	0.3	0.0	0.2	8.1	0.9	9.0	11006

Figure 8.2 Use of contraception: Percentage of women aged 15-49 years currently married who are using (or whose partner is using) a contraceptive method, Sudan, 2010



## Unmet Need for Contraception

Unmet need for contraception refers to fecund women who are not using any method of contraception, but who wish to postpone the next birth (spacing) or who wish to stop childbearing altogether (limiting). Unmet need is identified in SHH2 by using a set of questions eliciting current behaviours and preferences pertaining to contraceptive use, fecundity, and fertility preferences.

Table 8.5 shows the results of the survey on contraception, unmet need, and the demand for contraception satisfied.

Unmet need for spacing is defined as percentage of women who are not using a method of contraception AND

 are not pregnant and not postpartum amenorrheic<sup>7</sup> and are fecund<sup>8</sup> and say they want to wait two or more years for their next birth OR

<sup>&</sup>lt;sup>7</sup>A women is postpartum amenorrheic if she had a birth in last two years and is not currently pregnant, and her menstrual period has not returned since the birth of the last child

<sup>&</sup>lt;sup>8</sup>A women is considered infecund if she is neither pregnant nor postpartum amenorrheic, and

<sup>(1</sup>a) has not had menstruation for at least six months, or (1b) never menstruated, or (1c) her last menstruation occurred before her last birth, or (1d) in menopause/has had hysterectomy OR

<sup>(2)</sup> She declares that she has had hysterectomy, or that she has never menstruated or that she is menopausal, or that she has been trying to get pregnant for 2 or more years without result in response to questions on why she thinks she is not physically able to get pregnant at the time of survey OR

<sup>(3)</sup> She declares she cannot get pregnant when asked about desire for future birth OR

<sup>(4)</sup> She has not had a birth in the preceding 5 years, is currently not using contraception and is currently married and was continuously married during the last 5 years preceding the survey

- are not pregnant and not postpartum amenorrheic and are fecund and unsure whether they want another child OR
- are pregnant and say that pregnancy was mistimed: would have wanted to wait OR
- are postpartum amenorrheic and say that the birth was mistimed: would have wanted to wait

Unmet need for limiting is defined as percentage of women who are not using a method of contraception AND

- are not pregnant and not postpartum amenorrheic and are fecund and say they do not want any more children OR
- are pregnant and say they didn't want to have a child OR
- are postpartum amenorrheic and say that they didn't want the birth

Total unmet need for contraception is simply the sum of unmet need for spacing and unmet need for limiting.

Table 8.5 shows the unmet need for contraception. It indicates the percentage of women aged 15-49 years (currently married) with an unmet need for family planning and percentage of demand for contraception satisfied.

Percentage of v	women aged 1	5-49 years curre	Table 8.5: I Intly married w	Unmet need ith an unmet n	for contrace eed for family p	ption planning and pe	ercentage o	of demand for c	ontraception
	•	-		satisfied, Suda	an, 2010				
	Met need for contraception - For spacing	Met need for contraception - For limiting	Met need for contraception - Total	Unmet need for contraception - For spacing	Unmet need for contraception - For limiting	Unmet need for contraception - Total [1]	Number of women currently married	Percentage of demand for contraception satisfied	Number of women currently married with need for contraception
State of									
residence							1.00		
Northern	12.4	9.3	21.7	14.8	12.1	26.9	208	44.7	101
River Nile	11.4	5.3	16.8	22.0	10.2	32.2	386	34.2	189
Red Sea	4.9	2.3	7.2	18.7	5.5	24.2	331	22.8	104
Kassala	2.1	2.4	4.5	15.1	8.5	23.6	684	16.1	192
Gadarif	5.9	3.5	9.4	19.1	8.5	27.6	530	25.4	196
Khartoum	14.1	8.3	22.5	16.7	12.8	29.4	1718	43.3	892
Gezira	6.9	3.0	9.9	17.1	11.8	28.9	1574	25.6	611
White Nile	9.7	3.5	13.1	18.6	9.2	27.8	569	32,1	233
Sinnar	5.0	2.7	7.6	20.9	8.0	28.9	418	20.9	153
Blue Nile	2.2	.9	3.1	16.0	7.4	23.4	425	11.7	112
N. Kordofan	6.6	2.0	8.6	21.3	12.3	33.7	1106	20.4	468
S. Kordofan	5.4	1.4	6.8	21.2	7.9	29.1	511	18.9	183
North Darfur	2.8	.7	3.5	18.5	9.1	27.6	669	11.2	208
West Darfur	4.1	1.2	5.3	10.9	4.5	15.4	513	25.5	106
South Darfur	2.7	.8	3.6	22.3	13.4	35.6	1364	9.5	537
Area of residence									
Urban	12.7	6.3	19.0	17.5	11.9	29.3	3351	39.4	1621
Rural	4.2	1.9	6.1	18.8	9.8	28.7	7654	17.6	2665
Age		100 100 100			1. Start 1.	444		Shire and	
15-19	5.7	.3	6.0	17.5	1.9	19.3	838	23.6	212
20-24	7.9	.6	8.4	24.5	2.3	26.8	1844	24.0	649
25-29	8.5	1.5	10.0	23.4	3.2	26.6	2414	27.4	886
30-34	8.2	2.9	11.1	19.9	7.2	27.1	1739	29.0	664
35-39	6.9	5.3	12.1	17.2	14.4	31.6	2054	27.7	899
40-44	4.4	8.3	12.6	9.7	28.4	38.1	1240	24.9	629
45-49	1.5	5.5	7.0	4.9	27.6	32.5	878	17.7	347
Education level			and the second						
None	2.3	1.4	3.8	17.0	11.1	28.1	4870	12.0	1553
Primary	8.3	4.2	12.5	21.0	10.7	31.8	3569	28.3	1582
Secondary +	16.1	6.4	22.5	18.2	8.5	26.7	2016	45.7	992
Adult education/ Khalwa/Sunday education	2.4	1.5	3.9	15.1	10.0	25.2	550	13.5	160
Wealth index qui	ntile		and the second second				1.0	1	1997 - 1997 -
Poorest	1.5	.5	2.0	19.1	10.0	29.1	2252	6.6	701
Second	2.4	.9	3.3	18.1	9.5	27.6	2296	10.5	708
Middle	5.5	1.7	7.2	20.4	9.0	29.4	2269	19.7	830
Fourth	10.4	4.7	15.1	19.5	10.0	29.6	2114	33.8	944
Richest	15.3	9.0	24.3	14.8	14.0	28.8	2075	45.7	1103
SUDAN	6.8	3.3	10.0	18.4	10.5	28.9	11006	25:9	4286
<b>IISHHS2</b> indicator	5.4; MDG indica	ator 5.6							

The SHHS2 findings indicated that the percentage of women aged 15 - 49 years (currently married) with unmet need for contraception for spacing and limiting were 18 percent and 11 percent respectively. There was no significant difference in unmet need for contraception by urban/rural areas.

The unmet need for contraception for spacing was highest (22 percent) among women in South Darfur State and lowest (11 percent) among women in West Darfur State while the unmet need for contraception for limiting was highest in South Darfur State at 13 percent and the lowest in West Darfur State at 5 percent.

The SHHS2 findings indicated that the 29 percent of women aged 15 - 49 years (currently married) have an unmet need for contraception for family planning

The unmet need for contraception varied marginally by educational level of women. The unmet need for contraception was 28 percent in the case of women with no education compared to 32 percent for women with primary education, and 27 percent for women with secondary or higher level of education. The unmet need for contraception was highest (38 percent) among women aged 40-44 years and lowest (19 percent) among women aged 15-19 years.

The unmet need for contraception was highest in South Darfur State at 36 percent and the lowest in West Darfur State at 15 percent. (Figure 8.3)

Figure 8.3 Unmet need for contraception: Percentage of women aged 15-49 years currently married with an unmet need for family planning, Sudan, 2010



#### Met need for contraception

Table 8.4 also shows the met need for contraception for spacing as well as met need for contraception for limiting. Met need for limiting includes women who are using a contraceptive method and who want no more children, are using male or female sterilization or declare themselves as infecund. Met need for spacing includes women who are using a contraceptive method and who want to have another child or undecided whether to have another child. The total of met need for spacing and limiting add up to the total met need for contraception.

The SHHS2 findings indicated that the percentage of women aged 15 - 49 years (currently married) with met need for contraception for spacing and limiting were 7 percent and 3 percent respectively. The met need for contraception varied marginally by urban/rural areas, by educational level of

women and by the level of household wealth. The met need for contraception for spacing was 13 percent in the case of women in urban areas compared to 4 percent for women in rural areas. The met need for contraception for limiting was 6 percent in the case of women in urban areas compared to 2 percent for women in rural areas.

The met need for contraception for spacing was only 2 percent in the case of women with no education compared to 8 percent for women with primary education, and 16 percent for women with secondary or higher level of education. The met need for contraception for limiting was only 1 percent in the case of women with no education compared to 4 percent for women with primary education, and 6 percent for women with secondary or higher level of education. The met need for contraception for spacing was 2 percent among women belonging to households in the poorest quintile compared to 15 percent among women from households in the richest quintile. The met need for contraception for limiting was one percent among women belonging to household in the poorest quintile compared to 9 percent among women from households in the richest quintile. The met need for contraception for spacing was highest (9 percent) among women aged 25-29 years and lowest (2 percent) among women aged 45-49 years while the met need for contraception for limiting was need to 45-49 years and lowest (less than one percent) among women aged 15-19 years.

The met need for contraception for spacing was highest (14 percent) among women in Khartoum State and lowest (2 percent) among women in Kassala State. The met need for contraception for limiting was highest in Northern State at 9 percent and the lowest in North Darfur State at one percent.

## Demand for contraception

Using information on contraception and unmet need, the percentage of demand for contraception satisfied was also estimated from the SHHS2 data. Percentage of demand satisfied is defined as the proportion of women currently married or in a marital union who are currently using contraception, of the total demand for contraception. The total demand for contraception includes women who currently have an unmet need (for spacing or limiting), plus those who are currently using contraception.

The SHHS2 findings indicated that the percentage of demand for contraception satisfied was 26 percent. The percentage of demand for contraception satisfied varied significantly by urban/rural areas, by educational level of women and by the economic status of the households. The percentage of demand for contraception satisfied was 39 percent in the case of women in urban areas compared to 18 percent for women in rural areas.

The percentage of demand for contraception satisfied was only 12 percent in the case of women with no education compared to 28 percent for women with primary education, and 45 percent for women with secondary or higher level of education. The percentage of demand for contraception satisfied was only 7 percent among women belonging to households in the poorest quintile compared to 46 percent among women from households in the richest quintile.

The percentage of demand for contraception satisfied was highest (22 percent) among women in Northern State and the lowest (10 percent) among women in South Darfur State.

### **Antenatal Care**

The antenatal period presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and that of their infants. Better understanding of foetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and newborn health. For example, if the antenatal period is used to inform women and families about the danger signs and symptoms and about the risks of labour and delivery, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider. The antenatal period also provides an opportunity to supply information on birth spacing, which is recognized as an important factor in improving infant survival. Tetanus immunization during pregnancy can be life-saving for both the mother and infant. The prevention and treatment of malaria among pregnant women, management of anaemia during pregnancy and treatment of STIs can significantly improve foetal outcomes and improve maternal health. Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections (e.g., malaria and STIs) during pregnancy. More recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of antenatal services.

WHO recommends a minimum of four antenatal visits based on a review of the effectiveness of different models of antenatal care. The WHO guidelines are specific on the content on antenatal care visits, which include:

- (i) Blood pressure measurement;
- (ii) Urine testing for bacteriuria and proteinuria;
- (iii) Blood testing to detect syphilis and severe anemia; and
- (iv) Weight/height measurement (optional).

#### Antenatal care providers

Table 8.5: provides details of the antenatal care provider, i.e. the type of personnel providing antenatal care to women aged 15-49 years who gave birth in the two years preceding the survey. The results of the SHHS2 show that three in four women received antenatal care (74 percent) at least once by skilled personnel; Doctor, Nurse Midwife, Midwife and Health Visitor.

The percentage of women who received ANC was found to be influenced by the women's education level and the level of household wealth: only 63 percent of women with no formal education received ANC at least once by skilled personnel, while 82 percent of women with primary education and 92 percent of women with secondary or higher level of education received ANC at least once by skilled personnel. There were significant differentials among women who received ANC from household in the richest quintile (92 percent) and those in the poorest quintile (63 percent) respectively.

In the majority of cases, 47percent of women received ANC from a medical doctor, but 4 percent received ANC from a nurse midwife, 5 percent from a health visitor and 18 percent from a midwife.

Table 8.6: Antenatal care coverage								
Percent distribution of wo	men aged i	providine	ave birth i antenata	n the two y l care. Suda	ears precedu n. 2010	ng the sur	vey by type of	personnel
	1	Person p	providing a	ntenatal car	e	Total	At least	Number
	Doctor	Nurse Midwife	Health Visitor	Midwife	No antenatal		once by skilled	of women
					care		personnel	who
					received		[1]	gave
				1				birth in
								the
								precedin
								gtwo
FA-16					1.000	N MARCHINE CON		years
State of residence	067	0	2	1 - 1 -	11.6	100	00.4	00
River Nile	70.1	.0	.2	1.5	11.0	100	88.4	100
River Mile	10.1	<u> </u>	2.2	2./ E 1	25.5	100	62.0	104
Kassala	53./	5.0	Q 1	72	24.5	100	75.5	218
Gadarif	/3.0	13	2.5	73.2	24.5	100	73.5	283
Khartoum	67.0	1.5	11 7	77	11.7	100	883	752
Gezira	68.2	5	71	25	21.6	100	78.4	750
White Nile	65.1	3	8	13.2	20.6	100	79.4	316
Sinnar	48.3	29	5.8	12.7	30.3	100	69.7	217
Blue Nile	23.4	2.0	1.6	24.7	48.3	100	51.7	261
North Kordofan	52.2	1.6	3.0	24.4	18.9	100	81.1	615
South Kordofan	24.1	9.6	11.5	27.2	27.5	100	72.5	307
North Darfur	24.7	6.2	3.9	31.5	33.7	100	66.3	387
West Darfur	7.9	2.4	5.2	43.3	41.2	100	58.8	278
South Darfur	26.2	9.0	1.0	32.3	31.4	100	68.6	772
Area of residence						666236		
Urban	63.4	2.3	8.6	10.0	15.7	100	84.3	1559
Rural	40.6	4.1	4.1	21.6	29.6	100	70.4	4087
Education level				and the second			and the second second	
None	30.7	4.2	4.5	23.8	36.7	100	63.3	2487
Primary	54.3	3.7	7.0	16.9	18.1	100	81.9	1912
Secondary +	79.4	1.6	4.4	6.0	8.5	100	91.5	974
Adult education/Khalwa/	26.5	5.2	5.0	22.0	40.5	100	50.5	273
Sunday education	20.5	J.2	5.0	22.5	40.5	100	53.5	275
Wealth index quintile								
Poorest	26.6	5.7	1.8	28.6	37.3	100	62.7	1287
Second	29.6	4.6	4.2	28.3	33.4	100	66.6	1245
Middle	46.9	3.4	7.1	15.0	27.6	100	72.4	1255
Fourth	62.9	2.7	10.0	10.7	13.6	100	86.4	1073
Richest	85.6	.5	3.9	1.8	8.3	100	91.7	787
SUDAN (TOTAL)	46.9	3.6	5.4	18.4	25.7	100	74.3	5646
SHHS 2 indicator 5.5a; MD	<b>G</b> Indicator	5.5						245 B

÷.,

Antenatal care coverage was higher in urban areas (84 percent) than in rural areas (70 percent). The percentage of women who received ANC at least once by a skilled person was highest in Northern State (88 percent) and lowest in Blue Nile State (52 percent) (Figure 8.4).

Figure 8.4: Antenatal care coverage Percent distribution of women aged 15-49 who gave birth in the two years preceding the survey and received antenatal care at least once by skilled personnel, Sudan, 2010



## Antenatal care visits

Table 8.7: provides information relating to the percentage of women who had a live birth during the last two years preceding the survey by number of antenatal care visits by any provider. It indicates the number of antenatal care visits during the last pregnancy during the two years preceding the survey, regardless of provider. UNICEF and WHO recommend a minimum of at least four antenatal care visits during pregnancy.

The SHHS2 data indicated that almost seven in ten mothers (70 percent) who had a live birth during the last two years preceding the survey received antenatal care more than once by any provider and about half of mothers received antenatal care at least four times (47 percent). Mothers living in urban areas are more likely than those living in rural areas to receive ANC four or more times. The percentage of women who had a birth during the two years preceding the SHHS2 and who had four or more antenatal care visits was only 40 percent in the case of women in rural areas compared to 67 percent among women in urban areas.

Mothers with no formal education and those from households in the poorest quintile are less likely than more advantaged mothers to receive ANC four or more times. For instance, the percentage of women who had a birth during the two years preceding the SHHS2 and who had four or more antenatal care visits was only 34 in the case of women with no education compared to 54 percent among women with primary education and 72 percent among women with secondary or higher level of education. Similarly, only 32 percent of the women from households in the poorest quintile

reported four or more antenatal care visits by any health provider compared to 74 percent among those from households in the richest quintile.

The percentage of women who had a birth during the two years preceding the SHHS2 and who had four or more antenatal care visits by any provider ranged from 78 percent in Khartoum State to 32 percent in Blue Nile State (Table 8.7 and Figure 8.5)

Table 8.7: Number of antenatal care visits								
Percentage of women wh	o had a live b	irth duri	ng the two	o years pr	eceding the s	urvey by nu	mber of a	ntenatal care
visits by any provider, Sudan, 2010								
	Percent of v	women w	ho had:			<u>,</u>	Total	Number of
	No	One	Two	Three	4 or	Missing/		women who
	antenatal	visit	visits	visits	more	DK		gave birth in
	care visits				visits 14			the
1						-		preceding
		and the second	- in the classifier	-		and a state of the second s	-	two years
State of residence				- Andrew -				
Northern	10.7	8.2	13.6	16.6	50.6	0.3	100	83
River Nile	21.6	3.1	8.9	13.2	51.5	1.7	100	164
Red Sea	34.2	6.9	8.6	14.0	35.4	1.1	100	134
Kassala	23.1	9.1	14.0	13.0	38.3	2.5	100	318
Gadarif	27.6	6.4	10.5	14.6	39.4	1.5	100	283
Khartoum	11.5	2.2	3.1	5.5	77.7	0.0	100	752
Gezira	21.4	5.4	12.3	16.5	44.0	0.5	100	759
White Nile	19.4	7.2	14.6	14.8	42.2	1.8	100	316
Sinnar	28.1	8.4	13.4	12.6	36.4	1.2	100	217
Blue Nile	40.7	5.9	8.1	13.6	31.8	0.0	100	261
North Kordofan	16.1	2.8	13.8	14.4	52.7	0.3	100	615
South Kordofan	23.7	3.7	7.9	16.4	47.6	0.7	100	307
North Darfur	30.2	5.4	12.2	17.8	33.0	1.3	100	387
West Darfur	37.2	3.6	4.0	8.1	46.0	1.0	100	278
South Darfur	32.2	6.0	8.4	12.0	40.8	0.6	100	772
Area of residence	1.00	an station	-Rospin-	10000				
Urban	15.2	2.3	5.6	8.8	66.8	1.3	100	1559
Rural	27.5	6.1	11.5	14.7	39.7	0.6	100	4087
Education level					2.2.2			
None	34.4	6.2	11.6	13.0	34.1	0.8	100	2487
Primary	16.7	4.9	10.2	13.9	53.4	0.9	100	1912
Secondary +	8.7	2.0	5.3	11.5	72.1	0.4	100	974
Adult education/Khalwa/	27.0	7.0		43.7	77.0	4.5	100	070
Sunday education	37.0	7.8	7.3	12.7	33.8	1.5	100	2/3
Wealth index quintile								
Poorest	34.9	7.4	11.0	14.6	31.7	0.4	100	1287
Second	29.8	6.1	13.4	13.9	36.1	0.7	100	1245
Middle	26.6	5.6	9.3	14.4	43.1	1.1	100	1255
Fourth	13.2	3.1	8.3	10.6	63.7	1.2	100	1073
Richest	8.0	1.8	5.5	10.3	73.7	0.7	100	787
SUDAN (TOTAL)	24.1	5.1	9,9	13.0	47,1	0.8	100	5646
<sup>[1]</sup> SHHS2 indicator 5 5a: MDG	indicator 5 5	1						

Figure 8.5: Antenatal care visits: Percentage of women who had a live birth during the two years preceding the survey and had four or more antenatal care visits, Sudan, 2010



# Content of antenatal care

The types of services pregnant women received are shown in Table 8.8. Among those women who have given birth to a child during the two years preceding the survey, 56 percent reported that a blood sample was taken during antenatal care visits, 58 percent reported that their blood pressure was checked, and 57 percent reported that urine specimen was taken.

Table 8.8: Content of antenatal care   Percentage of women aged 15-49 years who had their blood pressure measured urine sample taken, and									
Percentage of women aged 15-49 years who had their blood pressure measured, urine sample taken, and blood sample taken as part of antenatal care, Sudan, 2010									
Percent of pregnant women who had: Blood Number of									
	Percent of preg	nant women who	had:	Blood	Number of				
	Blood	Urine	Blood test	pressure	women				
	pressure	specimen	taken	measured,	who gave				
	measured	taken		urine	birth in				
				specimen and	two years				
				takan <sup>[1]</sup>	preceding				
e				Laken	survey				
State of residence		07.0	00.0	04.0	0.2				
Northern	84.4	87.9	88.0	84.3	83				
River Nile	/1.9	70.6	/1.2	69.6	164				
Red Sea	59.3	59.3	59.6	57.0	134				
Kassala	66.6	66.0	67.5	61.9	318				
Gadarif	49.3	46.3	47.4	42.6	283				
Khartoum	84.4	86.9	85.1	82.9	752				
Gezira	71.8	72.5	71.9	69.0	759				
White Nile	63.1	61.0	61.6	59.0	316				
Sinnar	52.7	52.1	52.7	46.0	217				
Blue Nile	27.8	25.1	27.3	21.0	261				
North Kordofan	56.7	58.4	55.4	51.0	615				
South Kordofan	43.0	51.5	43.7	34.0	307				
North Darfur	43.1	39.6	37.9	33.7	387				
West Darfur	39.8	28.0	29.9	25.1	278				
South Darfur	41.0	34.8	34.1	30.0	772				
Area of residence									
Urban	76.8	78.7	77.8	73.6	1559				
Rural	50.4	48.3	47.4	43.3	4087				
Education level			and the second		r star search and				
None	41.4	39.6	38.8	34.3	2487				
Primary	66.7	66.4	65.0	60.6	1912				
Secondary +	86.1	86.4	85.7	82.8	974				
Adult education/Khalwa/									
Sunday education	42.1	38.1	39.5	35.9	273				
Wealth index quintile									
Poorest	34.7	30.9	30.1	25.4	1287				
Second	42.9	40.4	39.2	34.4	1245				
Middle	58.6	58.2	58.1	53.8	1255				
Fourth	78.7	81.2	79.5	75,8	1073				
Richest	88.9	88.8	88.2	85.3	787				
SUDAN TRIANS	57.7	56.0	55.8	51.6	5646				

The SHHS2 findings indicated that among those women who had given birth to a child during the last two years preceding the survey, only in the case of about one half (52 percent) of them blood pressure was measured, urine sample taken and blood test taken during ANC visits (Table 8.8).

Mothers living in urban areas are more likely than those living in rural areas to receive ANC and have their blood pressure measured, urine sample taken and blood test taken during ANC visits. The percentage of women who had a birth during the last two years preceding the SHHS2 and who had received ANC and had their blood pressure measured, urine sample taken and blood test taken during ANC visits was only 43 percent in the case of women in rural areas compared to 74 percent among women in urban areas. Mothers with no formal education and those from households in the

poorest households are less likely than more advantaged mothers to receive ANC and have their blood pressure measured, urine sample taken and blood test taken during ANC visits. For instance, the percentage of women who had a birth during the last two years preceding the SHHS2 and who had received ANC and had their blood pressure measured, urine sample taken and blood test taken during ANC visits was only 34 in the case of women with no education compared to 61 percent among women with primary education and 83 percent among women with secondary or higher level of education. Similarly, only 25 percent of the women from households in the poorest quintile had their blood pressure measured, urine sample taken and blood test taken during ANC visits compared to 85 percent among those from households in the richest quintile.

Northern State had the highest proportion (84 percent) of women who received antenatal care and had their blood pressure measured, urine sample taken and blood test taken during ANC visits. The lowest proportion of women who received antenatal care and had their blood pressure measured, urine sample taken and blood test taken during ANC visits was in Blue Nile State (21 percent) (Figure 8.6).

Figure 8.6 Content of antenatal care: Percentage of women aged 15-49 years who had their blood pressure measured, urine sample taken, and blood sample taken as part of antenatal care, Sudan, 2010



## Assistance at Delivery

About three quarters of all maternal deaths occur during delivery and the immediate post-partum period. The single most critical intervention for safe motherhood is to ensure that a competent health worker with midwifery skills is present at every birth, and transport is available to a referral facility for obstetric care in case of emergency. A World Fit for Children goal is to ensure that women have ready and affordable access to skilled attendance at delivery. The indicators are the proportion of births with a skilled attendant and proportion of institutional deliveries. The skilled

attendant at delivery indicator is also used to track progress toward the Millennium Development target of reducing the maternal mortality ratio by three quarters between 1990 and 2015.

The SHHS2 included a number of questions to assess the proportion of births attended by a qualified attendant. A qualified attendant includes a doctor, nurse midwife or village midwife.

Table 8.9 provides information relating to assistance during delivery. It indicates the percent distribution of women aged 15-49 that had a live birth in the two years preceding the survey by person assisting at delivery and percentage of births delivered by C-section. About one-half of the births (49 percent) in the two years preceding the SHHS2 survey were delivered with assistance by a village midwife. Doctors assisted with the delivery of 14 percent of births and nurses assisted with 6 percent. About 3 percent of births are delivered by health assistants and 20 percent by traditional birth attendants. About 7 percent of births were delivered by C-section. Overall, about 73 percent of births occurring in the two years preceding the SHHS survey were delivered by skilled personnel. Mothers living in urban areas are more likely than those living in rural areas to have delivered with the assistance of a skilled attendant. The percentage of women who had delivered with the assistance of a skilled attendant was 89 percent in the case of women in urban areas compared to 66 percent among women in rural areas. The more educated a woman is, the more likely she would have delivered with the assistance of a skilled attendant. For instance, the percentage of women who had delivered with the assistance of a skilled attendant was only 54 in the case of women with no education compared to 88 percent among women with primary education and 95 percent among women with secondary or higher level of education. Similarly, the percentage of women who had delivered with the assistance of a skilled attendant was only 48 percent among women belonging to the poorest households compared to 95 percent among those living in the richest households.

Percer	nt distribut	ion of wo	men ageo	l 15-49 who l percenta	able 8.9: / had a live bi age of births	Assistance o rth in the two s delivared by	vears precedio C-section, Suc	ery ng the surve dan, 2010	y by pers	on assist	ing at deli	ivery and
	Person Doctor	assisting Health visitor	at delivery Nurse midwife	Village midwife	Medical Assistant	Traditional birth attendant	Community health worker	No attendant	Total	Any skilled person [1]	Percent delivered by C- section	Number of women who gave birth in preceding two years
State of Re	sidence				이야 아이에서							
Northern	25.0	3.2	24.0	44.5	0.0	0.8	0.0	2.4	100.0	96.7	13.6	83
River Nile	20.9	5.0	14.1	51.2	0.0	7.3	0.0	1.5	100.0	91.2	12.5	164
Red Sea	16.5	7.0	16.0	32.5	0.0	22.6	0.0	5.5	100.0	72.0	4.5	134
Kassala	10.6	1.3	8.1	49.6	0.0	29.2	0.0	1.1	100.0	69.7	6.4	318
Gadarif	10.0	3.9	4.7	45.0	0.0	14.3	0.0	22.2	100.0	63.5	4.6	283
Khartoum	35.8	8.7	5.8	42.9	0.0	1.7	0.0	5.0	100.0	93.3	16.0	752
Gezira	23.6	6.1	7.6	52.1	0.0	3.0	0.0	7.6	100.0	89.4	10.9	759
White Nile	15.0	0.2	6.2	64.7	0.0	7.5	0.0	6.3	100.0	86.2	9.5	316
Sinnar	8.6	0.9	11.6	61.9	0.4	10.7	0.4	5.6	100.0	83.4	4.5	217
Blue Nile	4.6	0.1	1.8	38.6	0.0	21.9	0.0	33.0	100.0	45.1	2.2	261
North Kordofan	8.1	2.1	2.0	67.7	0.4	15.6	0.0	4.2	100.0	80.2	3.4	615
South Kordofan	3.3	2.0	4.9	51.0	0.2	33.1	0.2	5.3	100.0	61.4	1.4	307
North Darfur West	5.1	1.3	3.5	54.6	0.7	28.5	0.5	5.8	100.0	65.2	2.4	387
Darfur South	4.0	0.3	2.0	26.9	0.2	62.2	0.0	4.4	100.0	33.4	2.6	278
Darfur	idence		<b>11</b> .7	41.0	0.0	40.4	0.0	+.0	100.0	<u> </u>	1.0	112
Urban	27.2	5.6	79	48.7		34	0.0	72	100.0	89.4	123	1559
Rural	89	23	5.2	49.5	0.0	26.7	0.0	7.1	100.0	66.1	4.5	4087
Mother's ag	e at birth0	2.0	<u> </u>			20.1					<u> </u>	
Missing	139	32	60	493	01	20.3	0.1	71	100.0	72.5	6.6	5646
Place of del	ivery								0.956.9			
Hospital	64.3	53	133	17 1	0.0	<u>01</u>	0.0	0.0	100.0	99.9	31.1	1106
PHCF (Primary Health Care Facility)	17.5	16.4	17.6	35.3	1.0	4.6	1.6	5.9	100.0	87.9	2.3	53
Home	.4	2.6	4.0	59.6	0.1	26.6	0.1	6.5	100.0	66.8	0.1	4289
Other	62.2	3.5	9.0	23.2	1.2	0.0	0.0	0.9	100.0	99.1	33.7	76
Missing/DK	0.6	0.0	0.0	0.0	0.0	0.0	0.0	99.4	100.0	0.6	0.0	122
Education												
None	4.8	1.4	3.8	44.1	0.1	35.9	0.1	9.7	100.0	54.3	2.4	2487
Primary	15.5	4.0	7.7	60.6	0.1	8.4	0.1	3.4	100.0	88.1	7.3	1912
Secondary	36.0	6.7	8.9	43.6	0.0	1.3	0.0	3.5	100.0	95.2	17.3	974
Aduit education Khalwa/ Sunday education	6.3	1.4	3.5	37.7	0.2	28.6	0.0	22.4	100.0	49.0	2.9	273
Wealth index	quintiles			r Bager St	na an a					SECTION OF		
Poorest	2.1	.6	2.9	42.5	0.0	46.7	0.1	5.2	100.0	48.1	1.0	1287
Second	5.4	1.2	3.8	48.7	0.4	30.7	0.1	9.6	100.0	59.5	2.0	1245
Viddle	10.0	2.2	6.7	59.3	0.1	10.8	0.0	10.9	100.0	78.2	5.6	1255
ourth	20.5	7.1	9.8	56.2	0.0	2.2	0.1	4.0	100.0	93.7	8.9	1073
Richest	44.0	6.9	8.1	36.1	0.0	0.4	0.0	4.4	100.0	95.1	21.7	787
SUDAN	13.9	3.2	6.0	49.3	0.1	20.3	0,1	7.1	100.0	72.5	6.6	. 5646

## **Place of Delivery**

Increasing the proportion of births that are delivered in health facilities is an important factor in reducing the health risks to both the mother and the baby. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infection that can cause morbidity and mortality to either the mother or the baby. Table 8.10 presents the percent distribution of women aged 15-49 who had a live birth in the two years preceding the survey by place of delivery and the percentage of births delivered in a health facility, according to background characteristics.

The SHHS2 findings indicated that about 21 percent of births in Sudan are delivered in a health facility; 20 percent of deliveries occur in a hospital and one percent occurs in a primary health care facility. Three in four births (76 percent) occur at home. Women in urban areas (36 percent) are more likely to deliver in a health facility compared with their rural counterparts (13 percent).

Women with higher levels of educational attainment are more likely to deliver in a health facility than women with less education or no education. The proportion of births occurring in a health facility was only 9 percent among mothers with no education compared to 24 percent among mothers with primary education and 47 percent among mothers with secondary or higher level of education. The proportion of births occurring in a health facility increases steadily with increasing wealth quintile, from 4 percent of births in the lowest wealth quintile to 52 percent among those in the highest quintile. Northern State had the highest proportion of institutional deliveries (51 percent), followed by Khartoum State (48 percent), while North Darfur State has the lowest proportion (6 percent).

Percent distribution of	women ager	Table 15-49 with a l	8.10: Pla	ce of deli	ivery preceding the	survey by	nlace of deli	verv. Sudan .
	Wonnen uger	20 45 With U	201	LO	preceding the	541709 59	place of defi	ici y, suuun ,
		Place	e of delive	ery		Total	Delivered	Number of
	Hospital	PHCF	Home	Other	Missing/DK		in health	women
		(Primary					facility "	who gave
		Health Care						preceding
		Facility)						two years
State of Residence								
Northern	45.6	5.0	45.5	1.5	2.4	100.0	50.6	83
River Nile	33.9	.0	64.7	.7	.8	100.0	33.9	164
Red Sea	26.2	2.0	69.7	.7	1.4	100.0	28.3	134
Kassala	16.0	.4	83.1	.0	.6	100.0	16.4	318
Gadarif	14.8	.3	83.3	.0	1.6	100.0	15.1	283
Khartoum	46.8	1.7	42.8	6.3	2.5	100.0	48.4	752
Gezira	28.4	.5	68.8	.8	1.5	100.0	28.9	759
White Nile	23.2	.8	73.0	.1	2.8	100.0	24.0	316
Sinnar	16.8	.4	80.1	1.3	1.3	100.0	17.2	217
Blue Nile	6.2	.4	91.0	.3	2.1	100.0	6.6	261
North Kordofan	10.0	.9	85.7	.5	2.9	100.0	10.9	615
South Kordofan	8.4	.8	87.1	.3	3.4	100.0	9.2	307
North Darfur	5.5	.8	91.2	.0	2.5	100.0	6.4	387
West Darfur	9.3	1.0	85.4	2.1	2.2	100.0	10.3	278
South Darfur	7.4	1.2	88.1	.7	2.6	100.0	8.6	772
Area of Residence	<u> </u>	I		I	4			
Urban	36.1	.8	56.5	3.3	3.3	100.0	36.9	1559
Rural	13.3	1.0	83.4	.6	1.7	100.0	14.3	4087
Mother's age at birth	1	I			1		1	
Missing	19.6	.9	76.0	1.3	2.2	100.0	20.5	5646
Percent of women who h	ad:			1141-122				
None	3.8	.7	86.2	.4	8.9	100.0	4.5	1359
1-3 visits	14.7	1.0	84.1	.2	.0	100.0	15.7	1580
4+ visits	30.5	1.0	66.0	2.5	.0	100.0	31.5	2662
Missing/DK	22.7	1.9	72.2	3.2	.0	100.0	24.6	45
Education	<del>.</del>		1	-20-24			and the second	
None	8.0	.8	88.8	.6	1.9	100.0	8.8	2487
Primary	22.9	1.3	72.8	.6	2.3	100.0	24.2	1912
Secondary +	45.6	1.0	45.5	5.1	2.8	100.0	46.6	974
Adult education/Khalwa	8.7	.0	89.9	.0	1.4	100.0	8.7	273
Wealth index quintiles	I		and a solution					
Poorest	3.1	1.1	93.8	.4	1.6	100.0	4.2	1287
Second	8.4	.9	88.2	.7	1.8	100.0	9.3	1245
Middle	16.1	.4	81.3	.3	1.9	100.0	16.5	1255
Fourth	33.2	1.2	62.9	.4	2.3	100.0	34.4	1073
Richest	51.2	1.2	36.8	6.8	4.0	100.0	52.4	787
	a month			1.21		100.0		are and

E.

# IX. Injury and Chronic Diseases

The SHHS2 included some key indicators required to assess the situation in regard to injury suffered by children and adults over the 12 months preceding the SHHS2. The key topics covered by the SHHS2 included the proportion of children and adults who had suffered an injury over the 12 months preceding the SHHS2, causes of most recent injury, type of health care received in the first week and resulting disability. The SHHS2 also included some key indicators required to assess the proportion of children and adults affected by chronic diseases over the 12 months preceding the SHHS2. The key topics covered by the SHHS2 included the prevalence of chronic diseases, and major chronic diseases among people. The key SHHS2 indicators include the following: The key SHHS2 indicators relating to injury and chronic diseases include the following:

- *Injury suffered over the past 12 months:* The percentage of respondents who had an injury over the 12 months preceding the SHHS2.
- *Disability due to injury*: The percentage of those who got injured during the past 12 months and suffered disability as a result of the injury.
- Prevalence of chronic diseases: Proportion of respondents age 10 to 65+ with chronic diseases

### Injuries

#### Injury suffered over the past 12 months

Table 9.1 indicates the percentage of respondents who had an injury over the 12 months preceding the SHHS2. The SHHS2 data indicated that overall 2 percent of the respondents had suffered an injury over the 12 months preceding the SHHS2.

Table 9.1: Injury	suffered over the 12 months preceding S	HHS2, Sudan, 2010
Background characteristics	Percentage of respondents who had an injury over the past 12 months <sup>[1]</sup>	Number of respondents
Sex		
Male	2.6	41300
Female	1.5	43212
Age group	5	
0-14 years	1.4	38516
15-44 years	2.2	32839
45-64 years	3.4	9844
65+ years	3.9	3267
State of residence		
Northern	1.6	1538
River Nile	2.1	3005
Red Sea	0.9	2247
Kassala	1.2	5133
Gadarif	3.5	3977
Khartoum	2.2	13474
Gezira	1.3	12614
White Nile	1.1	4363
Sinnar -	1.8	3487
Blue Nile	1.6	3025
North Kordofan	2.1	8660
South Kordofan	3.0	3800
North Darfur	2.3	5348
West Darfur	1.4	3616
South Darfur	3.1	10227
Area of residence		
Urban	2.1	26662
Rural	2.0	57850
Education level		
None	1.9	47709
Primary	2.1	21471
Secondary +	2.3	14744
Wealth index quintiles		
Poorest	2.5	16899
Second	2.1	16906
Middle	1.9	16907
Fourth	1.7	16896
Richest	2.0	16905
SUDAN (TOTAL)	2.0	84514
<sup>[1]</sup> SHHS2 indicator 7.1		

The percentage of respondents who had an injury over the past 12 months preceding the SHHS2 was slightly higher among those over age 65 years (4 percent) than that among those in the age group 0-14 years (1 percent). The percentage of respondents who had an injury during the past 12 months was marginally higher among males (3 percent) than among females (2 percent). The percentage of respondents who had an injury over the past 12 months varied between one percent in Red Sea State and 4 percent in Gadarif State.

Figure 9.1: Injury suffered during the past 12 months: Percentage of respondents who had an injury over the past 12 months preceding the SHHS2, Sudan, 2010



## Causes of Most Recent Injury

Table 9.2 indicates the main cause of most recent injury, type of health care sought and resulting disability. The SHHS2 data indicated that of the respondents who suffered injury during the 12 months preceding the SHHS2, injury in 33 percent of them was caused by fall, while 18 percent of injuries were caused by animal bite/venom, and 16 percent of them were caused by road traffic accidents. Assault-related injury was 7 percent; mechanical (non-transport) problems caused injury in 6 percent of the cases while burns and poisoning related injuries accounted for 5 percent and 4 percent respectively.

The SHHS2 data also indicated that of those who had suffered injury during the past 12 months, 15 percent of them received no medical care, while 167 of them received medical care inpatients in a hospital, 37 percent of them received medical care in outpatient department in a hospital or other health facility, and 32 percent of them were treated by traditional healers.

Table 9.2 Causes of m	ost recent injury	, type of he	alth care sough	ht and resulting	g disability, Su	dan, 2010
Cause of most recent injury	Percentage of injured	Type of he	ealth care in th ir	e first week of ijury	most recent	Suffered
	respondents in each category	None	Inpatient	Outpatient in hospital or other health facility	Traditional healer	disability as a result of recent Injury [1]
Road traffic accident	16.1	13.4	22.3	57.6	6.7	33.1
Poisoning	4.3	9.5	25.7	44.6	20.3	11.0
Fall	33.3	12.7	11.6	30.2	45.6	30.9
Mechanical (non-transport)	5.8	15.2	8.1	49.5	27.3	23.2
Near drowning [2]	0.2	25.0	25.0	50.0		25.0
Fire/Hot substance (non-transport)	4.9	19.5	15.9	51.2	13.4	17.1
Animal bite/venom	18.2	18.4	5.9	21.1	54.6	6.8
Electric shock [2]	0.8	42.9	-	21.4	35.7	35.7
Intentional self-harm	0.1	164	50.0	50.0	-	-
Assault	7.0	12.3	22.8	48.2	16.7	25.8
Complication of medical or surgical care	3.4	7.1	62.5	25.0	5.4	41.4
Others	5.9	23.2	18.2	40.4	18.2	40.6
SUDAN (TOTAL)	100.0	14.9	15.7	37.4	32.0	25.4
<sup>[1]</sup> SHHS indicator 9.2 <sup>[2]</sup>	Less than five ca	ses				

The SHHS2 data also indicated that overall 25 percent of those who got injured during the past 12 months suffered disability as a result of the injury. Road traffic accidents resulted in disability among 33 percent of those injured. Similarly, 31 percent of injured suffered disability as a result of the fall and 26 percent due to assault related injuries.

Figure 9.2: Causes of most recent injury, percentage of injured respondents according to the causes of injury, Sudan, 2010



# **Chronic diseases**

# Prevalence of Chronic Diseases

Table 9.3 indicates the percentage of children and adults with or without a chronic disease. The SHHS2 data indicates that overall 9 percent of the respondents were affected by a chronic disease.

	0		Table9.3: Chro	nic diseases				
	Percentag	e of responde	ents with or Wit	nout chronic o	liseases, St	Idan, 2010	)	
	V			o nic diseases		NK	Miccing	
	Number of respondents	Percentage of respondent s with chronic disease <sup>[1]</sup>	Number of respondents	Percentage of respondents without any chronic disease	Number of respond ents	DK (%)	Numbe r of respon dents	Missi ng ( %)
State of res	idence	discuse	e,	discuse	- 1		No. 2	1.252.27
Northern	134	11.2	1.057	88.7	0	0.0	0	0.0
River Nile	181	8.1	2.054	91.9	0	0.0	0	0.0
Red Sea	65	4.0	1.553	95.7	0	0.0	4	0.2
Kassala	184	5.2	3.331	94.7	0	0.0	2	0.1
Gadarif	181	6.9	2 421	92.9	2	0.1	3	0.1
Khartoum	1,146	11.7	8,644	88.3	0	0.0	2	0.0
Gezira	745	8.2	8.341	91.7	0	0.0	6	0.1
White Nile	280	9.3	2 740	90.5	ς	0.2	3	0.1
Sinnar	143	59	2,260	94.0	0	0.0	2	0.1
Blue Nile	138	73	1 746	92.6	1	0.0	0	0.0
N. Kordofan	609	10.6	5,139	89.3	0	0.0	7	0.1
S.Kordofan	178	7.5	2,208	92.5	1	0.0	0	0.0
N. Darfur	227	6.7	3.139	92.9	4	0.1	9	0.3
West Darfur	162	7.2	2,087	92.7	1	0.0	1	0.1
S.Darfur	860	13.3	5.591	86.5	0	0.0	15	0.2
Area of resid	lence		e statute i		3	а		
Urban	2,078	10.8	17,188	89.2	2	0.0	10	0.1
Rural	3,157	8.2	35,125	91.6	11	0.0	44	0.1
Sex	के बेहर कर		and the second				1	
Male	2,260	8.2	25,364	91.7	8	0.0	26	0.1
Female	2,975	9.9	26,949	90.0	6	0.0	28	0.1
Age group	° a		an <u>a</u> kira ar					
10 - 14 yrs	248	2.1	11,337	97.6	1	0.0	24	0.2
15 – 34 yrs	1,018	4.1	23,656	95.8	5	0.0	15	0.1
35 – 64 yrs	2,871	16.0	15,107	83.9	6	0.0	12	0.1
65 + yrs	1,097	33.1	2,213	66.7	1	0.0	4	0.1
Wealth inde	x quintiles							
Poorest	1,035	9.8	9,466	89.9	1	0.0	25	0.2
Second	852	7.2	10,901	92.7	4	0.0	7	0.1
Middle	826	6.9	11,039	92.9	6	0.0	16	0.1
Fourth	975	8.5	10,523	91.5	0	0.0	2	0.0
Richest	1,548	13.0	10,384	87.0	2	0.0	5	0.0
SUDAN Total	5,235	9.1	52,313	90.8	13	0.0	55	0.1
<sup>(1)</sup> SHHS Indic	ator 7.4							

The percentage of respondents with a chronic disease was slightly higher among those living inmen in urban areas (11 percent) than that among those living in rural areas (8 percent). The percentage of respondents with a chronic disease was slightly higher among female respondents (10 percent) than that among male respondents (8 percent). The percentage of respondents with a chronic disease appears to increase with the age of the respondent. The percentage of respondents with a chronic disease was lowest at 2 percent in the case of children in the age group 10-14 years compared to 4 percent in the case of respondents in the age group 15-34 years, 16 percent in the case of those in the age group 35-64 years and 33 percent in the case of those in the age group 65+ years).

The percentage of respondents with a chronic disease was lowest at 7 percent for those from households in and 13 percent for respondents from households in the richest quintile.

The percentage of respondents with a chronic disease ranged from 4 percent in Red Sea State to 12 percent in Khartoum State.

The limited number of cases by each chronic disease do not allow for disaggregation by States nor by area of residence.





# X. Literacy and Education

Education is a vital prerequisite for combating poverty, empowering women, protecting children from hazardous and exploitative labour and sexual exploitation, promoting human rights and democracy, protecting the environment, and influencing population growth.

One of the World Fit for Children goals is to assure adult literacy. Adult literacy is also an MDG indicator, relating to both men and women. Universal access to basic education and the achievement of primary education by the world's children is one of the most important Millennium Development Goals and those of A World Fit for Children. The MDG target is to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. The WFFC target in support of this MDG target is to reduce the number of primary school-age children who are out of school by 50 percent and increase net primary school enrolment or participation in alternative, good quality primary education programmes to at least 90 percent by 2010.

The education system in Sudan comprises of basic/primary, secondary and tertiary education. Basic/primary education for children aged 6-13 years consists of eight years of schooling covering grades 1-8 leading to basic/primary education certificate. The general/academic and technical secondary education covers grades 9-11 leading to the Sudan School Certificate. The school education system also includes schools for children with special needs, and technical and vocational education centres which offer two-year vocational courses. The entry qualification required for enrolling in undergraduate courses offered by universities is the Sudan School Certificate. In this report, the term primary education refers to basic education (grades 1-8).

The SHHS2 included some key indicators required to assess situation in regard to literacy among women, pre-school education, and primary and secondary school participation. The key SHHS2 indicators include the following:

#### Literacy among Women aged 15-24 Years

In SHHS2, only a women's questionnaire was administered. Therefore, the results are based on women aged 15-49 years. Literacy was assessed on the basis of the ability of women to read a short simple statement about everyday life or of school attendance.

Table 10.1 indicates the percentage of young women aged 15-24 years who are literate. The SHHS2 data indicated that the literacy rate among young women remains low. Nationwide, only 45 percent of women aged 15-24 years was literate. The percentage of literate women aged 15-24 years was higher in urban areas (57 percent) than that among women in rural areas (39 percent). Of women who stated that primary school was their highest level of education, only 52 percent of them were actually able to read the statement shown to them while of the women who stated that secondary school was their highest level of education, 71 percent of them were able to read the statement shown to them.

The proportion of literate women varies by age group. The proportion of women who were literate was higher at 54 percent among women aged 15-19 years than that among women aged 20-24 years

(36 percent). The proportion of literate women (aged 15-24 years) also varied by the education level of mothers. The proportion of literate women was higher among those who had mothers with secondary or higher level of education (71 percent) than that for women who had mothers with primary education (52 percent) and that among women who had mothers with no formal education (one percent). The proportion of literate women (aged 15-24 years) also varied by their household wealth. The proportion of literate women was much higher among those belonging to households in the richest quintile (61 percent) than those belonging to households in the poorest quintile (20 percent).

Percent	Table10.1: Literacy a	among young women	tan 2010
Background	Percentage literate <sup>[1]</sup>	Percent not known	Number of women
State of residence			
Northern	62.6	.0	117
River Nile	50.0	.0	241
Red Sea	42.0	1.4	163
Kassala	32.9	.0	367
Gadarif	33.8	.5	333
Khartoum	58.3	.4	1211
Gezira	59.2	.2	1181
White Nile	46.0	.0	367
Sinnar	39.5	.3	292
Blue Nile	30.2	.2	228
North Kordofan	38.8	.2	723
South Kordofan	36.9	.0	289
North Darfur	45.1	.4	346
West Darfur	16.9	.3	263
South Darfur	35.0	.2	758
Area of residence	st first i		
Urban	56.6	.3	2397
Rural	39.0	.2	4484
Education level			
None	.5	.3	1616
Primary	52.0	.4	2502
Secondary +	71.0	.0	2508
Adult education/Khalwa/ Sunday education	7.0	.8	255
Age group		2 2	
15-19 years	53.6	.1	3559
20-24 years	36.1	.4	3321
Wealth index quintiles			
Poorest	19.6	.1	1046
Second	24.2	.2	1288
Middle	42.8	.5	1450
Fourth	66.1	.3	1545
Richest	61.1	.1	1552
SUDAN (TOTAL)	45.2	.2	6880
" SHHS indicator 6.1; MDC	G indicator 2.3		

The proportion of literate young women varies by State. The percentage of literate women aged 15-24 years ranged from 17 in West Darfur State to 63 in Northern State (Table 10.1 and Figure 10.1).

Figure 10.1: Literacy among young women: Percentage of women aged 15-24 years who are literate, Sudan, 2010



#### Early childhood care and education

Participation in an organised learning or child education programme is important for the overall social, emotional and intellectual development of children. Table 9.2 shows the percentage of children aged 36-59 months who were attending some form of organized early childhood care and education programme at the time of the SHHS2. The data indicated that only 20 percent of children aged 36-59 months was attending some form of organized early childhood care and education programme at the time of SHHS2. The percentage of children aged 36-59 months who were attending some form of organized early childhood care and education programme at the time of SHHS2. The percentage of children aged 36-59 months who were attending some form of organized early childhood care and education programme was higher among children in urban areas (37 percent) than that among children in rural areas (14 percent). There were no gender differential among boys and girls who were attending some form of organized early childhood education programme.

The proportion of children attending some form of organised early childhood care and education programme was lower among children aged 36-47 months (15 percent) than that among children aged 48-59 months (28 percent). The proportion of children attending some form of organised early childhood care and education programme varies by the education level of mothers. The proportion of children attending some form of organised early childhood care and education programme was higher among children who had mothers with secondary or higher level of education (38 percent) than that for children who had mothers with primary education (24 percent) and that among children who had mothers with primary education programme also varied by their household wealth. The proportion of children attending some form of organised early childhood care and education programme also varied by their household wealth. The proportion of children attending some form of organised early childhood care and education programme also varied by their household wealth. The proportion of children attending some form of organised early childhood care and education programme also varied by their household wealth. The proportion of children attending some form of organised early childhood care and education programme was much higher among those belonging to households in the richest quintile (48 percent) than those belonging to households in the poorest quintile (10 percent).

Ti Dercentare of children aged	able 10.2: Early childhood care and educ	ation
care and ed	lucation programme at the time of SHHS	2. Sudan. 2010
	Percentage of children age 36-59 months currently attending early childhood education <sup>[1]</sup>	Number of children aged 36-59 months
Sex		
Male	19.9	2520
Female	20.9	2423
State of residence		a a a
Northern	36.6	64
River Nile	16.2	147
Red Sea	18.3	103
Kassala	5.8	303
Gadarif	18.6	262
Khartoum	41.3	708
Gezira	19.8	587
White Nile	15.3	242
Sinnar	19.7	191
Blue Nile	11.3	216
North Kordofan	14.1	531
South Kordofan	11.8	231
North Darfur	22.0	393
West Darfur	9.0	256
South Darfur	22.0	711
Area of residence	1	
Urban	37.4	1361
Rural	13.9	3582
Age group		
36-47 months	14.9	2811
48-59 months	27.6	2131
Education level of mothers		
None	14.7	2802
Primary	23.8	1457
Secondary	37.6	650
Missing/DK	11.4	34
Wealth index guintiles		n na
Poorest	9.8	1279
Second	10.5	1093
Middle	16.5	989
Fourth	30.5	893
Richest	48.1	689
SUDAN (TOTAL)	20.4	4943
<sup>[1]</sup> SHHS indicator 6.2		

The percentage of children aged 36-59 months attending some form of organised early childhood care and education programme ranged from 6 percent in Kassala State to 41 percent in Khartoum State (Table 10.2 and Figure 10.2).

Figure 10.2: Early childhood care and education: Percentage of children aged 36-59 months who are attending some form of organized early childhood care and education programme at the time of SHHS2, Sudan, 2010



# School Readiness

Participation in pre-school education programme is considered important for the readiness of children to attend primary school. Pre-school education in Sudan, offered through Kindergartens for children aged 4-5 years, is neither free nor compulsory.

Table 9.3 shows the proportion of children attending the first grade of primary school who attended pre-school in the previous year preceding the SHHS2.

Overall, 45 percent of children who were attending the first grade of primary school at the time of the SHHS2 had attended pre-school the previous year. The proportion among females was slightly higher (47 percent) than males (44 percent). Almost two-thirds (65 percent) of children in urban areas had attended pre-school the previous year compared to only 37 percent among children living in rural areas. Socio-economic status appears to have a positive impact in terms of the proportion of children who had attended pre-school the previous year. While the percentage of children attending first grade who attended pre-school in the previous year was 76 percent among children living in the richest households, the percentage was only 17 percent among children belonging to the poorest households.

	Table10.2a: School readiness			
Percentage of children attend	ding first grade of primary school who atte	ended pre-school in the previous		
	year preceding SHHS2, Sudan, 2010			
	Percentage of children attending			
	first grade who attended preschool	Number of children attending		
	in previous year	first grade of primary school		
Sex				
Male	44.3	141/		
Female	46.5	1205		
State of residence				
Northern	68.7	37		
River Nile	62.3	77		
Red Sea	39.3	93		
Kassala	34.0	181		
Gadarif	33.4	114		
Khartoum	74.1	382		
Gezira	66.4	338		
White Nile	69.4	139		
Sinnar	48.8	90		
Blue Nile	29.3	86		
North Kordofan	41.0	239		
South Kordofan	27.3	144		
North Darfur	41.3	168		
West Darfur	12.7	102		
South Darfur	19.8	432		
Area of residence	· · · · · · · · · · · · · · · · · · ·			
Urban	65.0	791		
Rural	36.8	1832		
Education level of mothers				
None	.0	0		
Primary	45.9	2433		
Secondary +	22.4	19		
Mother not in household	39.9	170		
Wealth index guintiles	-			
Poorest	17.1	594		
Second	27.4	527		
Middle	48.8	534		
Fourth	66.0	520		
Richest	75.8	446		
SUDAN (TOTAL)	45.3	2623		
<sup>[1]</sup> SHHS2 indicator 6.3		en landen van de fer Therrich in de S <b>utterne versielen sterre in de Sutterne versie son versie de Sute</b> rne <b>fer</b>		

Differentials across States were found to be significant. The percentage of children attending first grade who attended pre-school in Khartoum was approximately six times (74 percent) as much as their counterparts in West Darfur (13 percent).

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Figure 10.2a: School readiness: Percentage of children attending first grade of primary school who attended pre-school in the previous year preceding SHHS2, Sudan, 2010



# **Primary School Participation**

*Primary school entry (Net intake rate in primary education):* Table 10.3 provides information regarding the net intake rate in primary education, i.e. percentage of children of primary school entry age entering grade I in primary school.Of children who were of primary school entry age (age 6) in Sudan, about 46 percent of them were attending the first grade of primary school at the time of the SHHS2. Of male children who were of primary school entry age, 47 percent of them were attending the first grade of primary school compared to 45 percent of female children of primary school entry age.

Children's participation in primary education was timelier in urban areas than in rural areas. The net intake rate in primary education was 67 percent in urban areas compared to 38 percent in rural areas. There were stark differences among children with regard to mother's education levels as there were no child who entered primary school from among those whose mother had no education, while the net intake rate in primary education was 91 percent in the case of children whose mothers had primary education, and 94 percent in the case of children whose mothers had secondary or higher levels of education. It was observed that the net intake rates in primary education also varied widely with household wealth. The proportion of children of primary school entry age entering grade I in primary school was around 82 percent in the case of children belonging to households in the richest quintile, while it was only 23 percent among children belonging to households in the poorest quintile.

Percentage of children o	Table 10.3: Primary school entry f primary school entry age entering grade 1	(net intake rate), Sudan, 2010		
	Percentage of children of primary school entry age entering grade 1 <sup>[1]</sup>	Number of children of primary school entry age		
Sex				
Male	46.9	1441		
Female	45.1	1388		
State of residence		National Alexandre		
Northern	76.9	38		
River Nile	68.4	76		
Red Sea	62.2	65		
Kassala	41.1	170		
Gadarif	40.0	140		
Khartoum	76.6	364		
Gezira	54.2	360		
White Nile	51.6	151		
Sinnar	36.8	113		
Blue Nile	32.8	109		
North Kordofan	33.2	293		
South Kordofan	37.1	143		
North Darfur	41.1	209		
West Darfur	30.5	133		
South Darfur	31.9	467		
Area of Residence				
Urban	67.1	783		
Rural	37.9	2046		
Education level	, <u>e</u>			
None	.0	1290		
Primary	90.9	1340		
Secondary +	93.6	11		
Mother not in household	39.1	188		
Missing/DK	.0	0		
Wealth index quintile				
Poorest	23.2	752		
Second	32.7	633		
Middle	47.7	537		
Fourth	67.0	521		
Richest	81.8	386		
SUDAN (TOTAL)	46.0	2829		
<sup>111</sup> SHHS2 indicator 6.4				

Large differentials in the net intake rates were found at the State level. The net intake rate ranged from 77 percent in Northern State to 32 percent in South Darfur State. (Table 10.3 and Figure 10.3)

Figure 10.3 Primary school entry: Percentage of children of primary school entry age entering grade 1 (net intake rate), Sudan, 2010



## Net primary school attendance ratio

Table 10.4 provides the net primary school attendance ratio, i.e. percentage of children of primary school age who are attending primary or secondary school<sup>9</sup>. The official primary school-age group in Sudan is 6-13 years. The net primary school attendance ratio shows the extent of participation in education of children belonging to the official primary school-age group. A high net primary school attendance ratio denotes a high degree of participation in education of the primary school-age population while a low net primary school attendance ratio indicates a low degree of participation of the primary school-age population. Achieving a net primary school attendance ratio that is closer to 100 percent is a key target for achieving the goal of universal primary education. Where the net primary school attendance ratio is less than 100 percent, the complement (i.e., 100 percent minus the net primary school attendance ratio value) provides a measure of proportion of out-of-school primary school-age children.

The SHHS2 data indicate that about 72 percent of children of primary school age were attending school at the time of the survey. This means that about 28 percent of the children were out of school when they were expected to be participating in primary education. The percentage of children of primary-school age attending school at the time of the survey was highest (82 percent) among children aged 10 years and lowest among children aged 6 years (49 percent). Sex differentials in net primary school attendance ratios do exist; the net primary school attendance ratio for boys being 74 percent compared to 69 percent for girls. The net primary school attendance ratio for boys was highest among those aged 10 years (86 percent) and lowest among those aged 6 years (51 percent). In the case of girls also, the net primary school attendance ratio was highest among those aged 10 years (78 percent) and lowest among those aged 6 years (48 percent).

<sup>&</sup>lt;sup>9</sup> Ratios presented in this table are "adjusted" since they include not only primary school attendance, but also secondary school attendance in the numerator.

		Table10.4:	Primary school att	endance		
Percentage of chil	ldren of primary	school ag attend	e attending primar ance ratio), Sudan,	y or secondary 2010	school (Net prim	ary school
	Male	l n executere	Fema	le	Total	
	Net attendance ratio (adjusted) <sup>[1]</sup>	Number of children	Net attendance ratio (adjusted) <sup>[1]</sup>	Number of children	Net attendance ratio (adjusted) <sup>[1]</sup>	Number of children
State of residence		9-3 - 2 - 2	The Addres of Sold	1. Que 1. 7. 7. 7	* <u>* 117</u> 117	in N
Northern	91.6	144	91.7	150	91.6	294
River Nile	83.4	281	82.6	288	83.0	569
Red Sea	66.5	240	73.7	216	69.9	456
Kassala	61.4	643	48.9	546	55.7	1189
Gadarif	67.3	474	59.1	461	63.3	935
Khartoum	91.1	1359	90.1	1221	90.6	2579
Gezira	83.6	1293	81.8	1381	82.7	2673
Wite Nile	77.1	477	77.6	477	77.4	954
Sinnar	71.0	381	62.5	412	66.6	793
Blue Nile	56.2	340	55.9	354	56.1	694
North Kordofan	69.5	1070	67.4	1046	68.5	2116
South Kordofan	68.6	442	60.9	483	64.6	925
North Darfur	77.0	674	72.7	722	74.8	1396
West Darfur	63.8	471	48.8	450	56.5	922
South Darfur	65.9	1247	56.3	1324	60.9	2571
Area of residence	2 A 34			<sup>a</sup> r <sup>a</sup> <sub>n</sub> s <sub>n</sub>		· ·
Urban	87.2	2763	87.0	2704	87.1	5467
Rural	68.9	6774	62.5	6826	65.7	13600
Age				2 · ·		and in the
6	50.8	1441	48.0	1388	49.4	2829
7	66.0	1210	64.5	1287	65.3	2497
8	79.8	1100	74.0	1031	77.0	2131
9	77.4	1417	74.7	1335	76.1	2752
10	86.3	895	77.6	906	81.9	1802
11	80.8	1358	74.0	1291	77.5	2648
12	80.6	1019	77.6	1038	79.1	2057
13	80.3	1097	71.6	1254	75.7	2351
Education level				17 I.		
None	.3	1941	.1	2339	.2	4280
Primary	95.4	6756	95.0	6208	95.2	12964
Secondary +	96.2	156	97.2	216	96.8	372
Mother not in household	70.1	683	66.5	763	68.2	1446
Missing/DK	.0	2	.0	4	.0	6
Weath index quintile				-		
Poorest	56.1	2183	44.4	2244	50.1	4427
Second	61.1	2154	55.7	2015	58.5	4169
Middle	75.7	1863	72.5	1908	74.1	3771
Fourth	91.1	1759	89.3	1836	90.1	3594
Richest	96.6	1579	96.8	1528	96.7	3106
and the second	the second se	the second se	the second se			

There were also variations in net primary school attendance ratio for children living in urban and rural areas. The net primary school attendance ratio was 87 percent in urban areas compared to 66 percent in rural areas. The net primary school attendance ratio for boys in urban areas was 87 percent compared to 69 percent in the case of boys in rural areas. The net primary school attendance ratio for girls in urban areas was 87 percent compared to 63 percent in the case of girls in rural areas.

The education level of the mother appears to have an influence on the net primary school attendance ratio. There were very few children attending primary school whose mothers had no education, and for95 percent of children, their mothers had primary or secondary/higher education.

The household wealth also appears to have an influence on the net primary school attendance ratio. The net primary school attendance ratio was only 50 percent among children belonging to households in the poorest quintile compared to 97 percent among children from households in the richest quintile. The net primary school attendance ratio was only 56 percent among boys belonging to households in the poorest quintile compared to 97 percent among those from households in the richest quintile. Similarly, the net primary school attendance ratio was only 44 percent among girls belonging to households in the poorest quintile compared to 98 percent among girls from households in the richest quintile.

There were also considerable variations in the net primary school attendance ratios among states. The net primary school attendance ratio ranged from 92 percent in Northern State to 56 percent in Kassala State. There also exist considerable variations among States in terms of the net primary school attendance ratio of boys, ranging from 92 percent in Northern State to 56 percent in Blue Nile State. Noticeable variations also exist among States in net primary school attendance ratio of girls, ranging from 92 percent in Northern State to 49 percent in West Darfur State.



Figure 10.4 Primary school attendance: Percentage of children of primary school age attending primary or secondary school (Net primary school attendance ratio - adjusted), Sudan, 2010

## **Secondary School Participation**

The percentage of children of secondary school age attending secondary school or higher level institutions (adjusted net attendance ratio), and percentage of secondary school-age children attending primary school, are presented in Table10.5<sup>10</sup>. The official secondary school-age group in Sudan is 14-16 years.

6322			Table10	).5: Secondary	school atte	ndance				
Percentag	e of children o attendar	f secondar nce ratio), a	y school ag and percen	e attending se tage of childre	condary sch n attending	ool or high	er (adjusted n hool, Sudan, 2	et secondar 010	y school	
	Male	,,	•	Female	Female			Total		
	Net attendance ratio	Percent attendin g primary	Number	Net attendance ratio	Percent attending primary	Number	Net attendance ratio	Percent attending primary	Numbe r of childre	
	(adjusted) [1]	school	children	(adjusted) [1]	school	children	(adjusted) [1]	school	n	
Northern	44.3	33.9	42	60.2	20.5	43	52.3	27.1	85	
River Nile	45.7	25.6	76	50.7	16.8	75	48.2	21.2	151	
Red Sea	16.9	50.5	60	25.5	32.3	49	20.8	42.3	110	
Kassala	18.4	36.0	146	18.8	23.2	132	18.6	29.9	278	
Gadarif	22.0	50.5	80	12.1	26.4	118	16.1	36.1	198	
Khartoum	50.6	29.5	433	58.3	22.5	362	54.1	26.3	795	
Gezira	44.0	29.7	338	50.9	20.8	363	47.6	25.1	701	
White Nile	35.4	32.3	112	32.7	25.0	124	33.9	28.5	236	
Sinnar	22.2	39.9	96	21.0	28.5	90	21.6	34.4	186	
Blue Nile	12.8	41.3	64	14.5	27.7	75	13.7	34.0	138	
N Kordofan	16.8	57.2	200	16.0	31.9	228	16.4	43.7	428	
S Kordofan	16.7	56.1	81	17.8	32.9	102	17.3	43.2	184	
N Darfur	25.5	52.0	150	33.1	30.8	130	29.0	42.2	280	
W Darfur	10.1	60.2	85	10.0	27.2	84	10.1	43.9	169	
S Derfur	17.6	62.6	250	22.0	34.5	258	10.1	48.6	516	
Araz	17.0	02.0	200	22.0	01.0	200	10.0	40.0	010	
Urban	13.5	36.6	760	53.6	25.7	772	185	31.1	15/1	
Pural	24.1	45.1	1452	20.7	26.0	1/50	23.4	36.0	2012	
Ago	24.1	40.1	14.02	<u></u>	20.3	1400	2.3.4	50.0	2312	
14	21.2	50.5	746	23.8	38.2	663	22.4	117	1/00	
15	21.4	40.0	775	20.0	20.2	760	22.4	25.0	1540	
10	31.4	42.2	704	30.3 20 E	15.2	000	33.0	00.Z	1043	
10 Education	40.4	33.3	/01	30,0	10.5	000	39.4	23.1	1001	
Lancation	11.0	2	224	0.7	5	200	10.5	4	622	
Drimonu	11.0	74.0	1100	9.7	67.0	750	10.0	71 6	1070	
Secondary	.2	12	642	.2	1.0	601	.2	12	1334	
+	34.1	1.0	040	90.1	1.4	091	55.1	1.2	1004	
Mother not in	22.2	41.5	223	10.3	18.7	393	14.6	27.0	616	
nousenoid		0			0	~ ~			2	
Wissing/DK	U.	.0		.0	.U		.0	.0	3	
Pooroct		56.4	255	50	25.0	264	6.5	10.6	710	
Cocond	10.6	5/ 1	300	0.1	20.2	107	0.0	40.0	022	
Middlo	10.0	04,1	400	0.1	21.9	421	9.3	42.2	000	
Iviluale	10.9	40.3	<u>44  </u> 540	20.0	31.1	449	19.4	30.0	000	
Dishost	<u>39.2</u>	37.4	518	40.9	<u>Z1.1</u>	4/1	42.8	32.8	1000	
CUDAN	00.3	23.8	501	/3.1	10.0 00.E	021	09.2	21.2	1022	
	80.8	44.4	2221	35.4	20.0	LLSL	əz, 1	34.3	4400	

The SHHS2 data indicated that only about one-third (32 percent) of the children of secondary-school age were found to be attending secondary school or higher level of institutions at the time of the

<sup>&</sup>lt;sup>10</sup>Ratios presented in this table are "adjusted" since they include not only secondary school attendance, but also attendance to higher levels in the numerator.

survey. Of the remaining secondary school-age children, some of them were either attending primary school or were out of school. Approximately 34 percent of the children of secondary school age were attending primary school when they should be attending secondary school while the remaining 34 percent were not attending school at all.

Sex differentials in net secondary school attendance ratios do exist; the net secondary school attendance ratios for boys being 31 percent compared to 33 percent for girls. The net secondary school attendance ratios was highest (39 percent) among children aged 16 years and lowest (22 percent) among those aged 14 years. In the case of boys, the net attendance rate was highest (40 percent) among those aged 16 years and lowest (21 percent) among boys aged 14 years. In the case of girls also, the net secondary school attendance ratios was highest (39 percent) among those aged 16 years and lowest (21 percent) among boys aged 14 years. In the case of girls also, the net secondary school attendance ratios was highest (39 percent) among those aged 16 years and lowest (24 percent) among those aged 14 years.

There were also variations in net secondary school attendance ratios for children living in urban and rural areas. The net secondary school attendance ratio was 49 percent in urban areas compared to 23 percent in rural areas. The net secondary school attendance ratio for boys in urban areas was 44 percent compared to 24 percent in the case of boys in rural areas. The net secondary school attendance ratio for girls in urban areas was 54 percent compared to 23 percent in the case of girls in rural areas.

Figure 10.5 Secondary school attendance: Percentage of children of secondary school age attending secondary school or higher (adjusted net secondary school attendance ratio), Sudan, 2010



The education level of the mother appears to have an influence on the NAR for secondary schoolage children. While the net secondary school attendance ratio for children whose mothers had no education was only 11 percent, it was 95 percent among children whose mothers had secondary or higher level of education. Similarly, while the net secondary school attendance ratio for boys whose mothers had no education was only 12 percent, it was 94 percent among boys whose mothers had secondary or higher levels of education. Similarly, while the net secondary school attendance ratio for girls whose mothers had no education was only 10 percent, it was 96 percent among girls whose mothers had secondary or higher levels of education.

The household wealth also appears to have an influence on the net secondary school attendance ratio. The net secondary school attendance ratio was only 7 percent among children belonging to
households in the poorest quintile compared to 69 percent among children from the households in the richest quintile. The net secondary school attendance ratio was only 8 percent among boys belonging to households in the poorest quintile compared to 65 percent among boys from households in the richest quintile. Similarly, the net secondary school attendance ratio for girls was only 8 percent among those belonging to households in the poorest quintile compared to 73 percent among those from households in the richest quintile.

There were also considerable variations in the net secondary school attendance ratios among States. The net secondary school attendance ratios ranged from 54 percent in Khartoum State to 11 percent in West Darfur State. There also exist considerable variations among states in terms of the net secondary school attendance ratios for boys, ranging from 51 percent in Khartoum State to 10 percent in West Darfur State. Noticeable variations also exist among States in net secondary school attendance ratio for girls, ranging from 60 percent in Northern State to 10 percent in West Darfur State.

## Secondary school-age children attending primary school

The percentage of secondary school-age children attending primary school is presented in Table .6. About one-third (34 percent) of secondary school age-children were found to be attending primary school when they should be attending secondary school. The percentage of secondary school-age hoys attending primary school was 42 percent compared to 27 percent in the case of girls.

These were considerable variations in the percentage of secondary school-age children attending primary school among States. The percentage of secondary school-age children attending primary school was highest (49 percent) in South Darfur State and the lowest (21 percent) in River Nile State.

Children reaching last grade (grade VIII) of primary school

The percentage of childrent terring first grade of primary school in a given year and who eventually reach the last grade (grade Viit) of primary school is presented in Table10.6.

Of all children entering grade I in a given year, about 82 percent of them (84 percent boys and 81 percent girls) eventually reach the last grade (Grade VIII) of primary school. The percentage of children entering first grade who eventually reach grade VIII of primary school was 89 in urban areas compared to 78 in rural areas.

The percentage of children entering first grade of primary school in a given year and who eventually reach grade VIII seems to be linked to household wealth. The percentage of children reaching grade VIII was 94among children from households in the richest quintile compared to 65 among children from households in the richest quintile variations in the percentage of children entering the first grade in primary school in a given year and who eventually reach the last grade of primary school (grade VIII).

#### Table10.6: Children reaching last grade of primary school Percentage of children entering first grade of primary school who eventually reach the last grade of primary school (Survival rate to last grade of primary school), Sudan, 2010

			7	Ta		( ~ · · ·		1.0
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
	attenung	attending	attenting	actending	attenung	attending	attenung	who react
	last year	last voar	last year	last year	grave J	last vear	last voor	those who
	who are	who are	who are	who are	who are	who are	who are	enter grade
	in grade 2	attending	attending	attending	attending	attending	attending	1 <sup>[1]</sup>
	this year	erade 3	prade 4	grade 5	grade 6	grade 7	grade 8	
	, cui year	this year	this year	this year	this year	this year	this year	
State of reside	ence							
Male	98.2	98.8	97.1	97.8	98.4	96.1	95.9	83.5
Female	97.9	98.1	97.9	97.6	97.0	95.4	95.0	80.7
Northern	100.0	99.3	99.3	98.7	95.3	92.3	91.3	78.1
River Nile	100.0	100.0	99.2	99.6	98.2	100.0	100.0	97.1
Red Sea	98.8	99.7	100.0	100.0	100.0	99.2	99.1	96.9
Kassala	99.3	99.5	97.5	98.6	98.2	96.9	94.8	85.7
Gadarif	99.4	99.2	98.0	98.2	100.0	93.8	94.1	83.8
Khartoum	98.3	98.5	96.9	97.1	99.6	94.5	95.8	82.2
Gezira	99.3	99.3	98.1	98.6	98.2	96.7	96.7	87.6
White Nile	99.1	99.4	97.8	98.4	98.2	96.7	96.6	87.1
Sinnar	99.5	100.0	100.0	98.0	100.0	92.9	91.2	82.6
Blue Nile	100.0	98.6	98.4	99.2	97.8	98.9	98.3	91.5
North Kordofan	96.5	98.4	98.5	98.1	94.2	95.8	95.5	79.1
South Kordofan	96.1	97.3	94.7	94.5	95.8	92.9	90.1	67.1
North Darfur	98.9	98.6	95.5	96.7	97.8	96.2	94.0	79.6
West Darfur	98.4	99.0	96.4	98.0	98.4	99.7	99.7	90.0
South Darfur	94.7	95.6	96.8	96.5	95.5	95.0	93.8	71.9
Area of resider	nce				annen Artistigadan in standard in a stand			
Urban	98.6	99.3	98.5	98.5	98.6	97.3	97.5	8.88
Rural	97.8	98.1	97.0	97.3	97.3	94.8	93.8	78.4
Education level								
None	.0		69.7	100.0	86.3			.0
Primary	98.2	98.8	97.8	98.0	98.5	95.8	95.4	83.7
Secondary +	86.6	90.7	86.8	100.0	77.2	100.0	100.0	52.6
Mother not in household	98.8	96.5	94.5	94.0	91.7	95.5	95.7	71.0
Missing/DK					•		and a second constant	ŀ
Wealth index q	uintile							
Poorest	96.6	96.5	95.2	95.3	93.9	92.2	88.9	65.1
Second	97.6	98.4	96.5	96.9	98.2	95.8	94.7	80.0
Middle	98.2	99.2	97.3	97.1	97.1	94.7	93.4	79.2
Fourth	98.7	99.4	98.3	99.2	98.1	95.8	95.9	86.2
Richest	99.3	99.0	100.0	99.1	99.8	98.2	98.5	94.1
SUDAN	98.1	98.5	97.5	97.7	97.8	95.8	95.4	82.2
(iotai)								

The percentage of children entering first grade who eventually reach the last grade VIII was over 90 percent in four states. The percentage ranged between 67 percent in South Kordofan State and 97 percent in River Nile state.

Figure 10.6 Children reaching grade VIII of primary school: Percentage of children entering first grade of primary school who eventually reach grade VIIIof primary school, Sudan, 2010



#### Primary school completion rate

The primary school completion rate, i.e. the percentage of children (of any age) attending the last grade of primary school (excluding repeaters) to total number of children of primary school completion age (age appropriate to final grade of primary school; i.e. age 13 years in the case of Sudan is presented in Table10.7.

At the time of the SHHS2, the primary school completion rate was 63 percent (72 percent for boys and 55 percent for girls). The primary school completion rate was 92 percent for children in urban areas compared to 49 percent for children in rural areas.

The primary school completion rate seems to increase with the household wealth. The primary completion rate was only 26 percent among children from households in the poorest quintile compared to 112 percent among children from households in the richest quintile.

Table10.7: Primary school completion rates and transition rate to secondary school, Sudan, 2010									
	Primary school	Number of children	Transition rate to	Number of					
	completion rate <sup>[1]</sup>	of primary school	secondary school [2]	children who were					
		completion age		in the last grade					
2				of primary school					
				the previous year					
Sex		* *							
Male	71.6	1097	74.9	484					
Female	54.9	1254	80.9	466					
State of residence									
Northern	70.1	43	87.6	25					
River Nile	50.9	83	82.6	45					
Red Sea	57.4	47	88.0	16					
Kassala	28.7	142	90.1	30					
Gadarif	42.8	115	73.6	32					
Khartoum	115.7	321	73.4	216					
Gezira	79.0	356	77.0	203					
White Nile	61.1	139	80.8	48					
Sinnar	46.8	110	93.6	28					
Blue Nile	28.6	88	72.8	21					
North Kordofan	53.3	274	80.8	74					
South Kordofan	47.5	106	59.2	27					
North Darfur	52.8	158	81.3	75					
West Darfur	43.0	107	82.1	20					
South Darfur	55.1	262	75.0	88					
Area of residence									
Urban	92.4	726	79.0	417					
Rural	49.4	1625	76.9	532					
Education level									
None	.0	317	100.0	1					
Primary	85.8	1570	.0	186					
Secondary +	3.7	243	98.8	716					
Mother not in	52.4	220	66.5	47					
household									
Wealth ind	ex quintiles	1							
Poorest	26.1	461	68.0	68					
Second	39.6	492	81.4	115					
Middle	56.7	482	68.8	151					
Fourth	83.5	492	76.8	290					
Richest	111.9	424	83.8	326					
SUDAN (Total)	62,7	2351	77.8	950					
<sup>[1]</sup> SHHS2 indicator 6	8. [2] SHHS2 indicator 6	9							

There were considerable variations in the primary school completion rate among States. The primary school completion rate ranged from 29 percent in Kassala State to 116 percent in Khartoum State.

Figure 10.7Primary school completion rates: Percentage of children (of any age) attending the last grade of primary school (excluding repeaters) to total number of children of primary school completion age (i.e. age 13 years), Sudan, 2010



## Transition rate to secondary education

The SHHS2 findings indicated that only 78 percent of the children who successfully completed the last grade of primary school were found to be attending the first grade of secondary school at the time of the survey (Table 9.8). The transition rate to secondary school (percentage of the children that completed successfully the last grade of primary school attending the first grade of secondary school) was 75 percent for boys compared to 81 percent for girls. The transition rate to secondary school was 79 percent for children in urban areas compared to 77 percent for children in rural areas.

The household wealth appears to have a positive impact on the transition rate to secondary school. The transition rate to secondary education was 84 percent for children from households in the richest quintile compared to 68 percent among children from households in the poorest quintile.

There were considerable variations in the transition rates to secondary education among States. The transition rates to secondary education ranged from 90 percent in Kassala State to 59 percent in South Kordofan State.



### Education gender parity

The ratio of girls to boys attending primary and secondary education is provided in Table10.8. These ratios are better known as the Gender Parity Index (GPI). Notice that the ratios included here are obtained from net attendance ratios rather than gross attendance ratios. The last ratios provide an erroneous description of the GPI mainly because in most of the cases the majority of over-aged children attending primary education tend to be boys.

Table 10.8 shows that gender parity at the primary stage of education was 0.94, indicating that there is difference in the net primary school attendance ratios of girls and boys. The disadvantage of girls at the primary stage of education was particularly pronounced in some of the States such as Kassala (GPI: 0.80), Gadarif (GPI: 0.88), Sinnar (GPI: 0.88), West Darfur: 0.77) and South Darfur (GPI: 0.85). The GPI ranged between 1.11 in Red Sea State to 0.77 in West Darfur. The disadvantage of girls at the primary stage of education was also pronounced among children living in rural areas and in households in the poorest quintile. The GPI in rural areas was 0.91 compared to 1.0 in urban areas. The GPI for children belonging to the households in the richest quintile was 1.0 compared to 0.79 for children belonging to households in the poorest quintile.

per company per la sua construction de la const	Tab	le10.8: Educa	tion gender pa	arity	t not seen to see a second	in restant) (tananta ana ata
Ratio of adjusted net a	ttendance rati	os of girls to b	oys, in primar	y and seconda	ry schools, Su	dan, 2010
	Primary	Primary	Gender	Secondary	Secondary	Gender
	school	school	parity index	school	school	parity
	adjusted net	adjusted net	(GPI) for	adjusted net	adjusted net	index (GPI)
	attendance	attendance	primary	attendance	attendance	tor
	girls (INAK),	hous	adjusted	airle	hove	school
	BIUS	DOYS	NAR <sup>(1)</sup>	Buis	0093	adiusted
						NAR <sup>[2]</sup>
State of residence	1					
Northern	91.7	91.6	1.00	60.2	44.3	1.36
River Nile	82.6	83.4	.99	50.7	45.7	1.11
Red Sea	73.7	66.5	1.11	25.5	16.9	1.51
Kassala	48.9	61.4	.80	18.8	18.4	1.02
Gadarif	59.1	67.3	.88	12.1	22.0	.55
Khartoum	90.1	91.1	.99	58.3	50.6	1.15
Gezira	81.8	83.6	.98	50.9	44.0	1.16
White Nile	77.6	77.1	1.01	32.7	35.4	.92
Sinnar	62.5	71.0	.88	21.0	22.2	.95
Blue Nile	55.9	56.2	.99	14.5	12.8	1.13
North Kordofan	67.4	69.5	.97	16.0	16.8	.95
South Kordofan	60.9	68.6	.89	17.8	16.7	1.07
North Darfur	72.7	77.0	.94	33.1	25.5	1.30
West Darfur	48.8	63.8	.77	10.0	10.1	1.00
South Darfur	56.3	65.9	.85	22.0	17.6	1.25
Area of residence	100 CON 1					
Urban	87.0	87.2	1.00	53.6	43.5	1.23
Rural	62.5	68.9	.91	22.7	24.1	.94
Education level						
None	.1	.3	.49	9.7	11.8	.82
Primary	95.0	95.4	1.00	.2	.2	1.18
Secondary +	97.2	96.2	1.01	96.1	94.1	1.02
Mother not in	66.5	70.1	.95	10.3	22.2	.47
household						
Missing/DK	.0	.0		.0	.0	
Wealth index quintiles		2				
Poorest	44.4	56.1	.79	5.2	7.8	.67
Second	55.7	61.1	.91	8.1	10.6	.76
Middle	72.5	75.7	.96	20.0	18.9	1.06
Fourth	89.3	91.1	.98	46.9	39.2	1.20
Richest	96.8	96.6	1.00	73.1	65.3	1.12
SUDAN (TOTAL)	69.4	74.2	.94	33.4	30.8	1.08
<sup>11]</sup> SHHS2 indicator 6.10; MDG inc	dicator 3.1					

Table 10.8 also shows that gender parity at the secondary stage of education was 1.08, indicating that there is difference in the net enrolment ratios of girls and boys at the secondary stage of education, indicating that overall boys are more disadvantaged than girls at the secondary stage. However, girls living in rural areas and those belonging to households in the poorest quintiles are more disadvantaged than their male counterparts. The GPI at the secondary stage of education in rural areas was 0.82 compared to 0.94 in urban areas. The GPI at the secondary stage for children belonging to households in the richest quintile was 1.12 compared to 0.67 for children belonging to households in the poorest quintile. The GPI at the secondary stage of education ranged between 0.55 in Gadarif State to 1.51 in Red Sea state.

# **XI. Child Protection**

## **Birth Registration**

The International Convention on the Rights of the Child states that every child has the right to a name and a nationality and the right to protection from being deprived of his or her identity. Birth registration is a fundamental means of securing these rights for children. The World Fit for Children states the goal to develop systems to ensure the registration of every child at or shortly after birth, and fulfil his or her right to acquire a name and a nationality, in accordance with national laws and relevant international instruments.

Table 11.1 provides information relating to birth registration. It indicates the percentage of children under age five whose birth is registered with civil authorities and of the children under age five whose birth not registered the percent of children whose mothers/caretakers knew how to register birth. The table also indicates that the percentage of birth certificates seen of those registered

Percentage	of children u	nder age 5 b	Table 11 y whether birt	.1: Birth reg h is registered	stration I and percen	tage of children not registere	d whose
		mothers/	aretakers kno	w how to reg	ister birth, Su	ıdan, 2010	
	Children	under age 5 with civi	whose birth is I authorities	registered	Number of	Children under age 5 wh registered	ose birth is not I
	Has birth	Has birth certificate		Total registered	children	Percent of children whose mother/caretaker knows how to register birth	Number of children without birth registration
Sex	Seen	Not seen		1			
Male	19.6	27.0	14.7	61.3	6742	25.4	2607
Female	17.7	24.3	15.2	57.2	6540	27.1	2800
State of resid	lence	1					
Northern	26.4	51.7	16.2	94.3	170	*	1.0
River Nile	24.3	34.4	23.9	82.6	404	35.5	70
Red Sea	14.7	41.1	9.2	65.0	281	8.7	98
Kassala	12.9	20.7	18.2	51.8	780	14.4	376
Gadarif	22.9	25.0	16.9	64.7	678	22.2	239
Khartoum	30.8	44.2	12.6	87.6	1868	29.3	232
Gezira	33.0	33.7	9.3	75.9	1750	48.0	421
White Nile	18.9	27.8	24.9	71.7	675	42.0	191
Sinnar	25.9	24.0	9.7	59.7	517	41.5	209
Blue Nile	12.8	15.3	11.7	39.8	595	24.9	358
North Kordofan	15.1	18.2	16.1	49.5	1425	37.2	720
South Kordofan	9.7	16.9	22.9	49.4	681	18.5	344
North Darfur	14.5	24.7	19.7	58.8	947	26.5	390
West Darfur	5.8	14.1	3.3	23.3	682	11.0	523
South Darfur	4.9	11.8	16.4	33.0	1829	21.0	1225
Area of residence							
Urban	30.5	39.2	14.8	84.5	3669	34.3	568
Rural	34.1	20.5	15.0	49.7	9613	25.3	4839
Age	• • • • • • • • • • • • • • • • • • •						
0 11	17.1	23.3	16.7	57.0	2964	28.2	1273
12-23	20.9	26.5	15.3	62.6	2613	24.7	977
24-35	19.4	27.5	14.4	61.3	2762	23.5	1069
36-47	16.9	25.9	13.9	56.8	2811	28.0	1216
48-59	19.5	25.3	14.3	59.1	2131	26.2	872
Education level							
None	11.9	19.8	12.8	44.5	7359	20.6	4082
Primary	24.0	28.8	19.6	72.4	4044	44.0	1116
Secondary	34.5	42.9	13.1	90.5	1785	47.0	170
Missing/DK	15.0	21.6	21.2	57.8	94	(25.2)	40
Wealth index quintile	S				1		
Poorest	3.0	8.7	14.2	26.0	3213	20.6	2378
Second	8.7	16.3	16.9	41.9	2901	25.2	1687
Middle	20.0	27.1	18.1	65.2	2800	34.1	976
Fourth	34.6	37.1	15.1	86.8	2490	45.9	329
Richest	37.7	51.9	8.4	98.0	1878	(63.2)	37
SUDAN (TOTAL)	18.7	25.7	15.0	59.3	13282	26.3	5407

The SHHS2 indicator relating to birth registration is the proportion of children under age five whose birth are reported registered. The SHHS2 data indicated that the births of 59 percent of under-five children in Sudan were reported registered on the reference date of the survey. Of the children under age five whose birth was not registered, mothers/caretakers of 26 percent of these children knew how to register birth. The birth registration rates ranged from 94 percent in Northern State to 23 percent in West Darfur State. Table 11.1 also indicates that the proportion of birth registration certificates available and seen by interviewers is also very low (19 percent).





Birth registration rates were highest among children aged 12-23 months at 63 percent and lowest among children aged 36-47 months at 57 percent. Birth registration rate among children aged 0-11 months was 57 percent. There were some variations in birth registration between male and female children, the birth registration rate for male and female being 61 percent and 57 percent respectively. However, there were significant variations in birth registration between urban and rural areas; the birth registration rate in rural areas being only 50 percent in rural areas compared to 85 percent in urban areas.

Birth registration appears to increase with mother's educational level and the household wealth: birth registration rate among children of mothers with no education was only 45 percent compared to 72 percent for children of mothers with primary education and 91 percent for children of mothers with secondary or higher level of education. Birth registration rate among children from households in the poorest quintile was only 26 percent compared to 98 percent among those from households in the richest quintile (Figure 11.1A)



Figure 11.1A: Birth registration rate: Percentage of children under age five whose births are reported registered, by background characteristics, SHHS2, 2010

## Early Marriage and Polygamy

Marriage before the age of 18 is a reality for many young girls. According to UNICEF's worldwide estimates, over 64 million women age 20-24 were married/in union before the age of 18. Factors that influence child marriage rates include: the state of the country's civil registration system, which provides proof of age for children; the existence of an adequate legislative framework with an accompanying enforcement mechanism to address cases of child marriage; and the existence of customary or religious laws that condone the practice.

In many parts of the world parents encourage the marriage of their daughters while they are still children in hopes that the marriage will benefit them both financially and socially, while also relieving financial burdens on the family. In actual fact, child marriage is a violation of human rights, compromising the development of girls and often resulting in early pregnancy and social isolation, with little education and poor vocational training reinforcing the gendered nature of poverty. The right to 'free and full' consent to a marriage is recognized in the Universal Declaration of Human Rights - with the recognition that consent cannot be 'free and full' when one of the parties involved is not sufficiently mature to make an informed decision about a life partner.

The Convention on the Elimination of all Forms of Discrimination against Women mentions the right to protection from child marriage in article 16, which states: "The betrothal and the marriage of a child shall have no legal effect, and all necessary action, including legislation, shall be taken to specify a minimum age for marriage..." While marriage is not considered directly in the Convention on the Rights of the Child, child marriage is linked to other rights - such as the right to express their views freely, the right to protection from all forms of abuse, and the right to be protected from harmful traditional practices (HTP- and is frequently addressed by the Committee on the Rights of the Child. Other international agreements related to child marriage are the Convention on Consent to Marriage, Minimum Age for Marriage and Registration of Marriages and the African Charter on the Rights and Welfare of the Child and the Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa. Child marriage was also identified by the Pan-African Forum against the Sexual Exploitation of Children as a type of commercial sexual exploitation of children. Young married girls are a unique, though often invisible, group. Required to perform heavy amounts of domestic work, under pressure to demonstrate fertility, and responsible for raising children while still children themselves, married girls and child mothers face constrained decision-making and reduced life choices. Boys are also affected by child marriage but the issue impacts girls in far larger numbers and with more intensity. Cohabitation - when a couple lives together as if married - raises the same human rights concerns as marriage. Where a girl lives with a man and takes on the role of caregiver for him, the assumption is often that she has become an adult woman, even if she has not yet reached the age of 18.

Research suggests that many factors interact to place a child at risk of marriage. Poverty, protection of girls, family honour and the provision of stability during unstable social periods are considered as significant factors in determining a girl's risk of becoming married while still a child. Women who married at younger ages were more likely to believe that it is sometimes acceptable for a husband to beat his wife and were more likely to experience domestic violence themselves. The age gap between partners is thought to contribute to these abusive power dynamics and to increase the risk of untimely widowhood.

Closely related to the issue of child marriage is the age at which girls become sexually active. Women who are married before the age of 18 tend to have more children than those who marry later in life. Pregnancy related deaths are known to be a leading cause of mortality for both married and unmarried girls between the ages of 15 and 19, particularly among the youngest of this cohort. There is evidence to suggest that girls who marry at young ages are more likely to marry older men which puts them at increased risk of HIV infection. Parents seek to marry off their girls to protect their honour, and men often seek younger women as wives as a means to avoid choosing a wife who might already be infected. The demand for this young wife to reproduce and the power imbalance resulting from the age differential leads to very low condom use among such couples.

Legislative reform needs to consider the consistency between national laws that protect to rights of children. The definition of the age of responsibility contradicts with the definition of the Child in the National Law of the Child. This is also in discrepancy with the minimum age of marriage in the personal family law stipulated at 10 years while the civil law would not accept a married female under 18 to be a trustee for financial legal responsibility.

### Young girls/women married before 15 years of age

One of the SHHS2 indicators relating to early marriage relates to the percentage of women married before 15 years of age. The percentages of women married at various ages are provided in Table 11.5.

The SHHS2 data indicated that about one in ten (10 percent) young women was married before age 15. The proportion of young women who were married before age 15 varied between urban and rural areas. The proportion of young women married before age 15 was 7 percent in urban areas compared to 11 percent in rural areas. The educational status of the woman appears to have an influence on the incidence of early marriage. The percentage of women married before 15 years of age declined from 16 percent among women with no formal education to 9 percent among women with primary education and to one percent among women who had secondary or higher level of education. The household wealth also appears to have an influence on the incidence of early married before 15 years of age was 4 percent among women from households in the richest quintile compared to 14 percent among women from households in the richest quintile compared to 14 percent among women from 5 in Northern State to 19 in Blue Nile State.

T.	Table 11.5:	Early marriage	e and polyga	amy		· · · · · · · · · · · · · · · · · · ·	
fore their 1	15th and 18 currently m	r entered a mi 3th birthdays, varried who ar	percentage e in a Polyg	of women age	stn birthoa 15-19 year 2e Sudan	y, percentages is currently mai 2010	of womer rried , and
iber of Pi men 15-49 bi ears	Percentage married before age 15	Percentage married before age 18 <sup>121</sup>	Number of women age 20- 49 years	Percentage of women 15-19 years currently married <sup>[3]</sup>	Number of women age 15- 19 years	Percentage of women age 15-49 years in Polygamous marriage <sup>[4]</sup>	Number of women age 15- 49 years currently married
51	6.2	20.5	288	9.4	63	5.7	208
37	8.5	27.3	520	22.0	117	7.1	386
77	10.7	33.2	399	24.9	78	7.4	331
04	17.8	46.2	823	24.9	181	10.0	684
73	16.3	48.8	597	27.9	176	22.5	530
05	7.6	27.5	2392	13.5	613	11.9	1718
91	6.8	28.2	2179	17.1	612	13.5	1574
06	8.8	35.7	717	25.0	190	16.5	569
75	11.9	39.5	537	18.2	138	15.0	418
56	21.7	62.2	449	36.3	118	30.8	425
65	10.3	37.1	1402	27.4	363	15.2	1106
00	14.7	48.1	548	33.9	152	28.2	511
30	5.7	33.9	747	19.5	184	28.6	669
72	16.4	49.4	543	43.3	129	41.8	513
23	13.5	53.9	1476	33.0	447	38.9	1364
			3 5	-			
42	8.3	29.1	4602	14.6	1240	15.3	3351
332	11.9	42.0	9013	28.3	2319	22.1	7654
59		•	0	23.5	3559	10.8	838
21	7.2	32.9	3321		0	12.1	1844
76	10.3	36.3	3176		0	17.7	2414
39	10.6	37.0	2139	· · ·	0	21.7	1739
46	12.6	40.6	2446		0	26.1	2054
66	13.2	43.1	1466	<u> </u>	0	26.0	1240
67	15.5	43.2	1067		0	25.7	878
62	16.5	53.8	5350	47.4	712	27.5	4870
70	10.6	39.0	4159	25.1	1411	14.9	3569
03	1.3	8.9	3488	7.7	1315	9.3	2016
9	14.2	51.3	618	37.4	120	25.9	550
							2252
13	14./	53.8	2455	31.9	558	31.0	2252
76	14.9	47.7	2515	34.8	720	26.1	2296
15	12.4	43.9	2635	30.9	739	18.6	2269
<u>J4</u>	8.4	31.6	2827	16.9	1/8	13.3	2114
70	5.0	1/.3	3184	8.4	822	9.7	2075
7 0 0 0	5 4 6 <b>4</b> r 7.3; <sup>[3]</sup> 5	5     12.4       4     8.4       6     5.0       4     10.7       r 7.3; <sup>[3]</sup> SHHS indical	5     12.4     43.9       4     8.4     31.6       6     5.0     17.3       4     10.7     37.6       r 7.3; <sup>(3)</sup> SHHS indicator 7.4; <sup>(4)</sup> SHH	5     12.4     43.9     2635       4     8.4     31.6     2827       6     5.0     17.3     3184       4     10.7     37.6     13615       r 7.3; <sup>[3]</sup> SHHS indicator 7.4; <sup>[4]</sup> SHHS indicator 7.4; <sup>[4]</sup> SHHS indicator 7.4;	5     12.4     43.9     2635     30.9       4     8.4     31.6     2827     16.9       6     5.0     17.3     3184     8.4       4     10.7     37.6     13615     23.5       r 7.3; <sup>[3]</sup> SHHS indicator 7.4; <sup>[4]</sup> SHHS indicator 7.5	5     12.4     43.9     2635     30.9     739       4     8.4     31.6     2827     16.9     778       6     5.0     17.3     3184     8.4     822       4     10.7     37.6     13615     23.5     3559       r 7.3; <sup>[3]</sup> SHHS indicator 7.4; <sup>[4]</sup> SHHS indicator 7.5     3559     16	5     12.4     43.9     2635     30.9     739     18.6       4     8.4     31.6     2827     16.9     778     13.3       6     5.0     17.3     3184     8.4     822     9.7       4     10.7     37.6     13615     23.5     3559     20.0       r 7.3; <sup>[3]</sup> SHHS indicator 7.4; <sup>[4]</sup> SHHS indicator 7.5     13     3559     20.0

.

Figure 11.2: Early marriage Percentage of women age 15-49 years who first married before their 15th birthday, Sudan, 2010

9



## Women married before 18 years of age

Another SHHS2 indicator relating to early marriage relates to the percentage of women age 20-49 years married before 18 years of age. The SHHS2 data indicated that over one-third (38 percent) of young women were married before age 18 (Table 10.2). The percentage of women married before age 18 ranged from 21 in Northern State to 62 in Blue Nile State.



Figure 11.3: Early marriage: Percentage of women age 20-49 years who first married before their 18th birthday, Sudan, 2010

The proportion of women aged 20-49 years married before the aged of 18 years varied substantially between those in urban areas (29 percent) and those in rural area (42 percent). The educational status of the woman appears to have an influence on the incidence of early marriage. The percentage of women married before 18 years of age declined steadily from 54 percent among women with no formal education to 39 percent among women with primary education and to 9

percent among women who had secondary or higher level of education. The household wealth also appears to have an influence on the incidence of early marriage. The percentage of women married before 18 years of age was 17 percent among women from households in the richest quintile compared to 54 percent among women belonging to households in the poorest quintile.

## Women age 15-19 years currently married

Another SHHS2 indicators relating to early marriage relate to the percentage of women aged 15-19 years currently married at the time of the survey. Results show that approximately one-fourth (24 percent) of young women aged 15-19 years were currently married at the time of the SHHS2.

The proportion of young women aged 15-19 years currently married varied between urban and rural areas. The young women aged 15-19 years currently married varied between 15 percent in urban areas and 28 percent in rural areas. The mother's educational status of the woman appears to have an influence on the incidence of early marriage. The percentage of women aged 15-19 years currently married showed a declining trend from 47 percent among women with no formal education to 25 percent among women with primary education and to 8 percent among women who had secondary or higher level of education.

The household wealth also appears to have an influence on the incidence of early marriage. The percentage of women aged 15-19 years currently married was only 8 percent among women from households in the richest quintile compared to 32 percent among women belonging to households in the poorest quintile. The percentage of young women aged 15-19 years currently married ranged from 9 in Northern State to 43 in West Darfur State.





#### Women in Polygamous marriages

The information relating to the percentage of women in a polygamous marriage is provided in Table 11.2. Nationwide, about 20 percent of women aged 15-49 years were in a polygamous marriage. This percentage was lower among women in urban areas (15 percent) than that among women in rural areas (22 percent).

The incidence of polygamy appears to be linked to women's education level and the household wealth. While the percentage of women aged 15-19 years in polygamous marriage was 28 in the case of women with no formal education, it was only 15 among women with primary education and 9 among women with secondary or higher level of education. The percentage of women aged 15-49 years in polygamous marriage was only 10 in the case of women belonging to households in the richest quintile compared to 31 among women belonging to households in the poorest quintile. The age of the woman also has a bearing on the prevalence rates: the percentage of women in polygamous marriage was lowest (11) among women in the aged 15-19 years compared to 26 among the older age groups (35 years and above).

State level data show that the percentage of women in a polygamous marriages ranged from 6 percent in Northern State to 42 percent in West Darfur State.

Figure 11.5: Women in polygamous marriage: Percentage of women age 15-49 years currently married who are in a polygamous marriage, Sudan, 2010



#### Trends in early marriage

Table 11.6 presents the proportion of women who were first married before aged 15 and 18 years by residence and age groups. Examining the percentages of women married before aged 15 and 18 years by different age groups allow us to see the trends in early marriage over time. There seems to be a positive trend in terms of reduction in the percentage of women married before age 15 over time.

Overall, the percentage of women married before age 15 was only 5 percent among women in the age group and steadily rises up to 16 percent among women in the age group 45-49 years. The percentage of women married before age 18 was 33 percent among women in the age group 20-24 years compared to 43 percent among women aged 45-49 years.

A similar trend was observed in the case of women in urban areas who were married before age 15. The percentage of women in urban areas who were married before age 15 was only 2 percent among women in the age group 15-19 years compared to 15 percent among women in the age group 45-49 years. In urban areas, the results show that 22 percent of women in the age group 20-24 years and 42 percent of women aged 45-49 years were married before the age of 18. The corresponding findings for rural areas are 39 percent of women aged 20-24 years were married before the age of 18 compared to 44 percent of those aged 45-49 years. These results indicate a declining trend in the incidence of early marriages.

		Table11.6: Trends	in early marriage	2	
Percentage of	women who were	first married or ent	ered into a mari	tal union before age	15 and 18, by
·····	1	esidence and age gr	roups, Sudan, 20	10	
Area of	Age	Percentage of	Number of	Percentage of	Number of
residence		women married	women	women married	women
		before age 15		before age 18	
URBAN	15-19	1.9	1240		0
	20-24	4.7	1153	21.6	1153
	25-29	6.1	991	26.5	991
	30-34	8.9	748	30.3	748
	35-39	11.3	811	32.4	811
	40-44	10.4	526	34.3	526
	45-49	14.7	373	41.9	373
	Total (Urban)	7.0	5842	29.1	4602
RURAL	15-19	6.5	2319		0
	20-24	8.6	2169	39.0	2169
	25-29	12.1	2185	40.7	2185
	30-34	11.5	1391	40.6	1391
	35-39	13.2	1635	44.7	1635
	40-44	14.7	940	48.1	940
	45-49	16.0	693	43.8	693
	Total (Rural)	10.8	11332	42.0	9013
Total	15-19	4.9	3559		0
	20-24	7.2	3321	32.9	3321
Ī	25-29	10.3	3176	36.3	3176
r a construction of the second s	30-34	10.6	2139	37.0	2139
	35-39	12.6	2446	40.6	2446
	40-44	13.2	1466	43.1	1466
	45-49	15.5	1067	43.2	1067
SUDAN	Total	9,5	17174	37.6	13615

## Female Genital Mutilation/Cutting (FGM/C)

Female genital mutilation/cutting (FGM/C) is the partial or total removal of the female external genitalia or other injury to the female genital organs. FGM/C is always traumatic with immediate complications including excruciating pain, shock, urine retention, ulceration of the genitals and injury to adjacent tissue. Other complications include septicaemia, infertility, obstructed labour, and even death. The procedure is generally carried out on girls between the ages of five and 15 years. It is often performed by traditional practitioners, including midwives. It is generally performed by traditional midwives, nurses, midwives and doctors.

FGM/C is a fundamental violation of human rights. In the absence of any perceived medical necessity, it subjects girls and women to health risks and has life-threatening consequences. Among those rights violated are the rights to the highest attainable standard of health and to bodily integrity. Furthermore, it could be argued that girls (under 18) cannot be said to give informed consent to such a potentially damaging practice as FGM/C.

In Sudan, girls and women undergo the traditional practice of FGM/C, often at an early age, where the age varies according to the community. The majority of cases of FGM/C usually take place when girls are between the ages of 5 and 11. It is then performed again on women after every birth

through re-infibulation. FGM/C in Sudan is widely accepted practice and reasons cited for the practice include purification, cleanliness and hygiene, acceptability within the group and reducing sexual desire. Additional reasons include "desired by men, hence marriageability", and adherence to religion. FGM/C functions as a self-enforcing social convention and the perception that FGM/C is virtually universally practiced in Sudan perpetuates its continuance.

Collective efforts to abandon FGM/C goes back to the 1940s and continued in a sporadic way until 1980s when professional, activists and religious scholars were engaged on a national programme to end FGM/C as a harmful practice. Following efforts by the Ministry of Health and later through coordinator by the National Council for Child Welfare culminated into a call for legislation to ban FGM/C. The media presented stories of girls who died as a result of FGM/C and civic society called for action to address the problem nationally. Consequently, the government endorsed a nation-wide strategy to abandon FGM/C within a generation (i.e. from 2008 to 2018). The Saleema Initiative which is a national awareness campaign on child protection for positive social transformation was launched which strategizes collective community action to abandon the practice of FGM/C. FGM/C is widely and increasingly acknowledged to be an unsettled question in Sudanese society. As little as 20 years ago, approval for the practice closely matched prevalence. Now attitudes are clearly turning against FGM/C.

This significant shift in attitudes is reinforced by other developments in Sudanese society. These developments include:

- Implementation in 2008 of a National Strategy to accelerate the abandonment of FGM/C
- Legislation banning this practice issued in 5 Sudanese States
- Religious scholars stepping forward and explicitly disassociating Islam from FGM/C and endorsing fatwa11 against the practice
- Prohibition by the Medical Council Resolution of doctors practicing any form of FGM/C
- Shift from periodic activist-driven campaigns focused on breaking public silence around FGM/C to broad-based social movement with increasing endorsement of the abandonment of FGM/C and participation by mainstream figures and organizations
- From scarce and interrupted funding a few years ago, there is now commitment by donors to expand and accelerate support for FGM/C abandonment. This will bring about better planning, momentum and ultimately better results.

Table 11.8 presents the prevalence of FGM/C among girls and women. The SHHS2 data shows that 88 percent of women aged 15-49 and 66 percent of ever women aged 0-50+ had some form of genital mutilation/cutting. The percentage of women who had been subjected to FGM/C was highest (90) among women in the age group 40-44 years and lowest (9) among girls in the age group 0-4 years. The attitudinal change is evidenced by the data which shows that the lowest prevalence was among the age group 0-14 years (37 percent) but is over 80 percent for all older age groups.

Among girls under-five years, this percentage of girls was lowest (4 percent) among girls under one year of age and highest at 15 percent among girls age 4 years. Attitudes towards FGM/C vary significantly according to educational status, age and region.

	Number of		has (nar	ne) been circun	ncised /cut	
	women	Yes <sup>[1]</sup>	No	DK	Missing	Total
State of residence						
Northern	807	83.8	16.1	0.0	0.1	100.0
River Nile	1495	83.4	16.5	0.1	0.0	100.0
Red Sea	1098	76.5	22.9	0.2	0.3	100.0
Kassala	2475	78.9	20.9	0.0	0.3	100.0
Gadarif	2024	50.4	49.5	0.0	0.1	100.0
Khartoum	6544	64.8	34.7	0.3	0.2	100.0
Gezira	6716	66.6	33.3	0.0	0.0	100.0
White Nile	2248	71.7	28.2	0.0	0.1	100.0
Sinnar	1780	67.4	32.6	0.0	0.0	100.0
Blue Nile	1541	48.7	51.2	0.0	0.1	100.0
North Kordofan	4621	70.5	29.4	0.0	0.0	100.0
South Kordofan	1987	66.1	32.7	1.0	0.3	100.0
North Darfur	2747	60.5	39.3	0.1	0.2	100.0
West Darfur	1850	46.0	52.9	0.4	0.7	100.0
South Darfur	5285	60.9	38.9	0.1	0.1	100.0
Age in years						
0-4	6802	9.2	90.3	0.1	0.5	100.0
5-9	6457	34.6	65.1	0.1	0.2	100.0
10-14	5825	72.2	27.4	0.2	0.2	100.0
15-19	4035	83.7	16.2	0.0	0.0	100.0
20-24	3700	86.8	12.9	0.2	0.2	100.0
25-29	3471	89.5	10.2	0.2	0.0	100.0
30-34	2314	88.3	11.7	0.0	0.0	100.0
35-39	2626	89.7	10.1	0.1	0.1	100.0
40-44	1610	89.8	10.1	0.1	0.0	100.0
45-49	1192	89.1	10.6	03	0.0	100.0
501	E160	00.5	10.0	0.5	0.0	100.0
Children under 5 vea	rs of age	89.0	10.2	.0.1		100.0
o cindren under 5 yea	1510	2.0	0F.C		0.4	100.0
1	1316	3.9	95.0	0.0	0.4	100.0
1 7	1300	7.6	91.7	0.1	0.6	100.0
2	1380	9.5	69.9	0.0	0.8	100.0
3	1414	11.4	88.3	0.2	0.2	100.0
4	1185	14.7	84.8	<u> </u>	0.4	100.0
Essential age groups	10004	77.0	62.6	0.1	0.2	100.0
0-14 years	19084	37.0	62.6	0.1	0.3	100.0
15-17 years	2231	83.1	16.9	0.1	0.0	100.0
18-49 years	16716	88.2	11.6	0.1	0.1	100.0
Education level						
None	25591	55.5	44.1	0.1	0.2	100.0
Primary	13140	76.1	23.7	0.1	0.1	100.0
Secondary +	4291	91.5	8.3	0.1	0.0	100.0
Missing/DK	195	90.9	9.1	0.1	0.0	100.0
Wealth index quintiles						
Poorest	8837	63.0	36.7	0.1	0.2	100.0
Second	8632	63.6	36.2	0.2	0.1	100.0
Middle	8673	61.8	38.1	0.1	0.1	100.0
Fourth	8547	66.8	32.8	0.2	0.2	100.0
Richest	8527	72.6	27.1	0.2	0.1	100.0
SUDAN (TOTAL)	43217	65.5	34.2	0.1	0.1	100.0
						1. 18 (Sec. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.

The percentage of women aged 15-49 years who had any form of FGM/C was 56 percent among women with no formal education; it was 76 percent for women with primary education and 92 percent for women with secondary or higher level of education. The percentage of women aged 15-49 years who had some form of female genital mutilation was 73 percent for women from households in the richest quintile compared to 63 percent for women from households in the poorest quintile.

The proportion of women aged 15-49 years reported to have undergone any form of female genital mutilation/cutting varied by State, ranging from 46 percent in West Darfur State to 84 percent in Northern State.

Figure 11.6: Female genital mutilation/cutting prevalence (FGM/C: Percentage of girls and women who have had any form of FGM/C, Sudan, 2010



Country specific information was obtained on the persons performing FGM/C and on the intention of women aged 15-49 to continue this practice with their daughters.

## Persons performing FGM/C

Table11.8a shows information relating to the persons performing FGM/C. Female circumcision is performed mainly by the traditional midwives and qualified nurses/midwives. The SHHS2 results indicate that in 59 percent of cases, the traditional midwives performed FGM/C while 39 percent of them were perform cutting by a qualified nurse/midwife. Only a negligible percentage of other health professionals (including doctors) performed FGM/C, the highest being 1 percent in Khartoum. The percentage of women who had been subjected to FGM/C by traditional midwives was highest (87 percent) among women in the age group 50+ years and lowest (41 percent) among girls in the age group 10-14 years.

The percentage of women who had been subjected to FGM/C by a qualified nurse or midwife was highest (58 percent) among girls in the age group 10-14 years and lowest (8 percent) among women in the age group 50+ years. As regards the FGM/C performed by traditional midwives for under-five children, the proportion of girls who had been subjected to FGM/C by traditional midwives was

State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue NileN. KordofanS.KordofanN. DarfurWest DarfurS. DarfurAge group in yea0-45-910-1415-1920-2425-2930-3435-3940-4445-49	of women ce 807 1495 1098 2475 2024 6544 6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 ars 6802 6457	Traditional midwives 36.4 51.4 79.3 76.0 67.0 42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	Others 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Doctor 0.0 0.0 0.0 0.0 0.0 0.0 0.2 0.2	Nurse or midwife 62.8 44.9 17.6 22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	Other health professionals 0.0 0.0 0.0 0.0 0.0 0.1 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	DK .8 1.5 2.4 1.0 4.6 0.3 2.0 1.0 0.4 0.3	Missing 0.0 0.4 0.0 0.4 0.0 0.4 0.0 0.0	Total 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
State of residenceNorthernRiver NileRed SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue NileN. KordofanN. KordofanN. KordofanS.KordofanN. DarfurWest DarfurS. DarfurAge group in yea0-45-910-1415-1920-2425-2930-3435-3940-4445-49	ce       807       1495       1098       2475       2024       6544       6716       2248       1780       1541       4621       1987       2747       1850       5285       6802       6457	36.4 51.4 79.3 76.0 67.0 42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.0 0.0 0.0 0.6 0.1 0.0 0.0 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 0.0 0.0 0.0 1.2 0.2 0.2 0.2 0.0 0.0 0.3 0.0	62.8 44.9 17.6 22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.0 0.0 0.0 0.0 0.1 0.2 0.0 0.0 0.0 0.0 0.1	.8 1.5 2.4 1.0 4.6 0.3 2.0 1.0 0.4 0.3	0.0 0.0 0.4 0.0 0.4 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
Northern River Nile Red Sea Kassala Gadarif Khartoum Gezira White Nile Sinnar Blue Nile Nile Nile Nile Nile Nile Nile Nil	807 1495 1098 2475 2024 6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 <b>ars</b> 6802 6457	36.4     51.4     79.3     76.0     67.0     42.3     66.1     36.5     67.3     70.9     59.1     67.5     52.4     62.4     60.5	0.0 0.0 0.0 0.6 0.1 0.0 0.0 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 0.0 0.0 1.2 0.2 0.2 0.0 0.0 0.3 0.0	62.8 44.9 17.6 22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.0 0.0 0.0 0.0 0.1 0.2 0.0 0.0 0.0 0.0 0.1	.8 1.5 2.4 1.0 4.6 0.3 2.0 1.0 0.4 0.3	0.0 0.4 0.4 0.0 0.4 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
River Nile Red Sea Kassala Gadarif Khartoum Gezira White Nile Sinnar Blue Nile N. Kordofan N. Darfur West Darfur S. Darfur West Darfur S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45 49	1495 1098 2475 2024 6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 <b>ars</b> 6802 6457	51.4 79.3 76.0 67.0 42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.0 0.6 0.1 0.0 0.0 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 0.0 1.2 0.2 0.2 0.0 0.0 0.0 0.3 0.0	44.9 17.6 22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.0 0.0 0.1 0.2 0.0 0.0 0.0 0.0 0.1	1.5 2.4 1.0 4.6 0.3 2.0 1.0 0.4 0.3	0.0 0.4 0.0 0.4 0.0 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
Red SeaKassalaGadarifKhartoumGeziraWhite NileSinnarBlue NileN. KordofanS. KordofanN. DarfurWest DarfurS. DarfurAge group in yea0-45-910-1415-1920-2425-2930-3435-3940-4445-49	1098     2475     2024     6544     6716     2248     1780     1541     4621     1987     2747     1850     5285     6802     6457	79.3     76.0     67.0     42.3     66.1     36.5     67.3     70.9     59.1     67.5     52.4     62.4     60.5	0.0 0.0 0.6 0.1 0.0 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 1.2 0.2 0.2 0.0 0.0 0.0 0.3 0.0	17.6 22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.0 0.0 0.1 0.2 0.0 0.0 0.0 0.0 0.1	2.4 1.0 4.6 0.3 2.0 1.0 0.4 0.3	0.4 0.0 0.4 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0 100.0 100.0
Kassala Gadarif Khartoum Gezira White Nile Sinnar Blue Nile N. Kordofan S. Kordofan N. Darfur West Darfur S. Darfur <b>Age group in yea</b> 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	2475 2024 6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 <b>ars</b> 6802 6457	76.0 67.0 42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.6 0.1 0.0 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 1.2 0.2 0.2 0.0 0.0 0.0 0.3 0.0	22.9 27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.0 0.1 0.2 0.0 0.0 0.0 0.1	1.0 4.6 0.3 2.0 1.0 0.4 0.3	0.0 0.4 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0 100.0
Gadarif Khartoum Gezira White Nile Sinnar Blue Nile N. Kordofan N. Darfur West Darfur S. Darfur <b>Age group in yea</b> 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	2024 6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 <b>3rs</b> 6802 6457	67.0 42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.6 0.1 0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.0 1.2 0.2 0.2 0.0 0.0 0.0 0.3 0.0	27.5 55.9 31.7 62.3 32.3 28.7 35.8	0.1 0.2 0.0 0.0 0.0 0.1	4.6 0.3 2.0 1.0 0.4 0.3	0.4 0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0 100.0
Khartoum Gezira White Nile Sinnar Blue Nile N. Kordofan S. Kordofan N. Darfur West Darfur S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	6544 6716 2248 1780 1541 4621 1987 2747 1850 5285 <b>3rs</b> 6802 6457	42.3 66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.1 0.0 0.0 0.0 0.2 0.3 0.9 0.1	1.2 0.2 0.0 0.0 0.0 0.3 0.0	55.9 31.7 62.3 32.3 28.7 35.8	0.2 0.0 0.0 0.0 0.1	0.3 2.0 1.0 0.4 0.3	0.0 0.0 0.0 0.0 0.0	100.0 100.0 100.0 100.0
Gezira White Nile Sinnar Blue Nile Nile Nike Nike Nike Nike Nike Nike S. Kordofan N. Darfur West Darfur S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45 49	6716 2248 1780 1541 4621 1987 2747 1850 5285 375 6802 6457	66.1 36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.0 0.0 0.2 0.3 0.9 0.1	0.2 0.2 0.0 0.0 0.3 0.0	31.7 62.3 32.3 28.7 35.8	0.0 0.0 0.0 0.1	2.0 1.0 0.4 0.3	0.0 0.0 0.0 0.0	100.0 100.0 100.0
White Nile Sinnar Blue Nile N. Kordofan S. Kordofan N. Darfur West Darfur S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	2248 1780 1541 4621 1987 2747 1850 5285 ars 6802 6457	36.5 67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.0 0.2 0.3 0.9 0.1	0.2 0.0 0.0 0.3 0.0	62.3 32.3 28.7 35.8	0.0 0.0 0.1	1.0 0.4 0.3	0.0 0.0	100.0 100.0
Sinnar     Blue Nile     N. Kordofan     N. Kordofan     N. Darfur     West Darfur     S. Darfur     Age group in yea     0-4     5-9     10-14     15-19     20-24     25-29     30-34     35-39     40-44     45-49	1780 1541 4621 1987 2747 1850 5285 ars 6802 6457	67.3 70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.0 0.2 0.3 0.9 0.1	0.0 0.0 0.3 0.0	32.3 28.7 35.8	0.0	0.4 0.3	0.0	100.0
Blue Nile     N. Kordofan     S. Kordofan     N. Darfur     West Darfur     S. Darfur     Age group in yea     0-4     5-9     10-14     15-19     20-24     25-29     30-34     35-39     40-44     45-49	1541 4621 1987 2747 1850 5285 ars 6802 6457	70.9 59.1 67.5 52.4 62.4 60.5	0.0 0.2 0.3 0.9 0.1	0.0 0.3 0.0	28.7 35.8	0.1	0.3	0.0	100.0
N. Kordofan S. Kordofan N. Darfur West Darfur S. Darfur <b>Age group in yea</b> 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	4621 1987 2747 1850 5285 ars 6802 6457	59.1 67.5 52.4 62.4 60.5	0.2 0.3 0.9 0.1	0.3	35.8	0.2		1	100.0
S.Kordofan N. Darfur West Darfur S. Darfur <b>Age group in yea</b> 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	1987 2747 1850 5285 ars 6802 6457	67.5 52.4 62.4 60.5	0.3 0.9 0.1	0.0		0.2	4.3	0.1	100.0
N. Darfur West Darfur S. Darfur <b>Age group in yea</b> 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44	2747 1850 5285 ars 6802 6457	52.4 62.4 60.5	0.9 0.1	0.4	30.6	0.0	1.4	0.1	100.0
West Darfur S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45 49	1850 5285 ars 6802 6457	62.4 60.5	0.1	0.4	41.6	0.9	3.9	0.0	100.0
S. Darfur Age group in yea 0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49	5285 ars 6802 6457	60.5		0.0	34.9	1.9	0.5	0.2	100.0
Age group in yea       0-4       5-9       10-14       15-19       20-24       25-29       30-34       35-39       40-44       45-49	6802	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1.2	0.0	37.6	0.0	0.3	0.5	100.0
0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49	6802 6457	Construction of the second	3	-	19				
5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 40-44	6457	58.3	0.4	0.3	40.8	0.1	0.0	0.2	100.0
10-14   15-19   20-24   25-29   30-34   35-39   40-44   45-49	10401	46.2	0.2	0.3	52.3	0.1	0.6	0.4	100.0
15-19 20-24 25-29 30-34 35-39 40-44 45-49	5825	40.7	0.1	0.6	57.7	0.1	0.6	0.2	100.0
20-24   25-29   30-34   35-39   40-44	4035	43.2	0.3	0.5	54.8	0.1	0.9	0.2	100.0
25-29 30-34 35-39 40-44	3700	47.7	0.1	0.6	49.9	0.1	1.7	0.0	100.0
30-34   35-39   40-44   45-49	3471	55.4	0.3	0.2	42.8	0.1	1.2	0.1	100.0
35-39 40-44 45-49	2314	60.2	0.3	0.0	37.1	0.1	2.2	0.0	100.0
40-44	2626	67.0	0.3	0.2	30.2	0.1	2.0	0.2	100.0
15 10	1610	74.0	0.6	0.1	22.7	0.4	2.1	0.1	100.0
43-43	1192	76.4	0.3	0.3	20.2	0.2	2.6	0.0	100.Ø
50+	5162	87.3	1.0	0.0	8.0	0.3	3.5	0.0	100.0
Number of Childr	ren under	five				1 1997) 1 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		17.00 C 10.00 C	15 7 J
0	1518	58.9	0.0	0.0	38.7	0.0	0.0	0.0	100.0
1	1300	69.2	0.0	0.0	30.8	0.0	0.0	0.0	100.0
2	1386	55.0	0.5	0.6	43.1	0.0	0.0	0.7	100.0
3	1414	56.2	0.0	0.0	42.9	0.2	0.0	0.0	100.0
1	1185	56.5	0.0	0.0	43.5	0.0	0.0	0.0	100.0
Education level					$r_{\mu}$ (c)				10 10 10 10 10 10 10 10 10 10 10 10 10 1
None 2	25591	72.2	0.6	0.2	24.6	0.2	2.0	0.1	100.0
Primary 2	13140	45.3	0.1	0.3	52.8	0.1	1.3	0.2	100.0
Secondary +	4291	41.6	0.0	0.5	56.2	0.2	1.4	0.0	100.0
Vissing/DK	195	78.9	0.9	. 0.0	18.7	0.0	1.5	0.0	100.0
Wealth index qu	uintiles	alle series and the	2 19 10 19 19 19 19 19 19 19 19 19 19 19 19 19	nagalar a sarah a 1939 - Sarah Sarah					
Poorest	8837	70.9	1.1	0.1	25.8	0.2	1.6	0.4	100.0
Second	8632	70.9	0.5	0.1	26.3	0.1	2.0	0.1	100.0
Middle	8673	58.7	0.1	0.1	38.8	0.1	2.1	0.0	100.0
ourth	8547	48.7	0.1	0.2	48.9	0.2	1.7	0.1	100.0
Richest		45.1	0.0	1.0	52.7	0.1	1.1	0.0	100.0

highest (69 percent) among those aged 1 year compared to 59 percent among girls age below 1 year.

The percentage of girls and women subjected to FGM/C by person who performed the FGM/C appears also to be linked to household wealth. The proportion of girls who had been subjected to FGM/C by traditional midwives was 71 percent among women from households in the poorest quintile compared to 42 percent among women from households in the richest quintile. The proportion of girls who had been subjected to FGM/C by a qualified nurse or midwife was 26 percent

among women from households in the poorest quintile compared to 53 percent among women households in the richest quintile.

The proportion of girls who had been subjected to FGM/C by a traditional midwife or by a qualified nurse/midwife varies by State. The proportion of girls who had been subjected to FGM/C by traditional midwives ranged from 36 percent in Northern State to 79 percent in Red Sea State. The proportion of girls who had been subjected to FGM/C by a qualified nurse or midwife ranged from 18 percent in Red Sea State to 63 percent in Northern State.

#### Women intending to circumcise their daughters

Table 11.8b presents information relating to the proportion of ever-married women aged 15-49 intending or not intending to circumcise their daughters.

The SHHS2 findings indicated that about 48 percent of ever married women aged 15-49 years intended for their daughters to undergo FGM/C while 34 percent indicated that they did not intend to continue with this practice for their daughters. This percentage was highest (56 percent) among women in the age group 35-39 years and the lowest (31 percent) among young girls/women in the age group 15-19 years. The proportion of women who indicated they did not intend to circumcise their daughters was highest (39percent) among women in the age group 40-44 years and the lowest (21 percent) among women in the age group 15-19 years.

The intention of ever-married women age 15-49 years to circumcise their daughters appears to have a linkage with the woman's education level and the household wealth. The proportion of ever married women age 15-49 years intended to practice FGM/C on their daughters was 59 percent among women who had no formal education compared to 47 percent for women with primary education and 22 percent for women with secondary and higher level of education. Similar patterns were observed with regard to household wealth where 70percent of women from households in the poorest quintile intended to continue with this practice compared to 28 percent among women from households in the richest quintile.

1	able11.8 b: Won	nen intendi	ng to circumc	ise their daught	ters	
Percentage of ever n	narried women a	iged 15-49 y daughters	ears who inte , Sudan, 2010	end or do not ir	itend tocircum	cisetheir
	Number of		Do you Inten	d to Circumcise	your Daughter	T
	aged 15-49	Yes	No	DK	Missing	Total
State of residence						
Northern	208	52.5	34.7	7.4	5.5	100.0
River Nile	386	57.0	28.7	4.3	10.0	100.0
Red Sea	331	56.3	19.0	6.9	17.9	100.0
Kassala	684	68.3	14.9	3.6	13.1	100.0
Gadarif	530	32.1	49.0	2.2	16.8	100.0
Khartoum	1718	27.4	50.5	2.8	19.3	100.0
Gezira	1574	28.3	48.8	2.1	20.8	100.0
Wite Nile	569	52.7	31.5	2.8	13.1	100.0
Sinnar	418	51.9	32.0	2.3	13.8	100.0
Blue Nile	425	41.2	48.5	2.6	7.7	100.0
North Kordofan	1106	52.3	28.7	4.8	14.2	100.0
South Kordofan	511	61.4	28.5	3.6	6.5	100.0
North Darfur	669	62.0	21.2	3.3	13.4	100.0
West Darfur	513	47.6	30.1	2.9	19.4	100.0
South Darfur	1364	71.3	12.7	2.2	13.8	100.0
Age						
15-19	838	30.5	20.8	4.2	44.5	100.0
20-24	1844	41.5	29.0	4.2	25.3	100.0
25-29	2414	47.5	33.7	4.2	14.6	100.0
30-34	1739	48.9	37.8	3.0	10.4	100.0
35-39	2054	55.9	34.7	2.1	7.3	100.0
40-44	1240	51.6	39.2	1.9	7.4	100.0
45-49	878	54.6	36.2	1.8	7.4	100.0
Education level			1 Se 10 1 1			
None	4870	59.1	25.9	2.9	12.1	100.0
Primary	3569	47.2	33.5	3.1	16.2	100.0
Secondary +	2016	22.3	51.9	3.9	21.9	100.0
Adult education/ Khalwa/Sunday eductation	550	50.3	34.7	2.8	12.2	100.0
Wealth index quintiles			1.1.2		an a gala da sera a se	1.000
Poorest	2252	70.0	16.0	2.4	11.5	100.0
Second	2296	57.1	24.9	3.1	14.8	100.0
Middle	2269	45.2	35.1	3.6	16.1	100.0
Fourth	2114	37.5	41.8	3.6	17.1	100.0
Richest	2075	27.9	52.1	3.0	17.0	100.0
SUDAN (TOTAL)	11006	48.0	33.6	3.2	15.3	100.0
· · · · · · · · · · · · · · · · · · ·						

The proportion of ever-married women aged 15-49 years intending to circumcise their daughters ranged from 27 percent in Khartoum State to 71 percent in South Darfur State while the proportion of women not intending to continue with this practice was lowest at 13 percent in West Darfur State and highest at 50 percent in Khartoum State.

Figure 11.7: Women intending to circumcise their daughters: Proportion of ever married women aged 15-49 years who intend to circumcise their daughters, Sudan, 2010



#### Attitude of women aged 15-49 years towards FGM/C

Table 11.10 presents the attitudes of women aged 15-49 years towards whether the practice of FGM/C should be continued or discontinued.

Regarding opinion as to whether the practice should be continued or discontinued, 42 percent of women thought it should be continued while 53 percent believed it should be discontinued. The attitude of women towards whether the practice of FGM/C should be continued or discontinued appears to be linked to the woman's education level and the household wealth. Approval of the continuation of the practice was highest among women with no formal education (60 percent) than those with primary education (44 percent) and those with secondary or higher level of education (17 percent). Disapproval of the continuation of the practice was higher among women with secondary and higher level of education (80 percent) than those with primary education (51 percent) and those with no formal education (34 percent). Women from households in the richest quintile are less likely to approve of the continuation of the practice than women from households in the poorest quintile. Approval of the continuation of the practice was higher among women from households in the poorest quintile (21 percent). Disapproval of the continuation of the practice was higher among women from households in the richest quintile (21 percent). Disapproval of the continuation of the practice was higher among women from households in the richest quintile (21 percent). Disapproval of the continuation of the practice was higher among women from households in the richest quintile (26 percent).

The percentage of women who believed that the practice of FGM/C should be continued was lowest among women in the age group 15-19 years (37 percent) and highest among women in the age group 35-39 years (47 percent). The percentage of women who believed that the practice of FGM/C should be discontinued was highest among women in the age group 15-19 years (59 percent) and lowest among women in the age group 35-39 years (48 percent).

		Table11.10:	Attitude towards	FGM/C			
Attitude of wom	ten aged 15-49	years toward discont	s whether the pr inued. Sudan. 20	actice of FG	M/C sho	uld be conti	nued or
	Number of		Should practice	be continue	d or disc	ontinued	
Σ.	women aged 15-49 years	Continued [1]	Discontinued	Depends	DK	Missing	Total
State of residence				an a			
Northern	403	38.7	56.7	1.2	3.1	0.2	100.0
River Nile	706	46.3	48.8	0.5	4.2	0.2	100.0
Red Sea	512	59.9	36.9	0.0	2.8	0.3	100.0
Kassala	1071	66.0	29.0	1.6	3.3	0.1	100.0
Gadarif	827	27.7	65.6	5.4	1.1	0.1	100.0
Khartoum	3347	22.2	74.0	1.3	2.2	0.3	100.0
Gezira	2853	28.2	69.1	.6	1.9	0.2	100.0
White Nile	1014	45.8	49.8	1.3	1.5	1.7	100.0
Sinnar	719	44.8	49.7	3.7	1.6	0.3	100.0
Blue Nile	607	40.6	53.0	5.0	1.1	0.3	100.0
North Kordofan	1852	44.9	49.2	2.5	3.3	0.1	100.0
South Kordofan	743	48.7	40.7	7.9	2.6	0.1	100.0
North Darfur	1020	53.2	40.8	2.8	3.1	0.1	100.0
West Darfur	700	53.0	41.1	0.8	4.9	0.1	100.0
South Darfur	2164	66.5	30.1	17	1.3	0.4	100.0
Age group in							
years	2550	<u></u>		0.0	2.0		100.0
15-19	3559	37.3	58.7	0.6	3.0	0.4	100.0
20-24	3321	39.9	56.2	1.4	2.2	0.3	100.0
25-29	3176	45.0	50.1	2.3	2.3	0.3	100.0
30-34	2139	43.2	51.3	3.4	1.9	.3	100.0
35-39	2446	46.6	48.2	2.8	2.3	0.1	100.0
40-44	1466	42.6	52.7	2.5	2.2	0.1	100.0
45-49	1067	45.9	48.3	2.7	2.7	0.4	100.0
Education level							
None	6062	59.7	34.3	2.4	3.4	0.2	100.0
Primary	5570	44.0	51.2	2.2	2.4	0.2	100.0
Secondary +	4803	17.3	79.8	1.4	0.9	0.6	100.0
Adult education/ Khalwa	739	48.1	46.1	2.4	3.4	0.1	100.0
Wealth index quinti	les	A STATE					
Poorest	3013	68.6	26.1	2.4	2.9	0.1	100.0
Second	3176	58.1	36.6	2.3	3.0	0.1	100.0
Middle	3375	42.7	52.3	2.3	2.6	0.2	100.0
Fourth	3604	29.9	65.4	1.9	2.3	0.5	100.0
Richest	4006	20.7	75.9	1.5	1.4	0.4	100.0
SUDAN (TOTAL)	18539	48.1	53.0	2.0	2.4	0.3	100.0
<sup>[1]</sup> SHHS2 indicator 7.8							

The percentage of women who believed that the practice of FGM/C should be continued was lowest in Khartoum State (22 percent) and highest in South Darfur State (67 percent). The percentage of women who believed that the practice of FGM/C should be discontinued was highest in Khartoum State (74 percent) and lowest in Kassala State (29 percent).



Figure 11.8: Attitude towards FGM/C: Attitude of women aged 15-49 years towards whether the practice of FGM/C should be continued or discontinued, Sudan, 2010

#### Attitude of ever married women aged 15-49 years towards FGM/C

Table 11.10presents the attitudes of ever married women aged 15-49 years towards whether the practice of FGM/C should be continued or discontinued. Regarding opinion as to whether the practice should be continued or discontinued, 48 percent of ever married women age 15-49 years thought it should be continued while 47 percent believed it should be discontinued.

The percentage of ever married women who believed that the practice of FGM/C should be continued was highest among those in the age group 15-19 years (51 percent) and lowest among those in the age group 40-44 years (43 percent). The percentage of ever married women who believed that the practice of FGM/C should be discontinued was highest among those in the age group 40-44 years (53 percent) and lowest among those in the age group 20-24 years (45 percent).

The attitude of ever married women towards whether the practice of FGM/C should be continued or discontinued appears to be linked to the woman's education level and the household wealth. Approval of the continuation of the practice was higher among ever married women with no formal education (61 percent) than among those with primary education (46 percent) and those with secondary or higher level of education (19 percent). Disapproval of the continuation of the practice was higher among ever married women with secondary and higher level of education (78 percent) than among those with primary education (49 percent) and those with no formal education (33 percent). Ever married women from households in the richest quintile are less likely to approve of the continuation of the practice of female circumcision than women from households in the poorest quintile. Approval of the continuation of the practice was higher among ever married women from households in the practice was higher among ever married women from households in the practice was higher among ever married women from households in the poorest quintile (25 percent). Disapproval of the continuation of the practice was higher among ever married women from households in the richest quintile (25 percent). Disapproval of the continuation of the practice was higher among ever married women from households in the richest quintile (22 percent). Disapproval of the continuation of the practice was higher among ever married women from households in the richest quintile (22 percent).

Attitude of ever r	married wor	Table 11.10 nen aged 15-4	0: Attitude towa	rds FGM/C	he practice o	of FGM/C sh	ould be
		continued o	r discontinued,	Sudan, 2010	)	,	
	Number		Should practi	ce be contir	ued or disco	ontinued	
	of women aged 15- 49 years	Continued	Discontinued	Depends	DK	Missing	Total
State of residence						na na marana	
Northern	208	42.9	52.1	2.0	2.8	0.2	100.0
River Nile	386	53.9	42.2	0.5	3.2	0.2	100.0
0.0Red Sea	331	68.1	29.7	0.0	2.2	0.0	100.0
Kassala	684	75.2	21.7	1.3	1.8	0.0	100.0
Gadarif	530	28.9	63.3	6.8	1.0	0.0	100.0
Khartoum	1718	25.8	69.3	2.0	2.6	0.3	100.0
Gezira	1574	32.2	66.1	.8	.8	0.2	100.0
Wite Nile	569	51.3	43.6	2.0	2.0	1.1	100.0
Sinnar	418	51.2	42.8	4.8	1.0	0.2	100.0
Blue Nile	425	42.7	50.5	5.9	0.8	0.1	100.0
North Kordofan	1106	49.3	45.5	2.6	2.6	0.0	100.0
South Kordofan	511	53.1	35.1	9.2	2.6	0.0	100.0
North Darfur	669	56.4	36.7	3.2	3.6	0.2	100.0
West Darfur	513	56.9	37.9	.7	4.4	0.1	100.0
South Darfur	1364	72.1	23.8	2.1	1.8	0.3	100.0
Age group				$T \in \{0, \dots, N\}$			
15-19	838	51.1	45.5	.9	2.2	0.3	100.0
20-24	1844	50.6	45.0	1.6	2.4	0.3	100.0
25-29	2414	49.2	45.7	2.7	2.3	0.2	100.0
30-34	1739	46.3	48.1	3.7	1.7	0.2	100.0
35-39	2054	48.2	46.8	2.7	2.2	0.1	100.0
40-44	1240	43.4	52.6	2.6	1.2	0.1	100.0
45-49	878	47.0	46.8	3.2	2.6	0.4	100.0
Education level		1.22.343	pull's long -				
None	4870	61.3	33.2	2.5	2.8	0.2	100.0
Primary	3569	46.3	48.9	2.6	1.9	0.2	100.0
Secondary +	2016	19.0	77.6	2.6	0.6	0.3	100.0
Adult education/ Khalwa	550	49.6	44.7	2.8	2.9	0.0	100.0
Has (name) been circ	umcised			1.25			
Yes	9665	53.0	42.3	2.6	1.8	0.2	100.0
No	1325	12.7	81.4	2.1	3.8	0.0	100.0
DK	11	23.5	33.1	16.0	27.4	0.0	100.0
Missing	5	61.0	30.7	8.2	0.0	0.0	100.0
Wealth index quintile	<b>e</b> de la de la de la de			aland at	and a start	gent R , Set	and the second
Poorest	2252	72.8	22.1	2.5	2.4	0.1	100.0
Second	2296	60.6	34.4	2.5	2.5	0.1	100.0
Middle	2269	44.2	50.2	3.0	2.3	0.2	100.0
Fourth	2114	35.1	59.7	2.5	2.4	0.3	100.0
Richest	2075	24.9	71.6	2.3	0.8	0.4	100.0
SUDAN (TOTAL)	11006	48.1	47.0	2.6	2.1	0.2	100.0
[1] SHHS2 indicator 7.9		A CONTRACTOR OF A CONTRACT		and a state of the second			

The percentage of ever married women who believed that the practice of FGM/C should be continued was lowest in Khartoum State (26 percent) and highest in South Darfur State (72 percent). The percentage of ever married women who believed that the practice of FGM/C should be discontinued was highest in Khartoum State (69 percent) and lowest in Kassala State (22 percent).





## **Attitudes toward Domestic Violence**

A number of questions were asked of women age 15-49 years to assess their attitudes toward whether husbands are justified to hit or beat their wives/partners for a variety of scenarios. These questions were asked to have an indication of the cultural beliefs that tend to be associated with the prevalence of violence against women by their husbands. The main assumption here is that women that agree with the statements indicating that husbands/partners are justified to beat their wives under the situations described in reality tend to be abused by their own husbands. The main SHHS2 indicator used to assess women's attitude towards domestic violence is as follows:

### Attitude towards domestic violence

Proportion of women aged 15-49 years who state that a husband/partner is justified in hitting or beating his wife in at least one of the following circumstances: (i) she goes out without telling him, (ii) she neglects the children, (iii) she argues with him, (iv) she refuses sex with him, and (v) she burns the food.

The responses to SHHS2 questions are indicated in Table 10.10. Overall, 47 percent of women in Sudan feel that their husband has a right to hit or beat them for at least one of a variety of reasons. Women who approve their partner's violence, in most cases, agree and justify violence in instances when they neglect their children (35 percent), or if they demonstrate their autonomy, for e.g. go out without telling their husbands or argue with them (32 percent) or argue with the husband (30 percent). Over one-fourth of women believe that their partner has a right to hit or beat them if they refuse to have sex with him, or if they burn the food. Acceptance is more present among those living in households on the poorest quintile, less educated, and also currently married women.

Table 11.11: Attitudes toward domestic violence									
Percentage of wome	n aged 15-49	years who b various circ	pelieve a hus umstances, s	band is justil Sudan, 2010	fied in beatir	ng his wife/p	artner in		
	Percentage o	of women age	d 15-49 years	who believe t	hat a husband	is justified in	Number		
	beating his w	/ife/partner:					of		
	If she goes	If she	If she	If she	If she burns	For any of	women		
	out without	neglects	argues with	refuses sex	the food	these	aged 15-		
	telling him	the children	him	with him		reasons "	49 years		
State of residence				<u></u>					
Northern	23.7	32.4	20.0	19.5	15.0	49.7	351		
River Nile	19.5	19.8	15.6	15.0	15.0	28.4	637		
Red Sea	13.3	14.8	11.0	9.5	8.6	19.2	477		
Kassala	25.1	24.8	22.0	19.2	14.7	32.3	1004		
Gadarif	24.7	32.0	26.6	21.1	22.4	43.4	773		
Khartoum	17.0	20.1	16.9	12.3	13.1	30.8	3005		
Gezira	16.3	19.8	16.1	17.3	12.6	29.6	2791		
White Nile	33.3	38.7	31.8	33.1	30.3	52.0	906		
Sinnar	33.7	33.7	28.7	29.2	31.6	49.7	675		
Blue Nile	31.3	30.9	29.4	23.7	24.6	47.4	566		
North Kordofan	48.3	53.8	40.4	36.1	37.5	67.8	1765		
South Kordofan	49.4	58.0	49.6	39.7	41.4	73.1	700		
North Darfur	26.5	29.5	25.1	26.0	22.6	46.2	930		
West Darfur	72.1	74.8	70.5	63.2	66.6	83.6	672		
South Darfur	57.1	62.5	60.0	59.0	56.6	74.6	1923		
Area of residence						18 N 1972 A			
Urban	21.0	25.4	21.4	17.1	16.7	38.2	5842		
Rural	37.0	40.3	34.6	33.2	31.8	51.5	11332		
Age group									
15-19	34.4	39.1	33.3	27.9	29.2	51.9	3559		
20-24	30.0	33.0	28.4	26.6	24.8	46.3	3321		
25-29	30.1	34.5	28.5	26.7	25.9	44.7	3176		
30-34	30.7	33.6	28.0	27.3	26.3	44.9	2139		
35-39	32.4	36.5	31.8	29.7	27.9	47.6	2446		
40-44	30.8	34.4	30.0	29.1	26.7	45.7	1466		
45-49	31.6	32.8	30.4	28.3	24.5	44.0	1067		
Marital status	Section and the section of the secti						1997 - 1994 -		
Currently married	33.2	36.8	31.6	29.9	27.9	48.3	11006		
Formerly married	36.0	40.3	35.6	33.4	32.1	51.0	972		
Never married/in			33.0			32.0			
union	27.2	30.9	26.0	22.1	23.1	43.5	5197		
Education level	- 1948 - 1978 - 19			235-36-25-25-25-	C 9 ( 10 )				
None	45.2	48.4	43.7	40.5	39.6	59.8	6062		
Primary	30.7	34.8	28.7	25.8	26.0	47.0	5570		
Secondary +	15.5	20.1	15.4	14.4	12.2	31.7	4803		
Adult education/		20.1							
Khalwa/Sunday	29.6	293	24.5	24.5	19.9	40.4	739		
Education	2510	20.0		2110					
Wealth index quintile				Sector al	C. CARACTER STR		Concession States		
Poorest	52.7	56.6	52.5	51.6	49.1	68.8	3013		
Second	44.9	47.6	41.4	38.2	38.0	59.5	3176		
Middle	32.5	36.1	30.7	26.7	25.9	48.6	3375		
Fourth	20.6	24.8	18.7	17.0	16.8	36.2	3604		
Richest	14.0	18.0	14.1	12.0	10.4	28.9	4006		
SUDAN (TOTAL)	31.5	35.2	30 1	27.7	26.7	47.0	17174		
<sup>[1]</sup> SHHS2 indicator 7.11		and a second							

The attitude toward domestic violence appears to be linked to the women's education level and the household wealth. The percentage of women aged 15-49 years who believe a husband is justified in beating his wife in various circumstances was higher among women with no formal education (60 percent) than among those with primary education (47 percent) and those with secondary or higher level of education (32 percent). Women from households in the richest quintile are less likely to approve of the practice of wife beating than women from households in the poorest quintile. Approval of the practice was highest among women from households in the poorest quintile (69 percent) compared to those from households in the richest quintile (29 percent). Similar patterns were found with regard to area of residence where it was higher among women in rural areas (52 percent) than in urban areas (38 percent).

The percentage of women aged 15-49 years who believe that a husband is justified in beating his wife in various circumstances was lowest among women in the age group 45-49 years (44 percent) and highest among women in the age group 15-19 years (52 percent) and among formerly married women (51 percent). Interestingly, nearly half of never married women (44 percent) also indicated accepting attitudes towards spousal beating for a variety of reasons.

The percentage of women aged 15-49 years who believed that a husband was justified in beating his wife in various circumstances was lowest in Red Sea State (19percent) and highest in West Darfur State (84 percent).

Figure 11.10: Attitudes toward domestic violence: Percentage of women aged 15-49 years who believe a husband is justified in beating his wife under various circumstances, Sudan, 2010



## Children's Living Arrangements and Orphanhood

Children who are orphaned or in vulnerable households may be at increased risk of neglect or exploitation if the parents are not available to assist them. Children are considered as orphaned if they have one or both of their parents dead. Monitoring the variations in different outcomes for orphans and vulnerable children and comparing them to their peers gives us a measure of how well communities and governments are responding to their needs.

#### Children's living arrangements

Table11.12 provides information relating to children's living arrangements and orphan hood. It indicates the percentage of children aged 0-17 years according to living arrangements, percentage of children age 0-17 years in households not living with a biological parent and percentage of children who have one or both biological parents dead. It also shows percentage of children living with neither parent, mother only, and father only.

The SHHS2 findings indicate that 76 percent of children aged 0-17 years in Sudan live with both parents. About 4 percent of children were not living with a biological parent. About 18 percent live with only their mother while about 2 percent live with only their father. The proportion of children who did not live with a biological parent was slightly higher in the case of female children (5 percent) than that in the case of male children (3 percent). The proportion of children who did not live with a biological parent (1 percent) among those in the age group 15-17 years and lowest (1 percent) among those in the age group 0-4 years.

The percentage of children who did not live with a biological parent ranged from 2 percent in Khartoum State to 7 percent in South Darfur State.

Figure 11.11: Children's living arrangements: Percentage of children age 0-17 years not living with a biological parent, Sudan, 2010



### Prevalence of orphans

Nationwide, the prevalence of orphans (percentage of children under age 0-17 who have one or both of their parents dead) was 6 percent. The proportion of children who did not live with a biological parent was highest among those aged 15-17 years (12 percent) and lowest among those aged 0-4 years (2 percent). The prevalence of orphans ranged from 3 percent in River Nile State to 7 percent in South Darfur State.



Figure 11.12: Prevalence of orphans: percentage of children under age 0-17 who have one or both of their parents dead, Sudan, 2010

Borcant distribution of	hildron aread (	17.00000.00	cording to livi	Tabl	e11.12: Chil	dren's living	arrangem	ents and orp	hanhood	a with a biologi	ical parant ar	d parcentage	of childron w	ha hava ona
Percent distribution of	iniuren ageu i	J-17 years a	cording to live	ing arrangen	ol	r both parent	s dead, Suda	n, 2010	noids not livin	g with a biologi	ical parent al	id percentage	or children w	no nave one
	Living					Living with mother only		Living with father only		Impossible to		Not living	One or	Number of
	with both parents	Living with neither parent												
		Only	Only mother alive	Both are	Both are	Father	Father	Mother	Mother	determine	Total	with a biological parent <sup>[1]</sup>	both parents dead <sup>[2]</sup>	children aged 0-17 vears
		father												
Sex		anve		dive		anve	ueau	anve	ueau	1	Total	purche	ucuu	years
Male	77.1	0.6	0.4	21	0.2	13.9	3.6	12	0.8	0.1	100.0	23	5.6	21663
Female	75.3	0.7	0.4	3.7	0.1	14.4	3.6	0.9	0.8	0.0	100.0	5.0	5.7	21315
State of residence	10.0		0.1	5.7	0,2		5.0				100.0			21010
0.3Northern	81.5	0.3	0.3	1.4	0.1	12.3	2.8	0.6	0.6	0.1	100.0	2.1	4.1	624
River Nile	86.7	0.3	0.1	2.1	0.1	7.8	23	0.2	0.3	0	100.0	2.7	3.2	1290
Red Sea	82.4	1.4	0.1	1.8	0.1	8.0	3.9	1.0	1.1	0.1	100.0	3.5	6.7	1008
Kassala	84.6	0.6	03	19	0.4	6.5	3.6	8	14	0.0	100.0	3.0	6.2	2636
0 1Gadarif	74.6	7	0.5	33	0.1	16.3	3.0	8	0.4	0.0	100.0	4 7	49	2128
Khartoum	83.7	0.1	0.3	1.6	0.3	9.6	3.2	0.7	0.4	0.1	100.0	2.3	4.2	6045
Gezira	69.9	0.6	0.2	1.9	0.2	21.4	3.8	1.1	0.8	0.0	100.0	2.9	5.6	5964
White Nile	76.1	0.4	0.3	3.0	0.1	15.5	2.8	7	11	0.0	100.0	3.7	4.6	2148
Sinnar	85.6	0.7	0.3	2.2	0.1	7.2	2.0	8	0.6	0.0	100.0	3.2	43	1763
Blue Nile	86.7	0.6	0.5	23	0.2	5.0	2.7	11	0.9	0.0	100.0	3.6	4.8	1689
North Kordofan	67.0	0.9	0.4	3.5	0.2	21.4	4.7	1.1	0.9	0.1	100.0	4.9	7.0	4633
South Kordofan	68.2	0.5	1.1	4.6	0.2	19.3	2.8	2.4	0.7	0.1	100.0	6.5	5.4	2148
North Darfur	77.4	0.5	0.3	3.8	0.1	12.2	37	8	11	0.2	100.0	4.6	5.6	3078
West Darfur	71.1	0.8	7	4.4	0.2	16.2	4.8	1.4	0.4	0.1	100.0	6.1	6.9	2089
South Darfur	73.4	1.3	0.9	4.2	0.2	13.7	4.1	1.2	0.9	0.0	100.0	6.6	7.4	5735
Area of residence					1					a and a second	-	and the second second	and the second	
Urban	78.8	0.5	0.5	2.4	0.3	11.2	4.4	1.0	0.8	0.1	100.0	3.7	6.5	12305
Rural	75.2	0.7	0,4	3.1	0.2	15.3	3.3	1.1	0.8	0.0	100.0	4.3	5.3	30673
Age group			1		The second	States in the second	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
0.10-4 years	81.1	0.2	0.0	0.9	0.0	15.9	1.2	0.2	0.3	0.1	100.0	1.2	1.8	13823
5-9 years	. 77.4	0.6	0.3	2.8	0.1	13.8	3.0	1.2	0.8	0.1	100.0	3.8	4.8	13091
10-14 years	73.0	0.9	0.6	3.7	0.3	13.0	5.7	1.5	1.2	0.1	100.0	5.5	8.7	11611
15-17 years	66.1	1.4	1.6	7.1	0.6	12.7	7.3	1.9	1.2	0.0	100.0	10.8	12.2	4453
Wealth index quintile	2. 1. I		1		100.0 10.00		1. 1		1000 2 8	C. And State		Carlos Anna B	the second second	
Poorest	72.9	0.9	0.6	3.8	0.1	15.3	4.4	1.1	0.8	0.0	100.0	5.5	6.8	9853
Second	73.4	0.5	0.3	3.3	0.2	16.4	3.7	1.1	1.0	0.1	100.0	4.3	5.6	9281
Middle	76.5	0.7	0.4	2.9	0.2	14.4	3.2	1.0	0.7	0.0	100.0	4.1	5.1	8822
Fourth	79.4	0.6	0.5	2.3	0.2	11.7	3.9	.8	0.6	0.1	100.0	3.5	5.8	8129
Richest	80.6	0.4	0.4	1.7	0.3	12.0	2.6	1.1	0.9	0.1	100.0	2.8	4.5	6893
SUDAN (TOTAL)	76.2	0:6	0.4	29	0.2	14.2	36	10	0.8	01	100.0	41	57	42978

## School attendance of orphans and non-orphans

One of the measures developed for the assessment of the status of orphaned children relative to their peers looks at the school attendance of children aged 10-14 years who have lost both parents (double orphans)versus children whose parents are alive (and who live with at least one of these parents). If children whose parents have died do not have the same access to school as their peers, then families and schools are not ensuring that these children's rights are being met.

Table 10.12 provides information relating to school attendance of orphans and non-orphans. It indicates school attendance of children aged 10-14 years by orphan hood. In Sudan, the percentage of children aged 10-14 years whose mother and father have died (double orphans) was less than one percent while the percentage of children of whom both parents were alive and the child was living with at least one parent (non-orphans) at the time of SHHS2 was 87 percent. Among the double orphans, only 79 percent were attending school compared to 82 percent among non-orphans of the same age. This would suggest that double orphans are disadvantaged compared to the non-orphaned children in terms of school attendance. The orphan to non-orphans school attendance ratio was 0.96.

r			-		1	1						
Table11.13: School attendance of orphans and non-orphans												
School attendance of children age 10-14 years by orphanhood, Sudan, 2010												
	Percentage	Percentage	Number	Percentage	Total	Percentage	Total	Orphans				
	of children	of children	of children	of children	number of	of children	number of	to non-				
	whose	of whom	aged 10-	who are	orphan	who are	non-	orphans				
	mother	both	14 years	orphans	children	non-	orphan	school				
	and father	parents		and are	aged 10-	orphans	children	attendan				
	have died	are alive		attending	14 years	and are	aged 10-	ce ratio				
	(orphans)	and child is	1	school <sup>[1]</sup>		attending	14 years					
		living with				school <sup>[2]</sup>						
		at least										
		one parent										
		(non-										
		orphans)										
Sex												
Male	0.4	87.4	5786	85.0	22	85.0	5056	1.00				
Female	0.2	87.7	5825	69.3	14	78.5	5106	.88				
Area of res	sidence											
Urban	0.5	86.5	3372	94.8	17	92.0	2916	1.03				
Rural	0.2	87.9	8239	65.4	20	77.6	7246	.84				
SUDAN	0.3	87.5	11611	78.8	37	81.8	10162	.96				
<sup>[1]</sup> SHHS2 in	dicator 7.14; N	1DG indicator	7.15									

More boys aged 10-14 years who were orphans were attending school (85 percent) compared to girls who were orphaned (69 percent), following a similar pattern for non-orphans who were attending school of boys (85 percent) and girls (79 percent). The orphan to non-orphan school attendance rate was also higher (1.0) for male children than that for female children (0.88).

The school attendance of children who were orphaned was higher among children in urban areas (95 percent) compared to their counterparts in rural areas (65 percent). School attendance of nonorphans was also higher among children in urban areas (92 percent) than that among children in rural areas (78 percent). The orphan to non-orphan school attendance rate was also higher (1.03) for children in urban areas than that for children in rural areas (0.96).

# XII. HIV/AIDS, Knowledge and Attitudes

One of the most important prerequisites for reducing the rate of HIV infection, therefore, is accurate knowledge of how HIV is transmitted and strategies for preventing transmission. Correct information is the first step toward raising awareness and giving young people the tools to protect oneself from HIV infection. The UN General Assembly Special Session on HIV/AIDS (UNGASS) called on governments to undertake measures to improve the knowledge and skills of young people to protect themselves from HIV. The indicators to measure this goal as well as the MDG of reducing HIV infections by half include improving the level of knowledge of HIV and its prevention, and changing behaviours to prevent further spread of the disease.

In Sudan, HIV is concentrated among high-risk populations with vulnerable populations being the bridge of HIV transmission into the general population. The national programme strategies include:

- Strengthening the coordination framework for the national response
- Strengthening monitoring and evaluation organizational structures
- Establishing sustainable funding mechanism for CSOs' projects
- Integration of HIV services in 100% of health facilities by 2014 & establishment of a HIV research coordination framework
- The prevention of HIV transmission among the clients of Female Sex Workers a key strategy for minimizing the spread of the virus into the general population.

#### Knowledge about HIV Transmission and Misconception about HIV/AIDS

One indicator which is both an MDG and UNGASS indicator is the percentage of young women who have comprehensive and correct knowledge of HIV prevention and transmission. In SHHS2 all women who have heard of AIDS were asked whether they knew of the two main ways of HIV transmission, i.e. having only one faithful uninfected partner and using a condom every time.

In the SHHS2, the HIV module was administered to all women aged 15-49 years. The results for women aged 15-49 years are presented in Table 12.1. In Sudan, more than three-fourths (76 percent) of women aged 15-49 years have heard of AIDS. However, the proportion of women who knew of both the main ways of preventing HIV transmission was only 16 percent. Sixty two percent of women aged 15-49 years knew of having one faithful uninfected sex partner and 17 percent knew that using a condom every time as main ways of preventing HIV transmission. The proportion of women aged 15-49 years who had heard of AIDS is above 90 percent in Khartoum State, among women with secondary and above education and among those living in the richest quintile of households. However, knowledge about prevention of HIV transmission was low across all age groups and by marital status, but varied by 15 percentage points by area and state of residence. As expected knowledge levels were highest among women who were more educated and from wealthier households.

The results for women aged 15-24 are separately presented in Table 12.2. The percentage of young women who have heard of AIDS was higher among women in the age group 20-24 years (79 percent) than that among women in the age group 15-19 years (75 percent). The difference was more pronounced by areas and State of residence. The percentage was 91 percent among women in urban areas compared to 69 percent in rural areas and ranging from 91 percent in White Nile State to 48 percent in West Darfur State. The percentage of young women who have heard of AIDS was higher among women who were never married (81 percent) than that among women who were ever married (70 percent). There were substantial differences when the education level of the
interviewed woman is considered. Of those who had no formal education, only 46 percent had ever heard of AIDS compared to 79 percent among women with primary education and 97 percent among women with secondary or higher level of education. The awareness of AIDS was also particularly low among women from households in the poorest quintile. The proportion of women who have heard of AIDS was only 53 percent among women from households in the poorest quintile compared to 95 percent among women belonging to households in the richest quintile.

The SHHS2 findings indicated no difference in the knowledge levels on the main ways of preventing HIV transmission among the older and younger women aged 15-24 years. Similar and significant variations by residence, education and wealth status of households were noted. In urban areas, knowledge on both ways of HIV transmission was 21 percent compared with only 12 percent in rural areas. Similarly, it was 25 percent among women with secondary or higher level of education and only six percent among women who had no formal education and 14 percent among women with primary education. The percentage of young women who knew both ways of HIV transmission ranged from 24 percent among those in the richest quintile to seven percent in the poorest quintile.

Table	e 12.1: Know	ledge about l	HIV transmis	sion, misconce	ptions about H	IV/AIDS, and	d comprehensi	ve knowledg	e about HIV transr	nission	
Percentage of wor	men age 15-4	49 years who	know the m	ain ways of pro	eventing HIV tr	ansmission,	percentage wh	o know that	a healthy looking	person can h	nave the
AIDS virus, p	ercentage w	ho reject con	nmon misco	nceptions, and	percentage wh	no have com	prehensive kno	owledge abo	ut HIV transmissio	n Sudan, 20	10
	Percentage	Percentage	who know	Percentage of	Percentage	Percentage v	vho know that H	IV cannot be	Percentage who	Percentage	
	who have	transmission	can be	women who	who know that	transmitted b	y:		reject the two most	with	
	AIDS	Having only	Ilsing a	know both ways	looking person	Mosquito	Supernatural	Sharing	misconceptions and	ive	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	one faithful	condom	, nays	can have the	bites	means	food with	know that a healthy	knowledge	
		uninfected	every time		AIDS virus		Charles and Advert	someone	looking person can	[1]	Number
		sex partner						with AIDS	have the AIDS virus		of women
Northern	88.0	73.1	21.9	20.0	36.0	65.1	71.9	66.4	21.4	6.7	351
River Nile	79.2	65.9	16.3	15.1	40.0	49.7	63.4	52.9	22.0	4.6	637
Red Sea	52.6	42.6	13.6	12.9	20.6	33.2	38.7	35.6	11.2	4.6	477
Kassala	63.4	39.7	10.8	9.5	22.7	34.6	42.3	39.6	14.5	4.0	1004
Gadarif	74.2	62.8	20.5	19.7	36.5	45.7	57.8	51.2	20.7	8.8	773
Khartoum	91.8	79.3	21.3	19.6	59.8	66.6	77.3	69.6	38.2	10.8	3005
Gezira	83.6	68.0	20.2	19.0	42.6	49.9	65.6	54.4	22.6	6.7	2791
White Nile	90.9	72.7	18.0	16.5	51.4	47.8	66.1	64.7	25.4	6.6	906
Sinnar	68.4	49.3	15.7	13.4	25.2	34.0	50.1	39.3	8.8	3.1	675
Blue Nile	52.9	43.5	12.5	12.0	20.1	25.0	38.6	34.6	9.8	3.8	566
North Kordofan	72.4	58.0	18.8	16.5	22.2	34.1	55.4	49.6	9.0	2.9	1765
South Kordofan	74.5	62.0	19.4	18.3	29.7	32.9	53.2	50.6	12.0	5.1	700
North Darfur	59.7	47.0	11.6	10.0	19.6	31.5	43.6	37.1	10.3	2.9	930
West Darfur	54.3	36.5	4.6	3.6	13.8	16.0	29.5	25.6	4.1	1.0	672
South Darfur	76.8	63.4	14.8	14.3	32.0	32.5	58.2	46.5	13.2	4.5	1923
Area of residence				1				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	and and a the state of the	at survey at 1	Charged a Ta
Urban	90.8	78.1	25.3	23.6	54.9	60.6	76.1	69.4	33.1	11.4	5842
Rural	69.2	53.7	13.0	11.8	26.5	34.6	49.8	42.1	12.2	3.0	11332
Age group			1	3					a su traduc		
15-24	76.4	61.8	16.8	15.4	36.2	46.2	60.5	53.1	19.9	5.3	6881
25-29	78.1	63.6	18.4	17.3	35.8	41.9	58.3	50.8	18.8	6.1	3176
30-39	76.2	62.1	17.6	16.1	36.5	42.1	58.3	51.4	19.5	7.2	4585
40-49	75.6	60.2	15.8	14.5	36.0	40.1	55.7	47.9	18.0	4.4	2533
Marital status			E.,			1					
Ever married	74.1	59.8	16.1	15.0	32.3	37.8	54.8	47.7	15.7	5.2	11977
Never married	82.1	66.8	19.5	17.7	45.1	56.3	68.1	60.1	27.6	7.4	5197

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Education level	. C. 1973	an Ann	n a gangangan ka gang Tariba	i		a da da d		a Chain M	n a shine a farmar a shi Ta a ta a a a a a a a a a		
None	55.6	39.1	7.6	6.6	16.6	18.7	31.7	26.3	4.3	.9	6062
Primary	83.9	69.2	16.7	15.7	35.7	45.4	65.3	57.2	16.4	4.2	5570
Secondary +	97.8	85.7	31.3	28.9	64.1	75.6	88.3	79.5	43.5	14.7	4803
Adult											
education/Khalwa	54.6	40.5	7.1	7.1	18.6	22.8	39.8	31.7	7.7	1.2	739
Sunday education			1							1	
Wealth index	an a	and a strange of the second strange of the second strange of the second strange of the second strange of the se	Sector Stable			antara di katalan di k Mana di katalan di kata					
quintile							재활전화하는				
Poorest	56.0	40.7	7.3	6.5	16.3	19.4	36.0	26.6	4.8	.8	3013
Second	58.6	42.3	9.5	8.5	16.1	22.4	37.4	32.7	5.4	1.5	3176
Middle	74.5	59.9	14.6	13.4	29.8	35.9	53.5	47.1	11.1	3.0	3375
Fourth	89.9	75.1	20.6	19.1	47.0	55.8	73.4	66.0	26.7	8.1	3604
Richest	96.0	83.4	29.7	27.7	62.6	73.4	84.1	75.6	41.5	13.5	4006
SUDAN (TOTAL)	76.6	62.0	17.2	15.8		43.4	58 8	51.4.	19.3	5.85	17174
<sup>[1]</sup> SHHS2 indicator 8.1				на на слити на продоктира и на собратите на собратите на собратите на собратите на собратите на собратите на с На сила сила на собратите на собр			an a				

Table 12.2: Knowle	dge about HI	V transmissio	on, misconcep	tions about	HIV/AIDS, an	d comprehen	sive knowled	ge about HIV	transmission amo	ng young peo	ople
Percentage of young wo	omen aged 1!	5-24 years wh	no know the r	nain ways of	preventing H	IV transmissi	on, percenta	ge who know	that a healthy loo	king person o	an have
the AIDS virus, pe	rcentage wh	o reject comr	non misconce	ptions, and	percentage w	ho have com	prehensive k	nowledge abo	out HIV transmissio	on, Sudan, 20	10
	Percentage who have heard of	Percentage transmiss preven	who know ion can be ted by:	Percentage of women who know	Percentage who know that a	Percentage who know that HIV cannot be transmitted by:			Percentage who reject the two most common	Percentage with compre-	Number of women
	AIDS	Having only one faithful uninfected sex partner	Using a condom every time	both ways	healthy looking person can have the AIDS virus	Mosquito bites	Super natural means	Sharing food with someone with AIDS	misconceptions and know that a healthy looking person can have the AIDS virus	hensive knowledge [1]	
State of residence											
Northern	86.9	70.3	14.8	13.8	35.0	64.3	72.2	65.7	20.8	4.3	117
River Nile	76.4	65.0	13.7	13.5	39.9	49.7	64.8	53.7	21.6	4.0	240
Red Sea	56.6	46.2	13.5	12.8	18.7	38.1	42.8	40.9	11.4	3.9	163
Kassala	65.1	40.2	12.9	10.7	25.3	39.9	46.7	44.8	18.5	4.6	367
Gadarif	72.7	62.3	20.9	20.6	34.2	47.3	59.8	51.9	19.6	9.1	332
Khartoum	91.2	76.8	16.9	15.5	56.8	70.8	78.8	68.2	38.2	8.3	1209
Gezira	83.8	68.8	20.2	18.8	41.9	52.4	67.5	54.8	22.2	5.4	1186
White Nile	91.4	71.5	18.8	16.8	51.6	50.7	68.1	69.4	29.1	7.9	365
Sinnar	69.6	50.3	13.9	12.5	26.8	37.3	52.1	42.5	8.7	1.8	293
Blue Nile	57.5	47.6	14.6	13.7	23.3	30.9	42.9	40.2	12.5	5.2	228
North Kordofan	71.3	58.2	19.6	17.2	24.0	37.6	56.5	52.7	11.0	3.6	725
South Kordofan	72.7	61.6	19.5	18.3	27.5	35.5	53.8	51.8	12.6	4.9	288
North Darfur	59.7	48.1	12.5	10.3	19.5	35.3	44.9	39.6	10.9	3.4	346
West Darfur	48.4	32.4	4.4	3.7	11.3	13.6	26.7	25.0	4.1	1.0	263
South Darfur	75.9	61.9	16.6	16.1	34.2	32.3	58.2	48.4	12.4	4.5	757
Area							1				이 옷을 못한
Urban	90.7	76.4	23.2	21.4	54.8	63.0	77.6	70.1	33.9	9.9	2393
Rural	68.8	54.0	13.4	12.2	26.2	37.3	51.4	44.1	12.5	2.9	4488
Age group	ter (and) a Chaile and an an			2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -			a da na an		and the second second		
15-19	74.5	58.8	14.3	13.2	34.3	47.1	59.4	51.4	19.5	4.3	3559
20-24	78.5	64.9	19.4	17.8	38.1	45.3	61.7	55.0	20.4	6.5	3321
Marital status					a a an		n <sup>N</sup> a au <sub>a</sub> n D a an an an	Strate - 12		a an a' a' a taon 2014 Santa an antara a	
Ever married	70.0	56.1	14.9	14.0	26.8	33.5	51.4	44.0	10.9	3.8	2844
Never married	80.9	65.7	18.1	16.4	42.8	55.2	67.0	59.6	26.3	6.4	4037

Education level											
None	46.2	31.5	6.6	5.8	12.8	15.6	24.8	22.0	2.6	.5	1616
Primary	78.5	62.8	14.1	13.2	30.7	40.7	59.1	50.4	12.5	2.8	2502
Secondary +	97.1	83.5	27.0	24.8	58.9	74.0	87.8	78.7	40.0	11.5	2507
Adult education/Khalwa education	44.2	30.0	6.5	6.3	13.4	20.9	32.9	25.7	5.6	.7	255
Wealth index quintiles	2.00	C.18233000					{				
Poorest	53.2	39.4	8.3	7.1	17.7	21.4	35.7	29.1	5.8	.8	1047
Second	57.7	42.4	10.8	10.1	15.5	24.2	38.3	35.8	5.5	2.0	1288
Middle	75.2	60.6	14.7	13.5	29.9	40.1	56.5	49.6	12.3	3.1	1450
Fourth	89.9	74.2	20.9	19.0	47.8	58.1	75.1	66.2	27.1	7.6	1545
Richest	95.4	81.7	25.3	23.7	60.1	75.2	84.9	74.0	41.4	10.9	1551
SUDAN (TOTAL)	76.4	61.8	16.8	15.4	36.2	46.2	60.5	53.1	19.9	5.3	6881
<sup>[1]</sup> SHHS2 indicator 8.2,		1000	19 August Barry		- Martine - Carlos	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			a second a second	a de la composición d	Market State

Table 12.1 and 12.2 also present the percentage of women who can correctly identify common misconceptions concerning HIV. The indicator is based on the two most common and relevant misconceptions that HIV can be transmitted by supernatural means and by sharing food with someone with AIDS. The table provides information regarding the percentage of women who know that HIV cannot be transmitted by mosquito bites.

Of the interviewed women, 19 percent reject the two most common misconceptions and know that a healthy-looking person can be infected. Fifty nine percent of women know that HIV could not be transmitted by supernatural means, and 51 percent of women know that HIV could not be transmitted by sharing food with someone with AIDS, while 36 percent of women know that a healthy-looking person can be infected.

Among the younger age group of 15-24 years, 61 percent of them knew that HIV could not be transmitted through supernatural means. About 53 percent of them knew that HIV could not be transmitted by sharing food with someone with AIDS. The proportion of women aged 15-24 years who rejected the two most common misconceptions and knew that a healthy looking person could have the AIDS virus was 20 percent.

In the SHHS2, marital status needs to be considered as only 11 percent ever married women rejected the two most common misconceptions and knew that a healthy looking person could have the AIDS virus whereas this was 24 percent among women who were never married. Education also plays a key role as SHHS2 found that only 3 percent of with no formal education compared to 13 percent among women with primary education and 40 percent among women with secondary or higher level of education had the correct knowledge. Stark differences were noted among young women from rural areas (13 percent) and urban areas (34 percent) and among poorer households (6 percent) compared to women from the richer household (41 percent). State level variations were also significant which ranged from 4 percent in West Darfur State to 38 percent in Khartoum State.

#### Comprehensive knowledge about HIV prevention and transmission

Women who have comprehensive knowledge about HIV prevention and transmission include those who know of the two ways of HIV prevention (having only one faithful uninfected partner and using a condom every time), who know that a healthy looking person can have the AIDS virus, and who reject the two most common misconceptions. Comprehensive knowledge of HIV prevention is still very low, although there are differences by residence and background characteristics. Overall, only 6 percent of women were found to have comprehensive knowledge of HIV prevention, which was higher among women in urban areas (11 percent) than among women in rural areas (3 percent). State level data ranges from one percent in West Darfur to 11 percent in Khartoum State.

Overall, only 5 percent of women aged 15-24 years had comprehensive knowledge about HIV prevention. The proportion of women who had comprehensive knowledge about HIV prevention was highest among women in the age groups 20-24 years and 30-39 years (7 percent) and lowest among women in the age groups 15-19 years and 40-49 years (4 percent).

Comprehensive knowledge about HIV prevention was somewhat higher among women who were never married (7 percent) compared to their ever married counterparts (5 percent). Comprehensive knowledge was correlated to the woman's educational level and household wealth. Around one percent of women who did not have formal education had comprehensive knowledge about HIV prevention compared to 4 percent among women with primary education and 15 percent among those with secondary or higher level of education. The proportion of women who had comprehensive knowledge about HIV prevention and transmission was one percent among women from households in the poorest quintile compared to 14 percent among women from households in the richest quintile.

Figure 12.1: Comprehensive knowledge about HIV prevention among women aged 15-49 years: Percentage of women age 15-49 years with comprehensive knowledge about HIV prevention, Sudan, 2010



# Knowledge of mother-to-child transmission of HIV

Knowledge of mother-to-child transmission of HIV is also an important first step for women to seek HIV testing when they are pregnant to avoid infection in the baby. Women should know that HIV can be transmitted during pregnancy, delivery, and through breastfeeding. The level of knowledge among women age 15-49 years concerning mother-to-child transmission is presented in Table 12.3.

Overall, 60 percent of women aged 15-49 years knew that HIV could be transmitted from mother to child. About 52 percent of women knew that HIV could be transmitted from mother to child during pregnancy; 47 percent of women knew that HIV could be transmitted from mother to child during delivery; and 43 percent of women knew that HIV could be transmitted from mother to child by breastfeeding. The percentage of women who knew all three ways of mother-to-child transmission (i.e. HIV can be transmitted during pregnancy, during delivery, and by breastfeeding) was 33 percent, while 16 percent of women did not know of any of the specific means.

The proportion of women who know that AIDS can be transmitted from mother to child was higher among the group 15-24 years (62 percent) than that among those aged 25 years and above (59 percent). However, the highest level of awareness was among the age group 20-24 years (64 percent) and lowest among women in the age group 40-49 years (58 percent). Looking at the marital status of the respondents, there were some differences among women ever married (31 percent) and for those never married (37 percent).

Similarly, the proportion of women who knew all three ways of HIV transmission from mother to child vary significantly by residence, the proportion being 28 percent among women from rural areas and 41 percent among those from urban areas. The proportion of women who did not know any specific way to prevent HIV transmission from mother-to-child was 18 percent among women from

rural areas compared to 14 percent among those from urban areas. Substantial variations are also noted by State of residence, ranging from 39 percent in West Darfur to 77 percent in Khartoum State

The proportion of women aged 15-49 years who knew that HIV can be transmitted from mother to child appears to increase with the woman's education level, the proportion being 36 percent among women with no formal education compared to 67 percent among those with primary education and 87 percent among women with secondary or higher level of education.

The proportion of women aged 15-49 years who know that AIDS can be transmitted from mother to child also increases with household wealth, the proportion being 38 percent among women from households in the poorest quintile and 84 percent among those from households in the richest quintile.

	Table12.3: K	nowledge of	f mother-to	o-child HIV trans	mission		
Percentage of wom	en age 15-49 ye	ars who cor chilo	rectly ident I, Sudan, 20	ify means of HIN 010	V transmiss	ion from m	other to
anna an	Percentage	Percent wh	o know HIV a	can be transmitted	ł:	Does not	Number
	who know HIV can be transmitted from mother to child	During pregnancy	During delivery	By breastfeeding	All three means <sup>[1]</sup>	know any of the specific means	of women
State of residence							2. A 3100 - 4
Northern	72.8	64.3	49.3	55.1	37.2	15.2	351
River Nile	61.3	54.8	49.4	38.9	31.4	17.9	637
Red Sea	40.4	33.8	28.3	23.1	15.7	12.2	477
Kassala	44.3	39.7	36.4	34.1	27.0	19.0	1004
Gadarif	58.1	50.1	46.9	38.5	29.7	16.1	773
Khartoum	76.7	70.5	62.1	50.6	42.6	15.1	3005
Gezira	67.6	52.6	50.6	43.8	30.5	16.0	2791
White Nile	76.2	64.5	56.4	54.6	38.6	14.7	906
Sinnar	53.9	45.7	40.1	41.5	30.1	14.5	675
Blue Nile	40.1	33.1	32.4	31.0	22.9	12.8	566
North Kordofan	57.4	51.1	45.7	47.8	37.8	15.0	1765
South Kordofan	52.4	43.9	40.7	40.4	29.4	22.1	700
North Darfur	39.5	31.9	28.6	28.3	20.0	20.2	930
West Darfur	39.1	33.3	32.6	30.2	24.0	15.2	672
South Darfur	59.4	50.2	46.0	48.0	34.9	17.4	1923
Area of residence							
Urhan	77.0	69.0	61.4	51.5	41.4	13.8	5842
Rural	51.7	42.8	39.5	38.7	28.1	17.5	11332
	31.7	+2.0					
15-24	61.6	52.6	47.1	45.3	33.7	14.8	6881
25+	59.0	51.0	46.8	41.6	32.0	17.0	10293
15-19	59.4	50.6	15.0	41.0	32.0	14.6	3559
20-24	63.5	54.8	49.5	45.2	34.1	15.0	3325
25 20	60 E	54.0 E1 E	40.4	43.5	226	17.6	2176
20-20	50.J	51.5	47.4	45.1	21.5	16.9	1595
10-19	59.4	51.1	40.2	20.8	32.5	17.0	2522
Marital status	50.2	21.1	47.5			17.4	2333
Ever married	56.6	195	11 1	40.8	31.0	175	11077
Never married	68.8	50.0	53.4	40.8	36.5	12.2	5197
Education level	00.0	55.0		40.5			
None	36.4	21.0	28.0	29.5	22.1	10.2	6062
Primany	50.4 66 F	51.0	20.0 E1 A	19.5	26.1	17.4	EE70
Secondary +	86.6	75.0	69.5	55.7	13.4	11.2	1803
Adult aducation/	80.0	13.0			45.4		4005
Khalwa/Sunday	38.8	22.2	28.4	30.7	217	15.8	739
education	50.0	JZ.2	20.4	50.7	21.7	10.0	155
Wealth index quintile	<u></u>				<u>8, 6,</u>		
Poorest	275	31.5	28.0	30.9	22.0	18 5	3013
Second	40.5	32.1	20.0	22.1	22.0	18.1	3176
Middle	58.2	10.2	16.2		23.0	16.1	3375
Fourth	77 5	61 7	56.6	50.2	33.0	17.4	3604
Richest	82.0	71.0	65.7	57.9	/11 2	17.4	4006
		(40)	02.7	.14.0	71.0	+4.1	-1000

Figure 12.2: Knowledge of mother-to-child transmission of HIV: Percentage of women aged 15-49 years who correctly identify all three means of mother-to-child transmission of HIV, Sudan, 2010



# Accepting Attitudes toward People Living with HIV/AIDS

The indicators on attitudes toward people living with HIV measure stigma and discrimination in the community. Stigma and discrimination are low if respondents report an accepting attitude on the following four questions: 1) would care for family member sick with AIDS; 2) would buy fresh vegetables from a vendor who was HIV positive; 3) thinks that a female teacher who is HIV positive should be allowed to teach in school; and 4) would *not* want to keep HIV status of a family member a secret.

Table 11.7 presents the attitudes of women towards people living with HIV/AIDS. The SHHS2 found that 90 percent of women who have heard of AIDS agree with at least one discriminatory statement. The most common discriminative attitude is rejection of buying fresh vegetables from a person who has AIDS (70 percent). The most accepting attitude is caring for an HIV infected family member in their own home: 69 percent of women who heard of AIDS indicate that they would do that. Believing that a teacher living with HIV and who is not sick should be allowed to teach is accepted by 46 percent of women who heard of AIDS. Less than half of the women would not want to keep secret that a family member got infected with the AIDS virus Overall, only eight percent of women who heard of AIDS expressed an accepting attitude for all four scenarios which were found to be correlated to increasing educational level of the women and the household wealth. The proportion of women who expressed accepting attitudes on all four indicators was only two percent among women with no formal education compared to 7 percent among those with primary education and 14 percent among women with secondary or higher level of education. The proportion of women who expressed accepting attitudes on all four indicators was three percent among women from households in the poorest quintile compared to 11 among those from households in the richest quintile and ranged from four percent in West Darfur to 13 percent in Red Sea State.

Table 12.4: Accepting attitudes toward people living with HIV/AIDS									
Percentage of wome	n aged 15-49	years who hav	e heard of AIDS	5 who express	an accepting	attitude tow	ards people		
	Percent of	women who:	ith HIV/AIDS, SI	udan, 2010			Number of		
	Are	Would buy	Believe that a	Would not	Agree with	Express	women who		
	willing to	fresh	female	want to	at least	accepting	have herd of		
	care for a	vegetables	teacher with	keep secret	one	attitudes	AIDS		
	family	from a	the AIDS	that a	accepting	on all four			
	member	shopkeeper	virus and is	family	attitude	indicators			
	with the	or vendor	not sick	member		[1]			
	AIDS	who has the	should be	got infected					
	virus in	AIDS virus	allowed to	with the					
	own		continue	AIDS virus					
	home		teaching						
State of Residence		a ", a su <sub>1</sub> ,	e 2 <sup>92</sup> why here is		$\frac{1}{2} = \frac{1}{2} \left[ \frac{1}{2} \frac{1}{2}$		· · · · · · · · ·		
Northern	55.8	29.7	47.0	65.8	94.8	9.2	309		
River Nile	77.2	33.4	44.8	41.5	90.5	10.0	504		
Red Sea	57.4	41.8	48.7	48.0	85.9	12.8	251		
Kassala	53.7	30.2	45.3	35.5	79.9	6.5	636		
Gadarif	74.5	31.2	51.7	44.7	92.0	11.0	573		
Khartoum	64.5	38.0	56.6	36.9	92.0	7.7	2759		
Gezira	75.7	30.3	52.3	36.9	89.1	11.5	2334		
White Nile	73.6	30.8	45.3	45.4	91.4	11.4	824		
Sinnar	53.2	27.0	38.3	48.7	87.0	6.7	462		
Blue Nile	53.0	27.3	41.9	51.8	86.4	6.5	300		
North Kordofan	64.5	23.5	36.0	49.3	89.8	4.3	1277		
South Kordofan	64.2	26.3	35.5	60.2	92.7	7.7	522		
North Darfur	65.1	17.8	25.7	42.6	84.1	4.2	555		
West Darfur	62.2	20.7	26.7	38.8	82.3	3.7	365		
South Darfur	63.7	22.7	38.4	55.7	92.2	7.9	1477		
Area of residence						1	a 2		
Urban	66.6	37.3	55.7	42.6	92.2	9.4	5308		
Rural	66.1	24.5	38.6	45.1	88.0	7.5	7839		
Age group				8			,		
15-24	67.0	31.8	49.1	44.0	90.9	8.7	5259		
25+	65.9	28.2	43.2	44.1	88.9	8.0	7888		
15-19	65.8	30.2	48.0	44.9	91.3	8.2	2650		
20-24	68.2	33.5	50.1	43.0	90.6	9.2	2609		
25-29	65.9	28.8	44.3	43.8	88.8	8.3	2481		
30-39	64.9	28.8	43.8	44.3	88.8	7.7	3491		
40-49	67.6	26.4	40.5	44.3	89.1	8.0	1916		
Marital status			· · · · · · · · · · · · · · · · · · ·	e * 182					
Ever married	64.7	26.1	40.8	44.1	88.0	6.6	8880		
Never married	69.8	37.2	55.4	44.0	93.2	11.7	4267		
Education level									
None	57.8	13.9	23.6	46.2	82.9	2.4	3370		
Primary	65.7	26.9	43.4	44.4	89.7	7.2	4674		
Secondary +	/3.9	44.5	64.5	42.3	95.0	13.8	4700		
Adult education/	500	20.2	22.7	42.0	04.1	5.4	402		
Khalwa Sunday	56.3	20.2	32.7	43.8	84.1	5.4	403		
Woolth index quintil									
vearent muex quintiles	C1 4	14.0	20.0	16.5	0E 1	2.6	1697		
Fourest	51.4	14.4	20.0	40.5	1.C5	2.0	1963		
Aliddia	55.8		27.2	49.0	04.8	2.3	2602		
Fourth	60.4	20.1	50.7	47.3	07.0	0.2	2320		
Richast	71.0	J4.4 A1.7	50.0	20.2	9Д 1	10.8	3235		
SUDAN (TOTAL)	66.2	70.7	00.9 AS 5	AA 1	89.7	10.0	131/17		
	0.0	23.1		77+2					

Figure 12.3: Accepting attitudes toward people living with HIV/AIDS Percentage of women aged 15-49 years who have heard of AIDS and who express accepting attitudes towards people living with HIV/AIDS (accepting attitudes on four indicators, Sudan, 2010



## Knowledge of a Place for HIV Testing

Another important indicator is the knowledge of where to be tested for HIV and use of such services. In order to protect themselves and to prevent infecting others, it is important for individuals to know their HIV status. Knowledge of one's status is also a critical factor in the decision to seek treatment. Questions related to knowledge among women of a facility for HIV testing and whether they have ever been tested is presented in Table 11.9.

Overall, 14 percent of women age 15-49 years knew of a place for HIV testing though only 3 percent have actually been tested, and around one percenthave been tested in the last 12 months preceding SHHS2of and have been told the result.

The percentage of women age 15-49 years who knew a place to get tested for HIV was higher among women in urban areas (26 percent) than among those in rural areas (8. percent) and among women in the age group 30-34 years (17 percent) and lowest among women in the age group 15-19 years (11 percent).

The proportion of women age 15-49 years who knew a place for HIV testing appears to increase with the increasing level of household wealth. The proportion of women who knew a place to get tested was only 4 percent among women from households in the poorest quintile compared to 29 percent among those from the households in the richest quintile. The percentage of women age 15-49 years who knew a place to get tested ranged between 8 in Blue Nile and West Darfur States and 25 percent in Khartoum State.

1 5/25/25/25/25/25/26/0	Table12.5: Kno	wledge of a place	ce for HIV testing	3	
Percentage of women a	ge 15-49 years who	o know where to	o get an HIV test	, percentage of wo	men who
have ever been test	ed, percentage of v	women who hav	e been tested in	the last 12 month	s, and
percentage of wi	omen who have be	en tested and h	ave been told th	e result, Sudan, 20	10
	Percentage of	women who:	r	T	Number
	Know a place	Have ever	Have been	Have been	of
	to get tested	been tested	tested in the	tested and	women
			last 12	have been told	
State of residence			montins	result	
Northern	15.3	10	0.2	0.2	351
River Nile	13.5	1.0	0.2	0.2	637
Red Sea	11.0	1.0	0.5	0.4	177
Kassala	10.4	2.0	0.5	0.1	1004
Gadarif	10.4	2.0	0.8	0.0	772
Khartoum	24.9	6.0	2.1	1.4	2005
Gozira	125	6.5	0.2	0.1	2701
Wita Nilo	12.5	1.0	0.2	0.2	2/91
Sinnar	10.0	1.0	0.4	0.5	900
Dhuo Milo	15.5	.8	0.2	0.1	675 FCC
North Kerdefor	8.1	.9	0.5	0.1	500
North Kordofan	9.6	1.9	1.1	0.5	1765
	9.5	1.4	0.9	0.5	700
	8.9	2.1	1.1	0.7	930
west Dalitur	8.1	3.0	1.4	0.6	672
South Dartur	14.0	1.6	0.6	0.5	1923
Area of residence					
Urban	26.1	5.3	1./	1.0	5842
Rural	8.4	1.0	0.5	0.3	11332
Age group					2 <sup>1</sup> 41
15-19	11.1	1.4	0.5	0.4	3559
20-24	14.4	2.0	0.6	0.3	3321
25-29	14.4	2.9	1.2	0.5	3176
30-34	17.4	3.0	1.2	0.7	2139
35-39	15.9	3.0	1.3	0.9	2446
40-44	16.1	3.3	0.6	0.5	1466
45-49	13.7	3.1	1.2	1.1	1067
Marital status		19 - andra <sub>and</sub> a' a b A			
Ever married/in union	14.1	3.1	1.1	0.7	11977
Never married/in union	15.1	1.0	0.3	0.3	5197
Wealth index quintile			dist is		
Poorest	3.9	.5	0.2	0.1	3013
Second	5.0	1.0	0.6	0.4	3176
Middle	10.7	1.6	0.8	0.5	3375
Fourth	18.6	3.5	1.7	1.0	3604
Richest	29.1	5.0	1.0	0.6	4006
SUDAN (TOTAL)	14.4	2.5	0.9	0.5	17174

<sup>[2]</sup> SHHS2 indicator 8.10

Figure 12.4: Knowledge of a place for HIV testing: Percentage of women age 15-49 years who state that they know a place to be tested for HIV, Sudan, 2010



# XIII. Food Security

The SHHS2 included some key indicators required to assess the situation in regard to food security of population in Sudan. The key topics covered by the SHHS2 included the food sources, dietary diversity, food consumption patterns, food security and food insecurity, and food insecurity by income sources. The key SHHS2 indicators relating to food security include the following:

- Food consumption status: The proportion of households with poor, borderline and acceptable/adequate food consumption score;
- Food security status: The proportion of food secure households;
- Food insecurity status: The proportion of moderately and severely food insecure households;

## **Food sources**

Table 13.1 indicates the food sources of people in Sudan. It indicates the proportion of households which rely on own production of food items such as Sorghum, Millet, Wheat/Bread, Eggs and Milk as well as the proportion of households that rely on the market as the main source for these food items. The SHHS2 data shows that the majority of the households in Sudan rely on the market as the main food source, though the proportion of households that rely on own production of food items and those who rely on the market vary among States. The proportion of households which rely on own production of Sorghum ranged between zero percent in Red Sea State to 40 percent in South Kordofan State while the proportion of households which relied on the market for Sorghum ranged between 57 percent in North Darfur State to 99 percent in Red Sea and Khartoum States.

	Table 13.1: Food sources										
	Sorghum		Millet		Wheat/Bread		Eggs		Milk		
	Own production	Market purchase	Own production	Market purchase	Own production	Market purchase	Own production	Market purchase	Own production	Market purchase	
Northern	11	87	6	91	13	87	19	80	21	79	
River Nile	6	92	0	100	2	97	12	87	46	52	
Red Sea	0	99	1	99	1	99	5	95	20	79	
Kassala	13	85	7	93	4	95	15	84	21	78	
Gadarif	15	84	16	82	1	99	28	72	19	80	
Khartoum	1	99	0	100	0	99	1	99	2	97	
Gezira	21	73	5	95	1	98	15	85	20	79	
White				20.000							
Nile	13	86	4	95	0	100	13	86	11	88	
Sinnar	19	80	30	68	1	99	22	76	15	83	
Blue Nile	34	65	41	57	1	98	35	63	35	64	
N. Kordofan	10	88	15	84	1	99	31	67	46	53	
S. Kordofan	40	59	34	65	2	98	45	55	38	61	
North Darfur	22	57	29	69	0	98	36	62	32	67	
West Darfur	12	67	27	70	1	93	11	85	24	73	
South Darfur	20	79	32	68	1	99	35	65	36	64	

The proportion of households which rely on own production of Millet ranged between zero percent in River Nile State to 41 percent in Blue Nile State while the proportion of households which relied on the market for Millet ranged between 57 percent in Blue Nile State to 100 percent in River Nile and Khartoum States.

The proportion of households which rely on own production of Wheat/Bread ranged between zero percent in Khartoum, White Nile and North Darfur States to 13 percent in Northern State while the proportion of households which relied on the market for procurement of Wheat/Bread ranged between 87 percent in Northern State to 100 percent in White Nile State.

The proportion of households which rely on own production of eggs ranged between 1 percent in Khartoum State to 45 percent in South Kordofan State while the proportion of households which relied on the market for eggs ranged between 63 percent in Blue Nile State to 100 percent in White Nile State.

The proportion of households which rely on own production of milk ranged between 2 percent in Khartoum State to 46 percent in River Nile and North Kordofan States while the proportion of households which relied on the market for milk ranged between 53 percent in North Kordofan State to 97 percent in Khartoum State.

# Food Consumption Patterns and Dietary Diversity

Diets in Sudan are diverse, linked in large part to its climatic conditions and resource base. The main dietary sources for people in Sudan includes cereal, sugar, oil, milk, meat, pulses, vegetables, fruits and eggs. Though the main staples of the Sudanese diet are sorghum and millet, in certain areas, especially in pastoral areas, there is a significant amount of meat and milk consumed as well.

The SHHS2 data indicated that the urban households had a more diversified diet than rural households (Figure 13.1).



Figure 13.1: Dietary diversity by area of residence, Sudan, 2010

The SHHS2 data also indicated that the dietary diversity increases with increasing household wealth. The population living in households in the poorest quintile has a limited diet compared to households in the richest quintile (Figure 13.2).



Figure 13.2: Dietary diversity by household wealth quintiles, Sudan, 2010

## Household food consumption score

Studies have shown that there is a significant correlation between diet diversity and nutrient adequacy, children's and women's anthropometry and socio-economic status (Ruel, 2003)<sup>12</sup>. The World Food Programme (WFP), building on this work, has created a custom dietary diversity tool intended to capture different consumption patterns, in terms of both the number and frequency of food groups consumed.

The "food consumption score" is calculated by examining the number of times certain foods (grouped into basic food groups) are eaten in the seven days preceding the survey and then weighting them by approximate nutrient density values. The food categories created and their corresponding weights are shown in Table 13.2.

Table 13.2: Nutrient density values by basic food groups/category, Sudan, 2010								
Basic food group or food category	Weighting value							
Cereals and tubers (sorghum, millet, maize, cassava, yams and sweet potato)	2							
Pulses (beans, sesame, groundnuts)	3							
Meats (beef, poultry, fish, eggs and wild game)	4							
Milk/ milk products (ghii)	4							
Fruits and vegetables (leaves, fruits and greens)	1							
Oil and fat	0.5							
Sugar	0.5							

The food consumption (FC) score was calculated as follows:

FC score= (number of time cereal eaten\*2) + (number of time pulses eaten\*2) + (number of times meats eaten\*4) + (number of time dairy eaten\*4) + (number of times veggies eaten\*1) + (number of times fruits eaten\*1) + (number of times oil eaten\*0.5) + (number of time sugar eaten\*0.5)

It may be noted that the number of times any particular item was eaten was capped at 7 per week. This calculation provides each household a food consumption score, ranging up to 112. Households are then categorized into three food consumption groups according to their score: Poor food consumption, borderline food consumption, and acceptable food consumption. The thresholds are set at 21 and 35, where below 21 is considered to be poor, and more than 35 acceptable.

It may be noted that the above classification is a snapshot of the food consumption situation at the moment of the data collection and it cannot be considered representative of what households consume at other times of the year. Given livestock migration and agricultural patterns as well as the fluid security situation, the proportion of households in different food consumption groups in Sudan is likely to vary depending on both time of year and what is actually happening on the ground at the time of the survey.

#### Food consumption situation

Table 13.3 indicates the food consumption situation in different States of Sudan. The overall food consumption situation in Sudan is good. About 9 out of ten (90 percent) of the households in Sudan have acceptable food consumption score.

<sup>&</sup>lt;sup>12</sup>Ruel M., 2003. Operationalizing dietary diversity: a review of measurement issues and research priorities. Journal of Nutrition 133:3922S-3926S.

	Table 13.3: Food consumption situation									
Percent distribution of households according to food consumption score (poor, borderline and acceptable										
food consumption score), Sudan, 2010										
State	Food consumption score									
			Households with							
	Households with poor	Households with	acceptable food							
	food consumption score	borderline food	consumption score (%)							
	(%)	consumption score (%)	[1]							
Northern	0.7	1.0	98.3							
River Nile	0.0	0.9	99.1							
Red Sea	9.4	5.7	85.0							
Kassala	6.7	4.0	89.3							
Gadarif	2.4	7.1	90.5							
Khartoum	0.7	2.3	97.0							
Gezira	0.9	2.7	96.3							
White Nile	0.9	4.0	95.1							
Sinnar	2.2	7.1	90.6							
Blue Nile	3.3	14.9	81.8							
North Kordofan	5.9	10.5	83.5							
South Kordofan	4.8	11.4	83.9							
North Darfur	9.2	9.9	80.9							
West Darfur	6.8	16.7	76.6							
South Darfur	3.0	8.2	88.7							
SUDAN (TOTAL)	3.5	6.6	89.9							
SHHS2 indicator 10.1										

The proportion of households that had an acceptable food consumption score ranged between 77 percent in West Darfur and 99 percent in River Nile State. More than 95 percent of the households had an acceptable food consumption score in states such as River Nile (99 percent), Northern (98.3 percent), Khartoum (97 percent), Gezira (96 percent) and White Nile (91 percent). The proportion of households with acceptable food consumption score was over 90 percent in the States of Gadarif and Sinnar(91 percent). The percentage of households with acceptable food consumption score ranged between 85 and 90 in the States of Red Sea (85 percent), South Darfur (89 percent), and Kassala (89) while it ranged between 80 and 85 percent in the States of South Kordofan and North Kordofan (84 percent), , Blue Nile (82 percent) and North Darfur (81 percent). The percentage of households with acceptable food consumption score was below 80 in the State of West Darfur (77 percent).



Figure 13. 3: Food consumption situation: Percentage of households with acceptable food consumption score, Sudan, 2010

The SHHS2 data also indicated that the proportion of households that had a borderline food consumption score was 7percent. The percentage of households that had a borderline food consumption score ranged between one percent in River Nile State and 17 percent in West Darfur State. The States which had a relatively higher proportion of households with borderline consumption score included West Darfur State (17 percent), Blue Nile (15percent), South Kordofan (11 percent) and North Kordofan (11percent). The States which had a relatively lower proportion of households with borderline consumption score included River Nile and Northern (one percent), Khartoum (2 percent) and White Nile (3percent).

The SHHS2 data indicated that the proportion of households that had a poor food consumption score was 4percent. The percentage of households that had a poor food consumption score ranged between zero percent in River Nile State and 9percent in Red Sea State. The States which had a relatively higher proportion of households with poor consumption score included Red Sea State and North Darfur (9 percent), West Darfur and Kassala (7 percent) and North Kordofan (6percent). The States which had a relatively lower proportion of households with poor consumption score included Red Sea State and River Nile (zero percent), Northern, Khartoum, Gezira and White Nile (1percent).

30% 25% Borderline Poor 20% 15% 10% 5% 0% Gadarif Kassala **River Nile** Sinnar South Kordofar Wite Nile Blue Nile North Kordofar North Darfui Red Sea Khartoun Northern Gezira South Darfu West Darfur

Figure 13.4: Food consumption pattern: Percentage of households with poor and borderline food consumption score, Sudan, 2010

# Food security situation

In this assessment, food security is an indicator based on two variables: food consumption and relative expenditure on food. In the latter indicator, less than 65 percent of total monthly expenditure on food is regarded as good and over 65 percent is poor where any changes in food prices could have a detrimental outcome.

Table 13.5 indicates the food security status of households in different States of Sudan. It indicates the percentage of households that are food secure, moderately food insecure and severely food insecure in different states of Sudan.

# Food secure households

The SHHS2 data indicates that overall, the food security situation in Sudan is good. About 91.7 percent of the households are food secure while about 5.0 percent of the households are moderately food insecure and 3.4 percent of the households are severely food insecure. The percentage of food secure households ranged between 79.9 percent in West Darfur State to 99.6 percent in River Nile State.



Figure 13. 5: Food security status: Percentage of households that are food secure, Sudan, 2010

More than 95 percent of the households were food secure in States such as River Nile (100percent), Northern (99 percent), Khartoum (98 percent), Gezira (97percent) and White Nile (96 percent). The proportion of food secure households was over 90 percent in the States of Sinnar and Gadarif(93 percent, Kassala and South Darfur (91 percent). The percentage of households that was food secure ranged between 85 and 90 in the States of Red Sea (88 percent), Blue Nile (87 percent), South Kordofan (86 percent), and North Kodofan (85 percent) while it ranged between 80 and 85 percent in the State of North Darfur (83percent) and 80 percent in the State of West Darfur.

Tab	le 13.5: Food security stat	us	
Percentage of households that are food	l secure, moderately food Sudan, 2010	insecure and severely t	ood insecure,
	Severely food	Moderately food	
	insecure	insecure	Food secure
State of residence			
Northern	0.4	0.8	98.8
River Nile	0.0	0.4	99.6
Red Sea	9.3	3.1	87.6
Kassala	6.8	2.2	91.0
Gadarif	2.4	5.1	92.5
Khartoum	0.5	1.6	98.0
Gezira	0.9	2.2	96.8
White Nile	0.8	2.8	96.4
Sinnar	1.8	5.0	93.2
Blue Nile	3.5	9.1	87.4
North Kordofan	5.8	8.9	85.3
South Kordofan	4.6	9.9	85.5
North Darfur	9.4	7.7	82.9
West Darfur	7.0	13.1	79.9
South Darfur	3.1	6.1	90.8
Sex of household head			
Male	3.1	4.4	92.5
Female	5.0	7.4	87.6
Area of residence			
Urban	0.9	2.4	96.7
Rural	4.5	6.0	89.5
Main income source of household			
Agriculture	5.7	12.1	82.2
Livestock	2.4	3.9	93.7
Remittances	3.7	7.4	88.9
Wage Labour	4.1	6.1	89.8
Salaries	1.6	2.8	95.6
Small Business	1.9	4.0	94.1
Firewood/Charcoal	14.3	9.0	76.7
Other	3.6	3.1	93.3
Education level of household head			
None	4.6	6.2	89.1
Primary	2.2	3.8	94.0
Secondary +	1.0	2.2	96.8
Wealth index quintiles			
Poorest	7.3	8.6	84.0
Second	5.9	9.0	85.1
Middle	2.4	4.2	93.4
Fourth	0.6	1.6	97.8
Richest	0.1	0.6	99.3
SUDAN (TOTAL)	3.4	5.0	91.7

The percentage of food secure households was higher among households whose main source of income was salaries (96percent), small business (94 percent), and livestock (94percent) than that for household whose main source of income was labour (90percent), remittances (89 percent) and agriculture (82 percent) and lowest among households whose main sources of income came from selling firewood/charcoal.

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The percentage of food secure households was higher among those in urban areas (97 percent) than that in rural areas (90percent). The percentage of food secure households was higher for male-headed households (93percent) than that for female-headed households (88percent). The percentage of food secure households showed increasing trend with increasing level of education of the household head. The percentage of food secure households was lower among households which had household head with no formal education (89 percent) compared to those households whose household head had primary education (94 percent) and households whose household head had secondary or higher level of education (97percent).

Figure 13. 7: Food security situation: Percent distribution of food secure households according to background characteristics, Sudan, 2010



The percentage of food secure households showed increasing trend with increasing level of household wealth. The percentage of food secure households increased from 84 percent in the case of households in the poorest quintile to 85 percent for households in the second wealth index quintile, 93 percent for households in the middle wealth index quintile, 98 percent for households in the fourth wealth index quintile and 99 percent for households in the richest quintile.

#### Moderately food insecure households

The SHHS2 data indicated that the proportion of moderately food insecure households was five percent. The percentage of moderately food insecure households ranged between less than one percent in River Nile State and 13 percent in West Darfur State. The States which had a relatively higher proportion of proportion of moderately food insecure households included West Darfur (8 percent), North Kordofan and Blue Nile (9 percent), South Kordofan (10percent) and West Darfur (13 percent). The States which had a relatively lower proportion of proportion of moderately food insecure households included River Nile (less than one percent), Northern (1 percent), Khartoum, Kassala and Gezira (2 percent) and White Nile (3percent).

The proportion of moderately food insecure households was lower among those in urban areas (2 percent) than among those in rural areas (6 percent). The proportion of moderately food insecure households was higher for female-headed households (7 percent) than that for male-headed households (4 percent). The proportion of moderately food insecure households showed a decreasing trend with increasing level of education of the household head. The the proportion of moderately food insecure household head with no formal education (6 percent) compared to those households whose household head had primary education (4 percent) and households whose household head had secondary or higher level of education (2 percent). The proportion of moderately food insecure household head had primary education (2 percent) and households whose household head had secondary or higher level of education (2 percent). The proportion of moderately food insecure households also showed a decreasing trend with increasing level of household wealth. The proportion of moderately food insecure households decreased from nine percent in the case of households in the poorest quintile to four percent for households in the middle wealth index quintile, two percent for households in the fourth wealth index quintile and to one percent for households in the richest quintile.

The proportion of moderately food insecure households was lower among households whose main source of income was salaries (3 percent), livestock and small business (4 percent) than that for household whose main source of income is wage labour (6 percent), remittances (7 percent) and firewood/charcoal (9 percent) and highest among households whose main sources of income came agriculture (12 percent).



Figure 13.8: Moderately and severely food insecure households: Percentage of moderately and severely food insecure households, Sudan, 2010

# Severely food insecure households

The SHHS2 data indicated that the proportion of severely food insecure households in Sudan was three percent. The proportion of severely food insecure households ranged between zero percent in River Nile State and nine percent in North Darfur State.



In addition to North Darfur State, the States which had a relatively higher proportion of severely food insecure households included North Kordofan (6percent), Kassala and West Darfur (7 percent), and Red Sea (9 percent). In addition to River Nile State, the States which had a relatively lower proportion of severely food insecure households included Northern (less than one percent), Khartoum, White Nile and Gezira (1 percent), Sinnar and Gadarif (2 percent)

The proportion of severely food insecure households was lower among those in urban areas (1 percent) than among those in rural areas (5 percent). The proportion of severely food insecure households was higher for female-headed households (5 percent) than that for male-headed households (3 percent). The proportion of severely food insecure households showed a decreasing trend with increasing level of education of the household head. The proportion of severely food insecure households was higher among households which had household head with no formal education (5percent) compared to those households whose household head had primary education (2percent) and households whose household head had secondary or higher level of education (1percent). The proportion of severely food insecure households also showed a decreasing trend with increasing level of household wealth. The proportion of severely food insecure households also showed a decreasing trend with increasing level of household wealth. The proportion of severely food insecure households also showed a decreasing trend with increasing level of household wealth. The proportion of severely food insecure households also showed a decreasing trend with increasing level of household wealth. The proportion of severely food insecure households in the case of households in the poorest quintile to 6 percent in the case of households in the poorest quintile to 6 percent in the case of households in the poorest quintile and to zero percent for households in the richest quintile.

The proportion of severely food insecure households was lower among households whose main source of income was salaries, small business and livestock (2 percent) than that for household whose main source of income was remittances or wage labour (4 percent), agriculture (6percent) while the proportion was highest among households whose main source of income was firewood/charcoal (14 percent).

## Moderately or severely food insecure households

The proportion of households that are moderately or severely food insecure provides an indication of the proportion of population that is food insecure or vulnerable to food insecurity. The SHHS2 data indicated that a total of about eight percent of households were moderately or severely food insecure. The proportion of moderately and severely food insecure households ranged between less than one percent in River Nile State and 20percent in West Darfur State.





The SHHS2 data relating to the proportion of moderately and severely food insecure households indicate that female-headed households are more likely to be food insecure or vulnerable to food insecurity than male-headed households.

The SHHS2 data relating to the proportion of moderately and severely food insecure households also indicate that households in rural areas are more likely to be food insecure or vulnerable to food insecurity than households in urban areas.



Figure 13.10: Food insecurity by area of residence, Sudan, 2010

The SHHS2 data relating to the proportion of moderately and severely food insecure households also indicate that households in the poorest quintile are more likely to be food insecure or vulnerable than households in the richest quintiles.



Figure 13.11: Food insecurity by wealth index quintiles, Sudan, 2010

The SHHS2 data relating to the proportion of moderately and severely food insecure households also indicate that households which have household head with no formal education are more likely to be food insecure or vulnerable than households which have household head with primary or secondary or higher levels of education.



Figure 13.12: Food insecurity by education level of the household head, Sudan, 2010

The SHHS2 data relating to the proportion of moderately and severely food insecure households also indicate that households relying on household income sources such as salaried work, small business and sale of livestock are generally less food insecure or vulnerable to food insecurity than households who rely on household income sources such as sale of firewood and agriculture.



## Figure 13.13: Food insecurity by main income source, Sudan, 2010

# XIV. Maternal Mortality

#### Introduction

The Maternal Mortality Survey was conducted during the listing process of the SHHS as a separate exercise from the main SHHS2 household core questionnaires that provides the estimates of Maternal Mortality Ratio by area of residence and by State.

The Maternal Mortality Survey did not benefit from the technical assistance and quality assurance process of the MICS global programme. The sample design and methodology for the Maternal Mortality Survey is described in the following sections.

#### Sampling Design

In Sudan due to lack of proper civil registration systems the maternal mortality is measured through household survey and the Census conducted every 10 years, the margin of the uncertainty is such that you cannot draw firm conclusion about the direction of trend.

Maternal death is a vital event which is characterized by an extremely low prevalence level compared to other vital events. For this reason, a larger sample size is required to estimate this phenomenon with higher precision level. Yet, the cost of the field work is minimal as only two or three questions are addressed to households. In addition, data entry at household level is not needed, only at EA level.

The Government of Sudan in coordination with PAPFAM Survey Project League of Arab States has decided to consider the direct method for measuring Maternal Mortality Ratio, as an integral component of the SHHS (parallel to the MICS). The idea of this method was to utilize the listing operation that was undertaken to update the household list in the sample EA's as being the next to the Ultimate Sampling Unit (USU), the Household, for the purpose of collecting information on maternal deaths and live births. The sample design of the MMR followed the same multi stage process as the SHHS2 for core modules, nonetheless, due to the Government desire to have MMR estimates at State level with a reasonable high precision, the Sample EA's for most states greatly exceeds the requirements of the SHHS. In the latter case a sub sample of 40 AE's was to be selected from the MMR Sample with equal probability. Again a sample of 25 HH's was to be selected systematically from each of the 40 EA's. See Annex B.

The main advantages of the direct method are: 1- it can provide relatively recent estimates of MMR compared with the traditional sisterhood method, which usually has a reference period ranges from 5-10 years preceding the survey date; 2- With a modest added cost, the direct method can be applied to produce reasonably precise estimates for larger number of analysis domains (15 states in the situation of Sudan), In fact this cannot be done with the sisterhood method as it requires extraordinary large sample for the main survey which is unjustifiable on the ground of cost-benefit considerations; 3- the direct survey method of estimating MMR is analogous to the direct estimation method depending on vital registration data, of course if complete and reliable, thus avoiding the known technical weaknesses and limitations of the indirect sisterhood method.

# **Findings of Maternal Mortality Survey**

The SHHS2 data provides the estimates of MMR by area of residence and by State.

The National average of MMR was estimated at 215 per 100,000 live births. The MMR was higher in rural areas (225 per 100,000 live births) than in urban areas (194 per 100,000 live births). The MMR was lowest in Sinnar State (106 per 100,000 live births) followed by South Kordofan (112 per 100,000 live births) and the highest in South Darfur State (335 per 100,000 live births). Seven of the 15 States have MMR that is higher than the national average of 216 per 100,000 live births, a majority of them in the conflict-affected areas (Figure 14.1).

#### Table 14.1: MMR estimates in Sudan states by residence type (urban/rural), 2010

Residence Type	MMR	Standard	95% confid	Coefficient of	
	(100000)	error	Lower limit	Upper Limit	variation (%)
Urban	194.4	15.3	164.3	224.4	4.1
Rural	225.4	9.3	207.2	243.6	7.9
Total Sudan	215.6	8.3	199.3	231.9	3.9

#### Table14.2: MMR estimates in Sudan by State, 2010

State	MMR	Standard	95% confidence Interval		Coefficient of
	(100000)	error	Lower limit	Upper Limit	variation (%)
Northern	127	26.0	76.0	178.2	20.5
River Nile	147	26.7	94.8	199.5	18.1
Red Sea	280	45.2	191.5	368.6	16.1
Kassala	245	32.9	180.4	309.3	13.4
Gedarif	267	39.2	190.2	344.0	14.7
Khartoum	175	28.5	119.6	231.2	16.2
Gazira	185	24.5	137.8	233.8	13.2
White Nile	169	21.8	125.6	211.3	13.0
Sinnar	106	19.6	67.2	144.1	18.5
Blue Nile	258	22.2	214.4	301.6	8.6
North Kordofan	208	22.6	163.7	252.2	10.8
South Kordofan	112	19.1	75.0	149.8	17.0
North Darfur	178	20.5	137.3	217.8	11.6
West Darfur	322	23.5	276.2	368.3	7.3
South Darfur	335	28.9	278.1	391.7	8.6
Sudan	215.6				



# Sudan Household Health Survey – Round 2 2010

ANNEXES

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# Appendix A.Sample Design

The sample for the Sudan Household Health Survey (SHHS) was designed to provide estimates on some key indicators on the situation of children and women at the national level and for 15 states (Northern, River Nile, Red Sea, Kassala, Gedarif, Khartoum, Gezira, Sinnar, Blue Nile, WhiteNile, North Kordofan, South Kordofan, North Darfur, West Darfur, South Darfur). The target universe for the SHHS includes the households and members of individual households, including nomadic households camping at a location/place at the time of the survey. The population living in institutions and group quarters such as hospitals, military bases and prisons, were excluded from the sampling frame.

The states constitute the main sampling domains and in each state a two stage cluster sampling design was employed to draw the sample for the SHHS. The villages or quarters (in the case of urban areas) constituted the Primary Sampling Units (PSUs) for the SHHS. The PSU represented the smallest area or administrative unit which could be identified in the field with commonly recognized boundaries. The sampling frame for 15 states was compiled using the list of villages and quarters and estimated population updated by the Central Bureau of Statistics on the basis of the updated frame from the 2008 Population Census . The 15 states clusters were distributed to urban and rural areas, proportional to the size of urban and rural populations in each state. The urban and rural clusters in each of these states were selected randomly with probability of selection proportional to size.

#### Sample size and Sample selection procedures

The sample size for the survey was determined by the accuracy and degree of precision required for the survey estimates for each state. It was judged that a minimum sample of 900 households would be necessary to make estimates/results with some degree of precision at the state level. Allowing for some non-response in the survey, it was decided to take a sample of 1,000 households in each state. Since a similar level of precision was required for the survey results from each state, it was decided to draw 40 clusters from each state and 25 households from each cluster. The sampling frame of village/quarters was compiled separately for each state based on the best available population measures. In cases where a selected village/quarter could not be reached because of security or access problems, it was replaced by a neighboring village/quarter

in the sampling frame. All selected clusters (villages/quarters) in each state were fully covered .After a household listing was carried out within the selected clusters, a sample of 25 households was drawn from each selected cluster using the method of systematic random sampling.

#### Sample weights and weighting procedures

Although each state sample can be considered as self-weighting, the total sample for Sudan is not self-weighting since a fixed sample of households was drawn from each state, irrespective of its population size. Therefore, to derive estimates for Sudan as a whole it was necessary to assign a weight to each state-level sample. For reporting national level results, and to obtain unbiased estimates from the data, appropriate weights were applied to the sample data based on the probabilities of selection. Measures of sampling variability for key survey estimates were also calculated. Sample weights were calculated for each state-level sample and these were used in the subsequent analyses of the survey data.
The formula used for the calculation of the sample size was:

 $n = z2^{*}(P) (1-p) (1+NRR) (deff) / (d2)(h)$ 

Where:

n = the required sample size, (number of households)

z = the value in the normal distribution that gives a level of confidence at 95% (z = 1.96)

p = for the key indicator selected = 0.05.

deff = the design effect, (deff = 2)

d = the desired margin of error, (d = 0.01).

NRR= non-response rate, NRR= 30% (0.3).

h = Household size

For the calculation of the sample size, p was assumed to be 5 percent. The value of deff (design effect) was taken as 2 based on estimates from previous surveys, and average household size was taken as 6 individuals. The estimated sample size was approximately 863 households per state. Though an effective sample size of 900 households was considered sufficient for most state-level estimates, it was decided to target 1,000 households in each state, thus yielding a total of about 15,000 households nationally. The average cluster size in the SHHS was determined as 25 households, based on a number of considerations, including the budget available, and the time that would be needed per team to complete data collection in one cluster. Equal allocation of the total sample size to the 15 states was targeted. Therefore, 40 clusters were allocated to each state, with the final sample size calculated at15,000 households per cluster).

### Appendix B. List of Institutionsand Personnel Involved in the Survey

### **Steering Committee Members**

Federal Minister of Health Survey National Coordinator Minister of International Cooperation Minister of SWWCA Minister of SWGRA Central Bureau of Statistic (BoS director), UN Representative UNFPA Representative WHO Representative WHO Representative WHO Representative WFP Representative NPC Secretary General CWFC Secretary General Director of National Water Corporation Chairperson Reporter Member Member Survey Technical Coordinator Member Member Member Member Member Member Member Member Member

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### **Technical Committee Structures (Technical Working Group)**

Undersecretary FMOH, Chair person Experts and technical persons from CBS Representatives from: Ministry of Social Welfare (MOSW) National Population Council (NPC) National Council for Child Welfare (NCCW) Public Water Corporation UNFPA UNICEF WHO WFP USAIDS Ministry of Education Survey Executive Director Survey National Director

### Sudan household Health Survey Management Teams at National and State Level

#### Northern State:

Dr. Ali Ibrahim Akoud Ms. Mona SiedAbdeen Ahmed Mr. Ibrahim Saeed Mohamed

River Nile State: Mr. Khalid Hashim Ibrahim Dr. Awad Mohamed Abdelrahman Mr. Mohamed Yousuf Mohamed **Red Sea State:** Ms. InaamMubarek Mustafa Ms. Fatima SayedElamin Ms. Najwa Ali Mahgoub

### Kassala State:

Mr. Abdallah Adam Ali Mr. YousufHussienAbdelmageed Ms. FatmaAbdallah Ali

### **Gadarif State:**

Mr. AbdelaalAbdellatifFadul Mr. Ali Suliman Ali Dr. AmiraHashimElgadal

### Khartoum State:

Ms. Faizaldris Mohamed Mr. Abdelgadir Mohamed Ahmed Dr. Ibrahim AwadAlgak

### Gezira State:

Ms. Amel Abu ElgasimElsheikh Mr. Mustafa Eljak Mustafa Dr. ElshiekhldrisBabiker

### Sinnar State:

Ms. SomiaYousufBakheet Mr. Mohamed Ahmed Asakir Ms. Huda Ali Abbas

### **Blue Nile State:**

Ms. Mehasin Ahmed Abdelghani Dr. Mahmoud Ali Mohamed Ms. Hanan Ali Elsheikh

### White Nile State

Ms. Wesal Hassan Elmardi Mr. MackiAsakirElmacki Mr. Hassan FadlElmoula

### North Kordofan State:

Dr. SulimanAbdelgabarAbdallah MrKhalifa Ahmed Mohamed Mr Ahmed Ali Ihaimir

### South Kordofan State:

Dr. Hala ElnazeerAlgoni Mr. Ali Toro Musa Mr. Abdullah Hussein Kartor

### North Darfur State:

Mr. Adam AbdallahMatar MsSumaia Abdullah Ibrahim MsTamadur Musa Abdelrahman

### West Darfur State:

Mr. Ehab Ahmed Mohamed MrAbutalibElshiekhldrisEljak MsWafa Hassan Mansour MrAbdelmoneim Ahmed Idris

### South Darfur State:

Mr. HashimElaminSalim Mr. AlmagboulAbdallahAbaker Ms Ahmed AbdallahAbjoula

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# Appendix C. Estimates of Sampling Error

# Table ES. Sampling error - Total

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce límits
lodized salt consumption	2.16	0.0948	0.00479	0.05	3.853	1.963	14606	14438	0.08522	0.10438
Household availability of insecticide-treated nets (ITNs)		0.5823	0.00983	0.017	5.867	2.422	14778	14778	0.56264	0.60196
		HOUSI	HOLD ME	MBERS						
Use of improved drinking water sources	4.1	0.811	0.01119	0.014	12.076	3.475	84532	14778	0.78862	0.83338
Use of improved sanitation facilities	4.3	0.3503	0.01184	0.034	9,102	3.017	84532	14778	0.32662	0.37398
Secondary school net attendance ratio (adjusted)	7.5	0.201	0.00772	0.038	3.946	1.986	10843	10636	0.18556	0.21644
Prevalence of children with at least one parent dead	9.18	0.0565	0.00253	0.045	5.085	2.255	42977	42212	0.05144	0.06156
School attendance of orphans	9.19	0.7877	0.00671	0.009	0.01	0.098	. 37	(37)	0.77428	0.80112
School attendance of non-orphans	9.2	0.8177	0.00889	0.011	5.302	2.303	10161	9995	0.79992	0.83548
	1	14 dat 196 t	WOMEN	Section of the Section of the			a second s	Normania - 1		
Pregnant women		0.0941	0.00332	0.035	2.215	1.488	17174	17174	0.08746	0.10074
Intermittent preventive treatment for malaria		0.0234	0.00366	0.157	1.876	1.37	4275	3197	0.01608	0.03072
Early childbearing	5.2	0.1402	0.00741	0.053	1.498	1.224	3321	3286	0.12538	0.15502
Contraceptive prevalence	5.3	0.0906	0.00464	0.051	2.92	1.709	11006	11182	0.08132	0.09988
Unmet need	5.4	0.0655	0.00275	0.042	1.38	1.175	11006	11182	0.06	0.071
Antenatal care coverage - at least once by skilled personnel	5.5a	0.5589	0.01076	0.019	2.691	1.64	5646	5730	0.53738	0.58042
Antenatal care coverage - at least four times by any provider	5.5b	0.4716	0.01173	0.025	3.161	1.778	5646	5730	0.44814	0.49506
Skilled attendant at delivery	5.7	0.231	0.0093	0.04	2.789	1.67	5646	5730	0.2124	0.2496
Caesarean section	5.9	0.9059	0.00561	0.006	2.113	1.454	5646	5730	0.89468	0.91712
Literacy rate among young women	7.1	0.5621	0.01404	0.025	5.39	2.322	6880	6733	0.53402	0.59018
Marriage before age 18	8.6	0.3763	0.00823	0.022	3.957	1.989	13615	13727	0.35984	0.39276
Polygamy	8.7	0.2002	0.00613	0.031	2.625	1.62	11006	11182	0.18794	0.21246
Comprehensive knowledge about HIV prevention among young people	9.1	0.0534	0.00356	0.067	1.688	1.299	6880	6733	0.04628	0.06052
Knowledge of mother-to-child transmission of HIV	9.3	0.3268	0.00615	0.019	2.955	1.719	17174	17174	0.3145	0.3391
Accepting attitudes towards people living with HIV	9.4	0.0828	0.00458	0.055	3.516	1.875	13149	12726	0.07364	0.09196
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.0055	0.00078	0.142	1.914	1.383	17174	17174	0.00394	0.00706
Sexually active young women who have been tested for HIV and know the results	8	0.0055	0.00078	0.142	1.914	1.383	17174	17174	0.00394	0.00706

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Underweight prevalence	2.1	0.3216	0.00619	0.019	2.138	1.462	12265.95	12175	0.30922	0.33398
Stunting prevalence	2.2	0.3503	0.00654	0.019	2.227	1.492	11931.32	11842	0.33722	0.36338
Wasting prevalence	2.3	0.1639	0.00457	0.028	1.799	1.341	11897.63	11808	0.15476	0.17304
Exclusive breastfeeding under 6 months	2.6	0.4102	0.01644	0.04	1.702	1.304	1555.654	1524	0.37732	0.44308
Age-appropriate breastfeeding	2.14	0.494	0.00825	0.017	1.527	1.236	5576.813	5616	0.4775	0.5105
Tuberculosis immunization coverage	3.1	0.7677	0.01259	0.016	2.342	1.53	2595.242	2637	0.74252	0.79288
Received polio immunization	3.2	0.6461	0.01246	0.019	1.794	1.339	2606.998	2645	0.62118	0.67102
Received DPT immunization	3.3	0.6109	0.01416	0.023	2.215	1.488	2588.404	2628	0.58258	0.63922
Received measles immunization	3.4	0.6665	0.0132	0.02	2.062	1.436	2595.325	2632	0.6401	0.6929
Received Hepatitis B immunization	3.3	0.3711	0.01256	0.034	1.776	1.333	2588.404	2628	0.34598	0.39622
Birth registration	8.1	0.5931	0.009	0.015	4.455	2.111	13282	13282	0.5751	0.6111

# Table ES1. Sampling error – Urban

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un-weighted count	Confiden	ce limits
	a a a a a a a a a a a a a a a a a a a		НО	USEHOLDS						
lodized salt consumption	2.16	0.10497	0.0094	0.08952	4.10104	2.0251	4308	4365	0.08617	0.12376
Household availability of insecticide-treated nets (ITNs)		0.51633	0.0187	0.03622	6.2724	2.50448	4365	4479	0.47892	0.55373
	<u>hé shan</u> na		HOUSE	IOLD MEMBER	IS			i jana a		
Use of improved drinking water sources	4.1	0.94313	0.00875	0.00928	6.39434	2.5287	2671	4479	0.92563	0.96063
Use of improved sanitation facilities	4.3	0.60215	0.02562	0.04254	12.2652	3.50217	2671	4479	0.55092	0.65338
Secondary school net attendance ratio (adjusted)	7.5	0.30371	0.01584	0.05215	4.20968	2.05175	3554	3550	0.27204	0.33539
Prevalence of children with at least one parent dead	9.18	0.06473	0.00471	0.07274	4.57256	2.13836	12324	12487	0.05531	0.07415
School attendance of orphans	9.19	0.94814	0.01225	0.01292	0.05496	0.23444	16	19 <sup>*</sup>	0.92364	0.97265
School attendance of non-orphans	9.2	0.92003	0.00929	0.0101	3.45046	1.85754	2920	2943	0.90146	0.93861
				WOMEN			1			1947
Pregnant women		0.07916	0.006	0.07576	2.86464	1.69253	5851	5807	0.06717	0.09116
Intermittent preventive treatment for malaria		0.02304	0.00571	0.24766	1.73274	1.31634	1180	1199	0.01163	0.03445
Early childbearing	5.2	0.09637	0.01161	0.12052	1.71021	1.30775	1154	1105	0.07314	0.1196
Contraceptive prevalence	5.3	0.17399	0.01089	0.06258	2.78222	1.668	3357	3374	0.15221	0.19576
Unmet need	5.4	0.06256	0.00609	0.09735	2.13333	1.46059	3357	3374	_0.05038	0.07475
Antenatal care coverage - at least once by skilled personnel	5.5a	0.74346	0.02132	0.02868	3.8399	1.95957	1561	1612	0.70081	0.7861
Antenatal care coverage – at least four times by any provider	5.5b	0.66771	0.02084	0.0312	3.15215	1.77543	1561	1612	0.62604	0.70938
Skilled attendant at delivery	5.7	0.40609	0.0223	0.05492	3.32292	1.82289	1561	1612	0.36149	0.4507
Caesarean section	5.9	0.83864	0.01214	0.01448	1.75464	1.32463	1561	1612	0.81436	0.86292
Literacy rate among young women	7.1	0.77391	0.02303	0.02976	6.94241	2.63485	2397	2291	0.72785	0.81997
Marriage before age 18	8.6	0.29055	0.01752	0.0603	6.87914	2.62281	4609	4621	0.25551	0.32558

Polygamy	8.7	0.15344	0.01012	0.06597	2.66068	1.63116	3357	3374	0.1332	0.1/369
Comprehensive knowledge about HIV prevention among young people	9.1	0.09869	0.007	0.07093	1.26166	1.12323	2397	2291	0.08469	0.11269
Knowledge of mother-to-child transmission of HIV	9.3	0.41451	0.0106	0.02556	2.68589	1.63887	5851	5807	0.39332	0.4357
Accepting attitudes towards people living with HIV	9.4	0.09453	0.00803	0.085	3.90228	1.97542	5317	5175	0.07846	0.1106
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.01026	0.00175	0.17051	1.75007	1.3229	5851	5807	0.00676	0.01376
Sexually active young women who have been tested for HIV and know the results		0.01026	0.00175	0.17051	1.75007	1.3229	5851	5807	0.00676	0.01376
			U	IDER FIVE						
Underweight prevalence	2.1	0.2355	0.0088	0.0375	1.4786	1.2160	3353	3420	0.21787	0.25316
Stunting prevalence	2.2	0.2530	0.0128	0.0504	2.8538	1.6893	3260	3318	0.22745	0.27845
Wasting prevalence	2.3	0.1399	0.0087	0.0624	2.0912	1.4461	3254	3306	0.12242	0.15732
Exclusive breastfeeding under 6 months	2.6	0.4024	0.0299	0.0744	1.5395	1.2408	391	414	0.34251	0.46227
Age-appropriate breastfeeding	2.14	0.5442	0.0167	0.0307	1.7864	1.3365	1512	1584	0.5107	0.57762
Tuberculosis immunization coverage	3.1	0.8276	0.0241	0.0291	3.1021	1.7613	745	762	0.77933	0.8758
Received polio immunization	3.2	0.6638	0.0289	0.0436	2.8641	1.6924	748	764	0.6059	0.72167
Received DPT immunization	3.3	0.7035	0.0318	0.0452	3.6819	1.9188	743	759	0.63983	0.76716
Received measles immunization	3.4	0.7179	0.0288	0.0402	3.1034	1.7616	740	757	0.66023	0.77556
Received Hepatitis B immunization	3.3	0.4591	0.0272	0.0592	2.2582	1.5027	743	759	0.40473	0.51352
Birth registration	8.1	0.8452	0.0137	0.0162	5.4043	2.3247	3675	3771	0.81779	0.87257

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce limits
			HOUS	EHOLDS						
lodized salt consumption	2.16	0.09056	0.00555	0.06129	3.76712	1.94091	10160	10073	0.07946	0.10166
Household availability of insecticide-treated nets (ITNs)		0.60993	0.0114	0.0187	5.62949	2.37266	10413	10299	0.58712	0.63274
	i si biki ci	子、行业的	HOUSEHOL	D MEMBERS						
Use of improved drinking water sources	4.1	0.74996	0.0157	0.02094	13.5412	3.67984	57818	10299	0.71855	0.78136
Use of improved sanitation facilities	4.3	0.23395	0.01179	0.0504	7.98823	2.82635	57818	10299	0.21036	0.25753
Secondary school net attendance ratio (adjusted)	7.5	0.15092	0.00831	0.05508	3.82007	1.9545	7289	7086	0.1343	0.16755
Prevalence of children with at least one parent dead	9.18	0.05319	0.003	0.05641	5.3132	2.30504	30653	29725	0.04719	0.05919
School attendance of orphans	9.19	0.65368	0	0	0	0	20	18*	0.65368	0.65368
School attendance of non-orphans	9.2	0.77638	0.01158	0.01491	5.44138	2.33268	7241	7052	0.75323	0.79953
		an a sta	W	OMEN						
Pregnant women		0.10185	0.00394	0.03871	1.93158	1.38981	11323	11367	0.09396	0.10974
Intermittent preventive treatment for malaria		0.02361	0.00475	0.20116	1.95373	1.39776	2030	1998	0.01411	0.0331
Early childbearing	5.2	0.16352	0.00949	0.05801	1.43406	1.19752	2167	2181	0.14455	0.18249
Contraceptive prevalence	5.3	0.05394	0.00424	0.07856	2.74721	1.65747	7649	7808	0.04547	0.06242
Unmet need	5.4	0.06677	0.00292	0.04375	1.06911	1.03398	7649	7808	0.06093	0.07262
Antenatal care coverage - at least once by skilled personnel	5.5a	0.48835	0.01197	0.02451	2.36053	1.5364	4085	4118	0.46441	0.51229
Antenatal care coverage – at least four times by any provider	5.5b	0.39661	0.01343	0.03385	3.10074	1.76089	4085	4118	0.36976	0.42346
Skilled attendant at delivery	5.7	0.16406	0.00899	0.05477	2.42389	1.55689	4085	4118	0.14609	0.18203
Caesarean section	5.9	0.93164	0.00608	0.00653	2.39165	1.54649	4085	4118	0.91947	0.9438
Literacy rate among young women	7.1	0.44884	0.01677	0.03736	5.04782	2.24674	4484	4442	0.41531	0.48238
Marriage before age 18	8.6	0.42023	0.00842	0.02005	2.65222	1.62856	9006	9106	0.40338	0.43707
Polygamy	8.7	0.2207	0.00748	0.03388	2.53729	1.59289	7649	7808	0.20575	0.23565

# Table ES2. Sampling Error – Rural

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Comprehensive knowledge about HIV prevention among young people	9.1	0.02913	0.00389	0.13341	2.37198	1.54012	4484	4442	0.02136	0.03691
Knowledge of mother-to-child transmission of HIV	9.3	0.28143	0.00721	0.02563	2.92328	1.70976	11323	11367	0.267	0.29585
Accepting attitudes towards people living with HIV	9.4	0.0748	0.00545	0.07289	3.24365	1.80101	7832	7551	0.0639	0.08571
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00304	0.00075	0.24815	2.13567	1.46139	11323	11367	0.00153	0.00455
Sexually active young women who have been tested for HIV and know the results		0.00304	0.00075	0.24815	2:13567	1.46139	11323	11367	0.00153	0.00455
			UNDE	RFIVE						
Underweight prevalence	2.1	0.35397	0.00757	0.02139	2.19377	1.48114	8913	8755	0.33883	0.36911
Stunting prevalence	2.2	0.38687	0.00744	0.01924	1.99104	1.41104	8672	8524	0.37199	0.40176
Wasting prevalence	2.3	0.17288	0.00539	0.03118	1.72738	1.3143	8644	8502	0.1621	0.18366
Exclusive breastfeeding under 6 months	2.6	0.41287	0.01952	0.04728	1.74336	1.32036	1165	1110	0.37383	0.45191
Age-appropriate breastfeeding	2.14	0.47532	0.00938	0.01973	1.42124	1.19216	4065	4032	0.45656	0.49407
Tuberculosis immunization coverage	3.1	0.7436	0.01503	0.02022	2.22177	1,49056	1851	1875	0.71353	0.77367
Received polio immunization	3.2	0.63894	0.01312	0.02053	1.40231	1.18419	1859	1881	0.61271	0.66518
Received DPT immunization	3.3	0.57363	0.01553	0.02708	1.84229	1.35731	1844	1869	0.54257	0.60469
Received measles immunization	3.4	0.64591	0.01464	0.02266	1.75508	1.32479	1853	1875	0.61664	0.67518
Received Hepatitis B immunization	3.3	0.33562	0.01423	0.04241	1.69702	1.3027	1844	1869	0.30716	0.36409
Birth registration	8.1	0.49663	0.01079	0.02172	4.4257	2.10374	9607	9511	0.47505	0.5182

# Table ES3. Sampling Error – Northern state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce limits
			HOUSE	IOLDS						
lodized salt consumption	2.16	0.00988	0.00346	0.34991	1.18964	1.0907	277	975	0.00296	0.01679
Household availability of insecticide-treated nets (ITNs)		0.57803	0.03424	0.05924	4.7262	2.17398	279	984	0.50954	0.64652
		ł	HOUSEHOLD	MEMBERS						
Use of improved drinking water sources	4.1	0.93204	0.04332	0.04648	29.1299	5.39722	1538	984	0.84539	1.01869
Use of improved sanitation facilities	4.3	0.84094	0.03135	0.03728	7.22293	2.68755	1538	984	0.77823	0.90364
Secondary school net attendance ratio (adjusted)	7.5	0.32893	0.02142	0.06511	1.53155	1.23756	196	738	0.2861	0.37177
Prevalence of children with at least one parent dead	9.18	0.04124	0.00847	0.20526	4.07049	2.01754	625	2247	0.02431	0.05817
School attendance of orphans	9.19	0.67393	0	0	0	0	0	2	0.67393	0.67393
School attendance of non-orphans	9.2	0.93773	0.0137	0.01461	2.03126	1.42522	179	633	0.91033	0.96513
			WON	/IEN						
Pregnant women		0.05366	0.00784	0.1462	1.48102	1.21697	351	1223	0.03797	0.06935
Intermittent preventive treatment for malaria		0.00859	0.00532	0.61943	0.85457	0.92443	75	258	-0.0021	0.01924
Early childbearing	5.2	0.02663	0.01424	0.53462	1.59552	1.26314	55	205	-0.0018	0.05511
Contraceptive prevalence	5.3	0.21619	0.01684	0.0779	1.16508	1.07939	208	697	0.1825	0.24987
Unmet need	5.4	0.04644	0.00964	0.20768	1.46204	1.20915	208	697	0.02715	0.06573
Antenatal care coverage - at least once by skilled personnel	5.5a	0.86933	0.02384	0.02743	1.41125	1.18796	83	283	0.82165	0.91702
Antenatal care coverage – at least four times by any provider	5.5b	0.50594	0.03163	0.06252	1.12874	1.06242	83	283	0.44268	0.56921
Skilled attendant at delivery	5.7	0.52246	0.04124	0.07894	1.92259	1.38658	83	283	0.43997	0.60494
Caesarean section	5.9	0.82373	0.03429	0.04162	2.28317	1.51102	83	283	0.75515	0.8923
Literacy rate among young women	7.1	0.80657	0.02566	0.03181	1.77649	1.33285	117	422	0.75525	0.85789
Marriage before age 18	8.6	0.20528	0.01712	0.08338	1.80475	1.34341	288	1006	0.17105	0.23952
Polygamy	8.7	0.05699	0.01153	0.20223	1.72037	1.31163	208	697	0.03394	0.08005
Comprehensive knowledge about HIV prevention among young people	9.1	0.04256	0.0103	0.24207	1.09666	1.04721	117	422	0.02195	0.06317

Knowledge of mother-to-child transmission of HIV	9.3	0.37217	0.01781	0.04784	1.65813	1.28769	351	1223	0.33656	0.40778
Accepting attitudes towards people living with HIV	9.4	0.09245	0.01401	0.15155	2.52444	1.58885	309	1080	0.06443	0.12047
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00195	0.00146	0.74588	1.33114	1.15375	351	1223	-0.001	0.00487
Sexually active young women who have been tested for HIV and know the results		0.00195	0.00146	0.74588	1.33114	1.15375	351	1223	-0.001	0.00487
		,	UNDER	R FIVE					•	
Underweight prevalence	2.1	0.22148	0.02371	0.10705	1.83862	1.35596	159	565	0.17406	0.26889
Stunting prevalence	2.2	0.24025	0.01652	0.06877	0.82702	0.90941	155	554	0.20721	0.2733
Wasting prevalence	2.3	0.12902	0.01543	0.11958	1.16925	1.08132	155	553	0.09817	0.15988
Exclusive breastfeeding under 6 months	2.6	0.33833	0.06171	0.1824	1.30994	1.14453	21	78	0.21491	0.46175
Age-appropriate breastfeeding	2.14	0.59301	0.03203	0.05402	1.14376	1.06947	76	270	0.52895	0.65708
Tuberculosis immunization coverage	3.1	0.85909	0.0488	0.0568	2.57677	1.60523	38	132	0.76149	0.95668
Received polio immunization	3.2	0.71507	0.05685	0.0795	2.07805	1.44154	38	132	0.60137	0.82878
Received DPT immunization	3.3	0.73155	0.06487	0.08867	2.80707	1.67543	38	132	0.60181	0.86129
Received measles immunization	3.4	0.82694	0.05196	0.06283	2.45237	1.566	37	131	0.72303	0.93086
Received Hepatitis B immunization	3.3	0.38927	0.05224	0.1342	1.50377	1.22628	38	132	0.28479	0.49375
Birth registration	8.1	0.94291	0.0164	0.01739	3.02827	1.74019	170	607	0.9101	0.97571

# Table ES4. Sampling Error – River Nile state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ice limits
		and the second	HOUS	EHOLDS						
lodized salt consumption	2.16	0.01665	0.00825	0.49571	4.0478	2.01191	526	974	0.00014	0.03315
Household availability of insecticide-treated nets (ITNs)		0.807	0.03408	0.04223	7.3217	2.70586	530	983	0.73884	0.87515
	a san Gerta		HOUSEHOL	DMEMBERS						
Use of improved drinking water sources	4.1	0.81081	0.04209	0.05192	11.3438	3.36805	3018	983	0.72662	0.895
Use of improved sanitation facilities	4.3	0.53575	0.04292	0.0801	7.27151	2.69657	3018	983	0.44992	0.62158
Secondary school net attendance ratio (adjusted)	7.5	0.29545	0.03559	0.12046	4.05237	2.01305	367	667	0.22428	0.36663
Prevalence of children with at least one parent dead	9.18	0.03238	0.00665	0.20551	3.40489	1.84524	1295	2410	0.01907	0.04569
School attendance of orphans	9.19	0	0	0	0	0	1	1*	0	0
School attendance of non-orphans	9.2	0.85479	0.03694	0.04321	6.85836	2.61885	344	625	0.78092	0.92866
			WC	MEN						방지가 문
Pregnant women		0.08228	0.00966	0.11744	1.45681	1.20698	639	1179	0.06296	0.10161
Intermittent preventive treatment for malaria		0.01976	0.00582	0.29465	0.41467	0.64395	124	238	0.00811	0.0314
Early childbearing	5.2	0.07778	0.02418	0.31083	1.80088	1.34197	124	222	0.02943	0.12614
Contraceptive prevalence	5.3	0.16392	0.01854	0.11313	1.80402	1.34314	388	720	0.12683	0.20101
Unmet need	5.4	0.07882	0.0122	0.15482	1.47467	1.21436	388	720	0.05442	0.10323
Antenatal care coverage - at least once by skilled personnel	5.5a	0.74001	0.03712	0.05017	2.1847	1.47807	165	306	0.66577	0.81426
Antenatal care coverage – at least four times by any provider	5.5b	0.51557	0.03711	0.07197	1.68158	1.29676	165	306	0.44136	0.58979
Skilled attendant at delivery	5.7	0.39989	0.03689	0.09225	1.72944	1.31508	165	306	0.32612	0.47367
Caesarean section	5.9	0.86317	0.0212	0.02456	1.16095	1.07748	165	306	0.82077	0.90558
Literacy rate among young women	7.1	0.72923	0.05248	0.07196	6.01131	2.4518	241	432	0.62428	0.83419
Marriage before age 18	8.6	0.27319	0.02949	0.10794	4.23911	2.05891	522	969	0.21422	0.33217
Polygamy	8.7	0.07107	0.01202	0.16915	1.57384	1.25453	388	720	0.04703	0.09511

Comprehensive knowledge about HIV prevention among young people	9.1	0.04032	0.01152	0.28573	1.4784	1.21589	241	432	0.01728	0.06336
Knowledge of mother-to-child transmission of HIV	9.3	0.31395	0.02747	0.08751	4.12835	2.03184	639	1179	0.25901	0.3689
Accepting attitudes towards people living with HIV	9.4	0.09972	0.01351	0.13544	1.96696	1.40248	506	969	0.07271	0.12674
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00445	0.00201	0.45099	1.07171	1.03524	639	1179	0.00044	0.00847
Sexually active young women who have been tested for HIV and know the results		0.00445	0.00201	0.45099	1.07171	1.03524	639	1179	0.00044	0.00847
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Underweight prevalence	2.1	0.32146	0.02625	0.08165	2.06893	1.43838	348	656	0.26896	0.37396
Stunting prevalence	2.2	0.30307	0.03122	0.10302	2.92616	1.7106	337	635	0.24063	0.36552
Wasting prevalence	2.3	0.18493	0.01721	0.09304	1.23927	1.11322	338	632	0.15052	0.21934
Exclusive breastfeeding under 6 months	2.6	0.40048	0.06764	0.1689	1.54349	1.24237	47	82	0.2652	0.53576
Age-appropriate breastfeeding	2.14	0.5127	0.03827	0.07464	1.81096	1.34572	167	310	0.43617	0.58923
Tuberculosis immunization coverage	3.1	0.7354	0.05145	0.06996	1.93189	1.38992	77	143	0.6325	0.83831
Received polio immunization	3.2	0.55212	0.0482	0.08729	1.33388	1.15494	77	143	0.45573	0.64851
Received DPT immunization	3.3	0.55236	0.05135	0.09296	1.50344	1.22615	76	142	0.44967	0.65505
Received measles immunization	3.4	0.71145	0.04876	0.06854	1.6446	1.28242	77	143	0.61393	0.80897
Received Hepatitis B immunization	3.3	0.26102	0.03727	0.1428	1.0156	1.00777	76	142	0.18647	0.33556
Birth registration	8.1	0.82612	0.03816	0.04619	7.74603	2.78317	405	765	0.7498	0.90245

# Table ES5. Sampling Error – Red Sea state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confidence	e limits + + 2se
		<b>er fel 160 feltios</b> , en la fel	НО	USEHOLDS	1	and a second and a second and a second				
lodized salt consumption	2.16	0.0106	0.00531	0.50118	2.61776	1.61795	451	974	-2.5E-05	0.02122
Household availability of insecticide-treated nets (ITNs)		0.33533	0.03937	0.11741	6.86434	2.61999	455	988	0.2565875	0.41407
		I	HOUSEI	IOLD MEMBER	2S					
Use of improved drinking water sources	4.1	0.85573	0.06018	0.07032	28.9491	5.38044	2249	988	0.7353763	0.97608
Use of improved sanitation facilities	4.3	0.28113	0.02836	0.10087	3.9276	1.98182	2249	988	0.224411	0.33784
Secondary school net attendance ratio (adjusted)	7.5	0.13966	0.02851	0.20414	3.59904	1.89711	246	533	0.0826407	0.19668
Prevalence of children with at least one parent dead	9.18	0.06663	0.0117	0.17556	4.75884	2.18148	1008	2164	0.0432332	0.09002
School attendance of orphans	9.19	1	0	0	0	0	1	2*	1	1
School attendance of non-orphans	9.2	0.74663	0.06421	0.08599	10.8088	3.28767	237	497	0.6182165	0.87504
		2 2 5		WOMEN	5					1
Pregnant women		0.05983	0.0069	0.11526	0.91308	0.95555	477	1081	0.0460388	0.07362
Intermittent preventive treatment for malaria		0.00423	0.00423	0.99994	0.8148	0.90266	82	193	-0.004226	0.01268
Early childbearing	5.2	0.10235	0.02479	0.24222	1.23757	1.11246	85	186	0.0527662	0.15193
Contraceptive prevalence	5.3	0.05762	0.01427	0.2477	2.70866	1.6458	331	723	0.0290766	0.08617
Unmet need	5.4	0.02682	0.00727	0.27126	1.46401	1.20996	331	723	0.012269	0.04137
Antenatal care coverage - at least once by skilled personnel	5.5a	0.58746	0.0589	0.10025	4.29373	2.07213	134	301	0.4696662	0.70525
Antenatal care coverage – at least four times by any provider	5.5b	0.35282	0.05394	0.15287	3.82213	1.95503	134	301	0.2449436	0.46069
Skilled attendant at delivery	5.7	0.39435	0.04154	0.10534	2.16759	1.47227	134	301	0.3112676	0.47743
Caesarean section	5.9	0.93469	0.01529	0.01636	1.14865	1.07175	134	301	0.9041144	0.96527
Literacy rate among young women	7.1	0.49595	0.03563	0.07184	1.83815	1.35578	163	363	0.424692	0.5672
Marriage before age 18	8.6	0.33207	0.02074	0.06247	1.75192	1.3236	399	904	0.2905853	0.37356

Polygamy	8.7	0.07423	0.01348	0.18153	1.90768	1.38119	331	723	0.0472823	0.10118
Comprehensive knowledge about HIV prevention among young people	9.1	0.03865	0.01375	0.35586	1.84288	1.35753	163	363	0.0111407	0.06615
Knowledge of mother-to-child transmission of HIV	9.3	0.15689	0.01655	0.10548	2.23585	1.49528	477	1081	0.1237947	0.18999
Accepting attitudes towards people living with HIV	9.4	0.12792	0.02955	0.23103	4.76021	2.18179	251	609	0.0688129	0.18703
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00117	0.00114	0.9783	1.20687	1.09858	477	1081	-0.001116	0.00345
Sexually active young women who have been tested for HIV and know the results		0.00117	0.00114	0.9783	1.20687	1,09858	477	1081	-0.001116	0.00345
		A	U	DER FIVE		factor and a second	<u> </u>			
Underweight prevalence	2.1	0.49281	0.04936	0.10016	4.3869	2.09449	201	451	0.3940879	0.59154
Stunting prevalence	2.2	0.54094	0.03312	0.06122	1.84613	1.35872	184	419	0.4747034	0.60717
Wasting prevalence	2.3	0.28539	0.0377	0.1321	2.88526	1.69861	183	415	0.2099882	0.36079
Exclusive breastfeeding under 6 months	2.6	0.35518	0.04571	0.12868	0.50167	0.70829	26	56	0.2637721	0.4466
Age-appropriate breastfeeding	2.14	0.46933	0.03346	0.07129	1.2988	1.13965	129	290	0.4024137	0.53624
Tuberculosis immunization coverage	3.1	0.61288	0.05076	0.08282	1.75914	1.32633	74	163	0.511364	0.7144
Received polio immunization	3.2	0.47968	0.05141	0.10717	1.71532	1.3097	74	163	0.3768701	0.5825
Received DPT immunization	3.3	0.55455	0.06502	0.11725	2.75569	1.66003	74	162	0.4245026	0.6846
Received measles immunization	3.4	0.54341	0.05957	0.10963	2.28855	1.5128	73	161	0.424265	0.66256
Received Hepatitis B immunization	3.3	0.17721	0.03096	0.17471	1.05838	1.02878	74	162	0.1152871	0.23912
Birth registration	8.1	0.64977	0.03216	0.04949	2.83589	1.68401	281	625	0.585453	0.71409

# Table ES6. Sampling Error – Kassala state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce limits
			HOUS	EHOLDS						
lodized salt consumption	2.16	0.01672	0.00655	0.39146	2.48922	1.57773	922	956	0.00363	0.02982
Household availability of insecticide-treated nets (ITNs)		0.49331	0.02867	0.05812	3.18641	1.78505	936	970	0.43597	0.55065
			HOUSEHO	LD MEMBERS						
Use of improved drinking water sources	4.1	0.68507	0.05128	0.07485	11.8087	3.43638	5135	970	0.58252	0.78762
Use of improved sanitation facilities	4.3	0.27686	0.03758	0.13573	6.83513	2.61441	5135	970	0.2017	0.35202
Secondary school net attendance ratio (adjusted)	7.5	0.10509	0.01688	0.16058	2.02594	1.42336	644	670	0.07134	0.13885
Prevalence of children with at least one parent dead	9.18	0.06178	0.0082	0.13264	3.14211	1.7726	2638	2713	0.04539	0.07818
School attendance of orphans	9.19	0.28865	0	0	0	0	4	4*	0.28865	0.28865
School attendance of non-orphans	9.2	0.73485	0.03844	0.05231	5.15612	2.27071	663	681	0.65798	0.81172
			Ŵ	OMEN	e san san sa					
Pregnant women		0.08376	0.00889	0.10614	1.10816	1.05269	1004	1077	0.06598	0.10154
Intermittent preventive treatment for malaria		0.00934	0.00663	0.70923	1.07696	1.03777	221	228	-0,0039	0.0226
Early childbearing	5.2	0.13609	0.02774	0.20384	1.29595	1.1384	186	199	0.08061	0.19156
Contraceptive prevalence	5.3	0.04396	0.01225	0.27878	2.59779	1.61177	685	728	0.01945	0.06847
Unmet need	5.4	0.04681	0.00998	0.21312	1.62173	1.27347	685	728	0.02686	0.06677
Antenatal care coverage - at least once by skilled personnel	5.5a	0.68229	0.02671	0.03915	1.08595	1.04209	318	331	0.62887	0.73571
Antenatal care coverage – at least four times by any provider	5.5b	0.38327	0.03953	0.10314	2.18161	1.47703	318	331	0.30421	0.46233
Skilled attendant at delivery	5.7	0.20034	0.02817	0.1406	1.63432	1.2784	318	331	0.14401	0.25668
Caesarean section	5,9	0.92637	0.01843	0.01989	1.64318	1.28186	318	331	0.88951	0.96323
Literacy rate among young women	7.1	0.40037	0.04704	0.11748	3.61232	1.90061	367	393	0.3063	0.49444
Marriage before age 18	8.6	0.462	0.02065	0.0447	1.51352	1.23025	823	883	0.42069	0.5033
Polygamy	8.7	0.1	0.01135	0.11354	1.04134	1.02046	685	728	0.07729	0.12271

Comprehensive knowledge about HIV prevention among young people	9.1	0.04553	0.01267	0.27828	1.44799	1.20332	367	393	0.02019	0.07087	
Knowledge of mother-to-child transmission of HIV	9.3	0.26998	0.01305	0.04833	0.92963	0.96417	1004	1077	0.24388	0.29608	
Accepting attitudes towards people living with HIV	9.4	0.06477	0.00979	0.15117	1.06523	1.0321	636	674	0.04519	0.08436	. 8
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00645	0.00291	0.45113	1.42213	1.19253	1004	1077	0.00063	0.01227	
Sexually active young women who have been tested for HIV and know the results		0.00645	0.00291	0.45113	1.42213	1.19253	1004	1077	0.00063	0.01227	
			UNDE	RFIVE	an da Baran da Sh		25 (S.H. S.M.		e tradición de la gración a construction de la gración a construction de la gración a construction de la gración a construction de la gración de la graci		
Underweight prevalence	2.1	0.38542	0.02493	0.06469	1.96333	1.40119	713	749	0.33555	0.43529	
Stunting prevalence	2.2	0.49088	0.01901	0.03874	1.06767	1.03328	704	739	0.45285	0.52891	ан на н
Wasting prevalence	2.3	0.1674	0.02106	0.12579	2.34152	1.5302	701	737	0.12528	0.20951	
Exclusive breastfeeding under 6 months	2.6	0.47137	0.04813	0.10211	0.77164	0.87843	82	84	0.37511	0.56764	
Age-appropriate breastfeeding	2.14	0.50129	0.02336	0.04659	0.68077	0.82509	299	313	0.45458	0.548	
Tuberculosis immunization coverage	3.1	0.75768	0.03484	0.04599	0.95878	0.97917	138	146	0.68799	0.82736	
Received polio immunization	3.2	0.5326	0.03546	0.06658	0.73234	0.85577	138	146	0.46169	0.60352	
Received DPT immunization	3.3	0.57174	0.04159	0.07274	0.99613	0.99806	134	142	0.48856	0.65493	
Received measles immunization	3.4	0.59852	0.0481	0.08036	1.39589	1.18148	138	146	0.50233	0.69471	
Received Hepatitis B immunization	3.3	0.27987	0.03883	0.13874	1.05486	1.02706	134	142	0.20221	0.35753	
Birth registration	8.1	0.51766	0.03423	0.06613	3.83398	1.95805	780	818	0.44919	0.58612	1

# Table ES7. Sampling Error - Gadarif state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce limits
			HO	JSEHOLDS						
lodized salt consumption	2.16	0.02281	0.00615	0.26972	1.60133	1.26544	718	944	0.01051	0.03512
Household availability of insecticide-treated nets (ITNs)		0.7638	0.02449	0.03206	3.23134	1.79759	737	973	0.71482	0.81278
			HOUSEH	OLD MEMBER	\$					
Use of improved drinking water sources	4.1	0.61247	0.06639	0.1084	18.0524	4.24881	3994	973	0.47969	0.74526
Use of improved sanitation facilities	4.3	0.38251	0.05117	0.13377	10.775	3.28253	3994	973	0.28017	0.48485
Secondary school net attendance ratio (adjusted)	7.5	0.12105	0.02128	0.17579	2.8811	1.69738	493	678	0.07849	0.16361
Prevalence of children with at least one parent dead	9.18	0.04935	0.00966	0.19567	5.56684	2.35941	2137	2802	0.03003	0.06866
School attendance of orphans	9.19	0	0	0	0	0	1	1*	0	0
School attendance of non-orphans	9.2	0.81627	0.03536	0.04332	5.42633	2.32945	493	652	0.74555	0.88698
			1	WOMEN						
Pregnant women		0.13073	0.01058	0.08096	1.0734	1.03605	776	1090	0.10956	0.1519
Intermittent preventive treatment for malaria		0.02325	0.01439	0.61866	1.76763	1.32952	138	195	-0.0055	0.05202
Early childbearing	5.2	0.18351	0.03159	0.17217	1.45907	1.20792	157	220	0.12032	0.2467
Contraceptive prevalence	5.3	0.08673	0.0123	0.14181	1.39221	1.17992	532	730	0.06213	0.11133
Unmet need	5.4	0.07904	0.00751	0.09502	0.56487	0.75158	532	730	0.06402	0.09406
Antenatal care coverage - at least once by skilled personnel	5.5a	0.47779	0.03563	0.07457	1.95346	1.39766	284	385	0.40653	0.54904
Antenatal care coverage – at least four times by any provider	5.5b	0.39396	0.0298	0.07564	1.42815	1.19505	284	385	0.33436	0.45356
Skilled attendant at delivery	5.7	0.18481	0.02739	0.14818	1.91165	1.38262	284	385	0.13004	0.23958
Caesarean section	5,9	0.93252	0.01266	0.01358	0.97851	0.9892	284	385	0.90719	0.95784
Literacy rate among young women	7.1	0.42894	0.04162	0.09703	3.3308	1.82505	333	472	0.3457	0.51218
Marriage before age 18	8.6	0.48813	0.03363	0.06889	3.78797	1.94627	599	838	0.42087	0.55538

Polygamy	8.7	0.22501	0.03124	0.13882	4.07905	2.01966	532	730	0.16254	0.28748
Comprehensive knowledge about HIV prevention among young people	9.1	0.09066	0.01503	0.16583	1.29131	1.13636	333	472	0.06059	0.12072
Knowledge of mother-to-child transmission of HIV	9.3	0.29628	0.02164	0.07305	2.44669	1.56419	776	1090	0.25299	0.33957
Accepting attitudes towards people living with HIV	9.4	0.1097	0.01501	0.13684	1.92664	1,38804	575	836	0.07968	0.13973
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00376	0.00191	0.5075	1.05957	1.02935	776	1090	-6E-05	0.00758
Sexually active young women who have been tested for HIV and know the results		0.00376	0.00191	0.5075	1.05957	1.02935	776	1090	-6E-05	0.00758
			UN	IDER FIVE						
Underweight prevalence	2.1	0.38621	0.02425	0.06278	2.12034	1.45614	645	856	0.33772	0.4347
Stunting prevalence	2.2	0.39706	0.026	0.06549	2.37794	1.54206	632	843	0.34506	0.44907
Wasting prevalence	2.3	0.17121	0.01345	0.07855	1.07945	1.03897	638	848	0.14431	0.1981
Exclusive breastfeeding under 6 months	2.6	0.38481	0.06138	0.1595	1.51175	1.22953	77	96	0.26206	0.50757
Age-appropriate breastfeeding	2.14	0.50027	0.0286	0.05718	1.21098	1.10044	283	371	0.44306	0.55748
Tuberculosis immunization coverage	3.1	0.88173	0.02943	0.03338	1.49481	1.22262	137	181	0.82287	0.94058
Received polio immunization	3.2	0.734	0.0309	0.0421	0.88511	0.9408	139	182	0.6722	0.7958
Received DPT immunization	3.3	0.68906	0.04132	0.05996	1.41815	1.19086	136	179	0.60643	0.77169
Received measles immunization	3.4	0.72764	0.03968	0.05453	1.43017	1.1959	137	181	0.64828	0.807
Received Hepatitis B immunization	3.3	0.462	0.04474	0.09684	1.43354	1.19731	136	179	0.37251	0.55148
Birth registration	8.1	0.64693	0.0464	0.07172	8.48347	2.91264	681	901	0.55413	0.73973

# Table ES8. Sampling Error - Khartoum state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	<b>ce limits</b>
	annion caire an frankrik frank	an a	HOU	JSEHOLDS		and a second second second				
-ledized salt consumption	2.16	0.02824	0.00707	0.25051	1.73243	1.31622	2127	951	0.01409	0.04239
Household availability of insecticide-treated nets (ITNs)		0.34467	0.02747	0.07969	3.2402	1.80006	2170	971	0.28973	0.39961
			HOUSEH	OLD MEMBERS	;					e.
_Use of improved drinking water sources	4.1	0.96297	0.01812	0.01881	8.92721	2.98784	13494	971	0.92673	0.9992
Use of improved sanitation facilities	4.3	0.67847	0.03781	0.05573	6.35762	2.52143	13494	971	0.60284	0.75409
Secondary school net attendance ratio (adjusted)	7.5	0.32016	0.02741	0.08562	2.64119	1.62518	1745	766	0.26533	0.37498
Prevalence of children with at least one parent dead	9.18	0.04222	0.00608	0.14397	2.45526	1.56693	6053	2688	0.03006	0.05438
School attendance of orphans	9.19	1	0	0	0	0	8	4*	1	1
School attendance of non-orphans	9.2	0.93551	0.01845	0.01972	3.5582	1.88632	1420	632	0.89862	0.9724
			1	WOMEN				ı.	·····	
Pregnant women		0.07686	0.01073	0.13961	2.15182	1.46691	3009	1327	0.0554	0.09832
Intermittent preventive treatment for malaria		0.01913	0.00811	0.42396	0.94282	0.97099	617	270	0.00291	0.03534
Early childbearing	5.2	0.10081	0.0188	0.18647	1.0214	1.01065	597	263	0.06322	0.13841
Contraceptive prevalence	5.3	0.21319	0.01832	0.08592	1.5302	1.23701	1721	766	0.17655	0.24982
Unmet need	5.4	0.06009	0.00953	0.15864	1.2308	1.10942	1721	766	0.04102	0.07915
Antenatal care coverage - at least once by skilled personnel	5,5a	0.80632	0.01914	0.02374	0.76693	0.87574	753	328	0.76804	0.84459
Antenatal care coverage – at least four times by any provider	5.5b	0.77757	0.03016	0.03879	1.71989	1.31145	753	328	0.71725	0.83789
Skilled attendant at delivery	5.7	0.50331	0.03206	0.06369	1.34428	1.15943	753	328	0.43919	0.56742
Caesarean section	5.9	0.80606	0.02403	0.02981	1.20755	1.09889	753	328	0.75801	0.85411
Literacy rate among young women	7.1	0.8322	0.02702	0.03247	2.71956	1.64911	1211	521	0.77815	0.88625
Marriage before age 18	8.6	0.27481	0.02677	0.0974	3.83948	1.95946	2395	1069	0.22127	0.32834

Polygamy	8.7	0.11923	0.01169	0.09806	0.99583	0.99791	1721	766	0.09584	0.14261
Comprehensive knowledge about HIV prevention among young people	9.1	0.08271	0.00949	0.11475	0.61741	0.78575	1211	521	0.06372	0.10169
Knowledge of mother-to-child transmission of HIV	9.3	0.42595	0.01894	0.04448	1.94621	1.39507	3009	1327	0.38806	0.46383
Accepting attitudes towards people living with HIV	9.4	0.07676	0.0114 <b>1</b>	0.14864	2.23943	1.49647	2763	1220	0.05394	0.09959
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.0135	0.0034	0.25214	1.15369	1.0741	3009	1327	0.00669	0.02031
Sexually active young women who have been tested for HIV and know the results		0.0135	0.0034	0.25214	1.15369	1.0741	3009	1327	0.00669	0.02031
			UN	DER FIVE						
Underweight prevalence	2.1	0.19924	0.01428	0.07165	0.98749	0.99372	1734	774	0.17069	0.22779
Stunting prevalence	2.2	0.21941	0.01953	0.08902	1.6994	1.30361	1708	764	0.18035	0.25847
Wasting prevalence	2.3	0.12776	0,01548	0.1212	1.64815	1.2838	1714	767	0.09679	0.15873
Exclusive breastfeeding under 6 months	2.6	0.38004	0.05709	0.15022	1.28644	1.13421	206	94	0.26586	0.49421
Age-appropriate breastfeeding	2.14	0.5647	0.02192	0.03882	0.65088	0.80677	751	334	0,52086	0.60854
Tuberculosis immunization coverage	3.1	0.84809	0.03651	0.04305	1.58341	1.25834	345	154	0,77506	0.92112
Received polio immunization	3.2	0.70237	0.04174	0.05942	1.28317	1.13277	347	155	0.6189	0.78584
Received DPT immunization	3.3	0.79046	0.03693	0.04672	1.26	1.1225	345	154	0.71659	0.86432
Received measles immunization	3.4	0.74786	0.03822	0.0511	1.16959	1.08148	341	152	0.67143	0.8243
Received Hepatitis B immunization	3.3	0.53469	0.04506	0.08426	1.24837	1.1173	345	154	0.44458	0.6248
Birth registration	8.1	0.87561	0.02239	0.02557	3.80483	1.9506	1871	828	0.83084	0.92038

# Table ES9. Sampling Error – Gezira state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	ce limits
			HOUS	EHOLDS		l Contra di second				
lodized salt consumption	2.16	0.00233	0.00136	0.58335	0.78699	0.88713	2134	992	-0.0004	0.00504
Household availability of insecticide-treated nets (ITNs)		0.68464	0.03758	0.0549	6.53597	2.55655	2152	1000	0.60947	0.75981
-	5 10	, đ	HOUSEHO	LD MEMBERS	р к <sub>2</sub>	n N a	स्त देव वास्त त्यां स्ती हुएस		generation .	
Use of improved drinking water sources	4.1	0.97594	0.01542	0.0158	10.1151	3.18043	12569	1000	0.9451	1.00678
Use of improved sanitation facilities	4.3	0.45441	0.05055	0.11125	10.2984	3.20911	12569	1000	0.3533	0.55552
Secondary school net attendance ratio (adjusted)	7.5	0.28975	0.02923	0.1009	3.34317	1.82843	1721	806	0.23128	0.34821
Prevalence of children with at least one parent dead	9.18	0.0562	0.00903	0.16069	4.26767	2.06584	5943	2777	0.03814	0.07425
School attendance of orphans	9.19	1	0	0	0	0	6	3*	1	1
School attendance of non-orphans	9.2	0.89498	0.02528	0.02824	4.99685	2.23536	1548	736	0.84443	0.94554
			W	DMEN	an a the sea				a ja laintiis aya ahaa ja hiintiise	
Pregnant women		0.07753	0.00681	0.08778	0.89632	0.94674	2781	1385	0.06391	0.09114
Intermittent preventive treatment for malaria		0.03318	0.01384	0.41725	1.75644	1.32531	578	295	0.00549	0.06086
Early childbearing	5.2	0.08962	0.02165	0.24152	1.59647	1.26351	571	279	0.04633	0.13292
Contraceptive prevalence	5.3	0.09694	0.01766	0.18223	2.80881	1.67595	1568	789	0.06161	0.13227
Unmet need	5.4	0.04846	0.0068	0.14029	0.78974	0.88868	1568	789	0.03486	0.06205
Anterratal care coverage - at least once by skilled personnel	5.5a	0.75903	0.03448	0.04543	2.47646	1.57368	756	382	0.69007	0.82799
Antenatal care coverage – at least four times by any provider	5.5b	0.43975	0.03633	0.08263	2.04167	1.42887	756	382	0.36708	0.51242
Skilled attendant at delivery	5.7	0.37344	0.04307	0.11533	3.02063	1.73799	756	382	0.2873	0.45958
Caesarean section	5.9	0.87064	0.02312	0.02655	1.80781	1.34455	756	382	0.8244	0.91687
Literacy rate among young women	7.1	0.72741	0.05161	0.07095	7.81744	2.79597	1181	583	0.62419	0.83062
Marriage before age 18	8.6	0.28198	0.02589	0.0918	3.57446	1.89062	2171	1081	0.2302	0.33375
Polygamy	8.7	0.13454	0.02217	0.1648	3.32706	1.82402	1568	789	0.09019	0.17888

Comprehensive knowledge about HIV prevention among young people	9.1	0.05425	0.01215	0.22395	1.67422	1.29392	1181	583	0.02995	0.07854
Knowledge of mother-to-child transmission of HIV	9.3	0.30479	0.01655	0.0543	1.78903	1.33755	2781	1385	0.27169	0.33789
Accepting attitudes towards people living with HIV	9.4	0.11464	0.0179	0.15617	3.64762	1.90987	2326	1156	0.07883	0.15045
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.0012	0.00085	0.70815	0.83101	0.91159	2781	1385	-0.0005	0.00289
Sexually active young women who have been tested for HIV and know the results		0.0012	0.00085	0.70815	0.83101	0.91159	2781	1385	-0.0005	0.00289
			UNDE	RFIVE						
Underweight prevalence	2.1	0.23484	0.01742	0.07416	1.32667	1.15181	1633	787	0.20001	0.26967
Stunting prevalence	2.2	0.29731	0.02302	0.07743	1.96589	1.4021	1609	776	0.25127	0.34335
Wasting prevalence	2.3	0.13219	0.01124	0.085	0.8452	0.91935	1595	769	0.10971	0.15466
Exclusive breastfeeding under 6 months	2.6	0.45013	0.05538	0.12303	1.26394	1.12425	222	103	0.33937	0.5609
Age-appropriate breastfeeding	2.14	0.50003	0.02782	0.05563	1.19796	1.09451	801	388	0.4444	0.55567
Tuberculosis immunization coverage	3.1	0.88854	0.03976	0.04474	2.90474	1.70433	376	183	0.80902	0.96805
Received polio immunization	3.2	0.72834	0.04744	0.06514	2.08156	1.44276	378	184	0.63345	0.82322
Received DPT immunization	3.3	0.793	0.06098	0.07689	4.07705	2.01917	371	181	0.67104	0.91495
Received measles immunization	3.4	0.83996	0.05033	0.05992	3.44864	1.85705	378	184	0.7393	0.94062
Received Hepatitis B immunization	3.3	0.36235	0.0435	0.12005	1.47404	1.2141	371	181	0.27535	0.44934
Birth registration	8.1	0.75929	0.02675	0.03523	3.28101	1.81136	1744	839	0.70579	0.81279

# Table ES10. Sampling Error – White Nile state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	<b>ce limits</b> 1979:50
	21 21 22		HOUSEH	IOLDS						
lodized salt consumption	2.16	0.00824	0.00309	0.3747	1.13223	1.06406	746	972	0.00206	0.01441
Household availability of insecticide-treated nets (ITNs)		0.72192	0.02975	0.04121	4.29945	2.07351	750	976	0.66242	0.78143
		1	IOUSEHOLD	MEMBERS						
Use of improved drinking water sources	4.1	0.64282	0.06009	0.09347	15.3313	3.91551	4391	976	0.52264	0.76299
Use of improved sanitation facilities	4.3	0.2842	0.03052	0.10739	4.46489	2.11303	4391	976	0.22316	0.34525
Secondary school net attendance ratio (adjusted)	7.5	0.22859	0.02247	0.09829	2.22744	1.49246	596	779	0.18366	0.27353
Prevalence of children with at least one parent dead	9.18	0.04645	0.00596	0.12821	2.22445	1.49146	2160	2779	0.03454	0.05836
School attendance of orphans	9.19	1	0	0	0	0	1	2.*	1	1
School attendance of non-orphans	9.2	0.83587	0.03284	0.03928	5.23436	2.28787	514	667	0.7702	0.90154
			WON	NEN						
Pregnant women		0.08813	0.01019	0.11564	1.50427	1.22649	911	1165	0.06774	0.10851
Intermittent preventive treatment for malaria		0.00784	0.00569	0.72606	1.09983	1.04873	211	265	-0.0035	0.01923
Early childbearing	5.2	0.16598	0.0238	0.14338	0.92878	0.96373	176	228	0.11839	0.21358
Contraceptive prevalence	5.3	0.12818	0.01493	0.11645	1.44559	1.20233	572	726	0.09833	0.15804
Unmet need	5.4	0.06956	0.00811	0.11653	0.73598	0.85789	572	726	0.05335	0.08577
Antenatal care coverage - at least once by skilled personnel	5.5a	0.66233	0.04247	0.06412	3.15275	1.7756	318	392	0.5774	0.74727
Antenatal care coverage – at least four times by any provider	5.5b	0.42171	0.04081	0.09678	2.67059	1.63419	318	392	0.34008	0.50333
Skilled attendant at delivery	5.7	0.21471	0.03382	0.15751	2.65229	1.62859	318	392	0.14707	0.28234
Caesarean section	5.9	0.87014	0.02908	0.03342	2.92679	1.71079	318	392	0.81198	0.92831
Literacy rate among young women	7.1	0.54147	0.03693	0.0682	2.59797	1.61182	367	474	0.46762	0.61533
Marriage before age 18	8.6	0.35671	0.0252	0.07064	2.54033	1.59384	721	919	0.30631	0.4071
Polygamy	8.7	0.16515	0.02098	0.12701	2.3138	1.52112	572	726	0.1232	0.20711
Comprehensive knowledge about HIV prevention among young people	9.1	0.0787	0.01763	0.22398	2.02708	1.42376	367	474	0.04345	0.11396

Knowledge of mother-to-child transmission of HIV	9.3	0.38609	0.01767	0.04577	1.53364	1.2384	911	1165	0.35074	0.42143
Accepting attitudes towards people living with HIV	9.4	0.11401	0.01618	0.1419	2.74677	1.65734	828	1061	0.08165	0.14637
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00332	0.00179	0.54075	1.1328	1.06433	911	1165	-0.0003	0.0069
Sexually active young women who have been tested for HIV and know the results		0.00332	0.00179	0.54075	1.1328	1.06433	911	1165	-0.0003	0.0069
			UNDER	FIVE						
Underweight prevalence	2.1	0.34069	0.02204	0.06469	1.69125	1.30048	620	783	0.29661	0.38478
Stunting prevalence	2.2	0.37006	0.02146	0.05798	1.52061	1.23313	609	771	0.32715	0.41298
Wasting prevalence	2.3	0,18087	0.01835	0.10146	1.72539	1.31354	603	760	0.14417	0.21758
Exclusive breastfeeding under 6 months	2.6	0.3243	0.06299	0.19423	1.73821	1.31841	79	97	0.19832	0.45028
Age-appropriate breastfeeding	2.14	0.55946	0.03433	0.06136	1.82628	1.3514	307	383	0.49081	0.62812
Tuberculosis immunization coverage	3.1	0.79559	0.04679	0.05881	2.66514	1.63252	160	199	0.70202	0.88916
Received polio immunization	3.2	0.69583	0.04267	0.06132	1.70324	1.30508	160	199	0.61049	0.78116
Received DPT immunization	3.3	0.725	0.05061	0.06981	2.54404	1.595	160	199	0.62377	0.82622
Received measles immunization	3.4	0.67941	0.05382	0.07921	2.60648	1.61446	159	197	0.57178	0.78705
Received Hepatitis B immunization	3.3	0.40193	0.04887	0.12159	1.96738	1.40263	160	199	0.30418	0.49967
Birth registration	8.1	0.71684	0.05203	0.07259	11.4047	3.37709	679	856	0.61278	0.82091

# Table ES11. Sampling Error – Sinnar state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	<b>ce limits</b>
		2	HOUSEHO	OLDS						
lodized salt consumption	2.16	0.07256	0.02378	0.32779	7.91818	2.81393	590	943	0.02499	0.12012
Household availability of insecticide-treated nets (ITNs)		0.70439	0.03175	0.04507	4.78254	2.1869	617	989	0.64089	0.76788
		НС	DUSEHOLD	MEMBERS						
Use of improved drinking water sources	4.1	0.82358	0.05395	0.06551	19.7954	4.4492	3474	989	0.71567	0.93149
Use of improved sanitation facilities	4.3	0.2281	0.03878	0.17	8.43799	2.90482	3474	989	0.15054	0.30566
Secondary school net attendance ratio (adjusted)	7.5	0.16573	0.02549	0.1538	3.57582	1.89099	463	762	0.11476	0.21671
Prevalence of children with at least one parent dead	9.18	0.04285	0.00672	0.15682	3.08601	1.7567	1757	2804	0.02941	0.05629
School attendance of orphans	9.19	0	0	0	0	0	0	0*	0	0
School attendance of non-orphans	9.2	0.80061	0.03911	0.04885	6.79198	2.60614	446	710	0.7224	0.87882
			WOM	EN			4			
Pregnant women		0.08607	0.01211	0.14075	2.10821	1.45197	672	1131	0.06184	0.1103
Intermittent preventive treatment for malaria		0.02344	0.01142	0.48702	1.19559	1.09343	124	211	0.00061	0.04627
Early childbearing	5.2	0.142	0.01544	0.10876	0.50509	0.7107	155	259	0.11112	0.17289
Contraceptive prevalence	5.3	0.07344	0.01406	0.19144	2.02186	1.42192	417	697	0.04532	0.10156
Unmet need	5.4	0.04906	0.00793	0.16173	0.93923	0.96914	417	697	0.03319	0.06493
Antenatal care coverage - at least once by skilled personnel	5.5a	0.56935	0.03595	0.06315	1.87163	1.36807	216	356	0.49744	0.64126
Antenatal care coverage – at least four times by any provider	5.5b	0.3641	0.03334	0.09158	1.70471	1.30565	216	356	0.29741	0.43079
Skilled attendant at delivery	5.7	0.21042	0.02579	0.12258	1.4215	1.19227	216	356	0.15883	0.26201
Caesarean section	5.9	0.94191	0.01596	0.01695	1.65332	1.28582	216	356	0.90999	0.97384
Literacy rate among young women	7.1	0.4505	0.05711	0.12676	6.52089	2.5536	292	496	0.33628	0.56471
Marriage before age 18	8.6	0.39461	0.0266	0.0674	2.64397	1.62603	535	894	0.34142	0.4478
Polygamy	8.7	0.15034	0.02285	0.152	2.84523	1.68678	417	697	0.10463	0.19604
Comprehensive knowledge about HIV prevention among young people	9.1	0.01848	0.00774	0.41888	1.63483	1.2786	292	496	0.003	0.03395

Knowledge of mother-to-child transmission of HIV	9.3	0.30097	0.03175	0.10549	5.41432	2.32687	672	1131	0.23747	0.36447
Accepting attitudes towards people living with HIV	9.4	0.06728	0.01571	0.23356	3.07716	1.75418	460	783	0.03585	0.09871
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00075	0.00074	0.98446	0.82646	0.9091	672	1131	-0.0007	0.00224
Sexually active young women who have been tested for $HIV$ and know the results		0.00075	0.00074	0.98446	0.82646	0.9091	672	1131	-0.0007	0.00224
			UNDER F	IVE	÷				N	
Underweight prevalence	2.1	0.42577	0.02544	0.05975	2.06707	1.43773	480	782	0.37489	0.47665
Stunting prevalence	2.2	0.47092	0.03154	0.06697	3.03834	1.74308	467	762	0.40784	0.534
Wasting prevalence	2.3	0.21605	0.01478	0.06843	0.97814	0.98901	465	759	0.18648	0.24561
Exclusive breastfeeding under 6 months	2.6	0.39099	0.04099	0.10484	0.72679	0.85252	64	104	0.30901	0.47297
Age-appropriate breastfeeding	2.14	0.53496	0.0267	0.0499	1.00265	1.00132	214	351	0.48157	0.58835
Tuberculosis immunization coverage	3.1	0.88401	0.03196	0.03616	1.54425	1.24268	95	156	0.82008	0.94793
Received polio immunization	3.2	0.72828	0.04952	0.068	1.89605	1.37697	94	154	0.62924	0.82733
Received DPT immunization	3.3	0.73721	0.04411	0.05983	1.54656	1.24361	94	155	0.64899	0.82542
Received measles immunization	3.4	0.73239	0.05404	0.07378	2.29453	1.51477	94	155	0.62432	0.84047
Received Hepatitis B immunization	3.3	0.45161	0.03652	0.08087	0.82939	0.91071	94	155	0.37857	0.52465
Birth registration	8.1	0.59666	0.03893	0.06525	5.30332	2.30289	515	843	0.51879	0.67452

# Table ES12. Sampling Error – Blue Nile state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	r + 2se			
HOUSEHOLDS													
lodized salt consumption	2.16	0.00152	0.00114	0.752	0.82345	0.90744	471	958	-0.0008	0.0038			
Household availability of insecticide-treated nets (ITNs)		0.79232	0.02095	0.02645	2.66036	1.63106	492	998	0.75041	0.83422			
HOUSEHOLD MEMBERS													
Use of improved drinking water sources	4.1	0.53999	0.04669	0.08646	8.74826	2.95775	3018	998	0.44661	0.63336			
Use of improved sanitation facilities	4.3	0.06079	0.01455	0.23935	3.69693	1.92274	3018	998	0.03169	0.08989			
Secondary school net attendance ratio (adjusted)	7.5	0.07578	0.01907	0.25165	3.79061	1.94695	354	731	0.03764	0.11392			
Prevalence of children with at least one parent dead	9.18	0.04792	0.00581	0.12126	2.53752	1.59296	1685	3430	0.0363	0.05954			
School attendance of orphans	9.19	1	0	0	0	0	1	2`	1	1			
School attendance of non-orphans	9.2	0.76336	0.02894	0.03791	3.37055	1.83591	362	728	0.70548	0.82124			
WOMEN													
Pregnant women		0.15942	0.01196	0.07505	1.26584	1.1251	565	1186	0.1355	0.18335			
Intermittent preventive treatment for malaria		0.04904	0.0289	0.5894	2.90221	1.70359	70	163	-0.0088	0.10685			
Early childbearing	5.2	0.26908	0.04142	0.15392	1.97113	1.40397	110	227	0.18625	0.35192			
Contraceptive prevalence	5.3	0.02971	0.00411	0.1383	0.51138	0.71511	424	874	0.0215	0.03793			
Unmet need	5.4	0.04174	0.00859	0.20575	1.60961	1.2687	424	874	0.02456	0.05891			
Antenatal care coverage - at least once by skilled personnel	5.5a	0.26919	0.02394	0.08893	1.57886	1.25653	261	543	0.22131	0.31707			
Antenatal care coverage – at least four times by any provider	5.5ь	0.31766	0.03169	0.09975	2.51091	1.58459	261	543	0.25429	0.38104			
Skilled attendant at delivery	5.7	0.065	0.01328	0.20424	1.57176	1.2537	261	543	0.03845	0.09155			
Caesarean section	5.9	0.95422	0.00936	0.00981	1.08637	1.04229	261	543	0.93551	0.97293			
Literacy rate among young women	7.1	0.33034	0.03546	0.10736	2.68921	1.63988	228	474	0.25941	0.40127			
Marriage before age 18	8.6	0.62212	0.01382	0.03025	1.41327	1.18881	448	939	0.58448	0.65976			
Polygamy	8.7	0.30834	0.02077	0.06737	1.76564	1.32915	424	874	0.2668	0.34989			

Comprehensive knowledge about HIV prevention among young people	9.1	0.05228	0.01329	0.25416	1.68538	1.29822	228	474	0.0257	0.07885		
Knowledge of mother-to-child transmission of HIV	9.3	0.22918	0.01891	0.08251	2.39842	1.54868	565	1186	0.19137	0.267		
Accepting attitudes towards people living with $\ensuremath{HIV}$	9.4	0.0654	0.01204	0.18416	1.54028	1.24108	299	650	0.04131	0.08949		
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00082	0.00082	0.99045	0.95782	0.97869	565	1186	-0.0008	0.00245		
Sexually active young women who have been tested for HIV and know the results		0.00082	0.00082	0.99045	0.95782	0.97869	565	1186	-0.0008	0.00245		
UNDER FIVE												
Underweight prevalence	2.1	0.31702	0.01885	0.05948	1.93257	1.39017	567	1178	0.27931	0.35473		
Stunting prevalence	2.2	0.37141	0.02504	0.06742	3.11036	1.76362	558	1159	0.32132	0.42149		
Wasting prevalence	2.3	0.16196	0.01352	0.08347	1.56612	1.25145	561	1164	0.13492	0.189		
Exclusive breastfeeding under 6 months	2.6	0.39124	0.04033	0.10309	0.93572	0.96733	66	138	0.31058	0.47191		
Age-appropriate breastfeeding	2.14	0.55307	0.02331	0.04214	1.17366	1.08336	257	535	0.50645	0.59969		
Tuberculosis immunization coverage	3.1	0.8091	0.04996	0.06175	4.02401	2.00599	120	250	0.70917	0.90902		
Received polio immunization	3.2	0.73562	0.04814	0.06543	2.97839	1.7258	121	251	0.63935	0.83189		
Received DPT immunization	3.3	0.72762	0.0483	0.06638	2.93047	1.71186	120	250	0.63103	0.82421		
Received measles immunization	3.4	0.71297	0.04347	0.06096	2.2988	1.51618	120	250	0.62604	0.79991		
Received Hepatitis B immunization	3.3	0.49529	0.04662	0.09413	2.16511	1.47143	120	250	0.40204	0.58853		
Birth registration	8.1	0.39812	0.01738	0.04366	1.55489	1.24695	594	1234	0.36335	0.43288		

# Table ES13. Sampling Error – North Kordofan state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confidence limits				
HOUSEHOLDS													
lodized salt consumption	2.16	0.01425	0.00564	0.3955	2.23009	1.49335	1598	987	0.00298	0.02553			
Household availability of insecticide-treated nets (ITNs)		0.63657	0.04354	0.06839	8.17625	2.85942	1616	999	0.5495	0.72364			
		НО	USEHOLDN	MEMBERS									
Use of improved drinking water sources	4.1	0.78837	0.04407	0.0559	11.6159	3.40821	8638	999	0.70024	0.8765			
Use of improved sanitation facilities	4.3	0.22683	0.02191	0.0966	2.73245	1.65301	8638	999	0.18301	0.27066			
Secondary school net attendance ratio (adjusted)	7.5	0.10512	0.01448	0.13771	1.55725	1.2479	1127	700	0.07617	0.13408			
Prevalence of children with at least one parent dead	9.18	0.07006	0.00856	0.12223	3.20133	1.78923	4622	2845	0.05293	0.08719			
School attendance of orphans	9.19	0.32636	0	0	0	0	4	4*	0.32636	0.32636			
School attendance of non-orphans	9.2	0.76709	0.03356	0.04375	4.292	2.07171	1104	682	0.69997	0.8342			
	********		WOME	N		<u>, , , , , , , , , , , , , , , , , , , </u>		<u> </u>		•			
Pregnant women		0.08731	0.01165	0.1334	1.96443	1.40158	1760	1155	0.06402	0.1106			
Intermittent preventive treatment for malaria		0.02886	0.01037	0.35946	0.89837	0.94783	354	235	0.00811	0.0496			
Early childbearing	5.2	0.16347	0.02201	0.13464	0.8396	0.9163	361	238	0.11945	0.20749			
Contraceptive prevalence	5.3	0.0657	0.0122	0.18573	1.766	1.32891	1104	729	0.0413	0.09011			
Unmet need	5.4	0.08338	0.01074	0.12876	1.09799	1.04785	1104	729	0.06191	0.10486			
Antenatal care coverage - at least once by skilled personnel	5.5a	0.56698	0.04337	0.07649	3.04904	1.74615	614	399	0.48024	0.65372			
Antenatal care coverage – at least four times by any provider	5.5ь	0.52679	0.04259	0.08086	2.89656	1.70193	614	399	0.4416	0.61197			
Skilled attendant at delivery	5.7	0.1214	0.02452	0.20199	2.24361	1.49787	614	399	0.07235	0.17044			
Caesarean section	5.9	0.93286	0.01205	0.01292	0.92284	0.96064	614	399	0.90875	0.95696			
Literacy rate among young women	7.1	0.43818	0.03344	0.07632	2.13967	1.46276	723	472	0.3713	0.50507			
Marriage before age 18	8.6	0.37085	0.01691	0.04561	1.12803	1.06209	1398	921	0.33702	0.40467			
Polygamy	8.7	0.15168	0.019	0.12527	2.04271	1.42924	1104	729	0.11368	0.18968			
Comprehensive knowledge about HIV prevention among young people	9.1	0.03605	0.00908	0.25176	1.11638	1.05659	723	472	0.0179	0.0542			

Knowledge of mother-to-child transmission of HIV	9.3	0.37833	0.02173	0.05743	2.31635	1.52195	1760	1155	0.33488	0.42179			
Accepting attitudes towards people living with HIV	9.4	0.04313	0.00853	0.19777	1.5234	1.23426	1274	865	0.02607	0.06019			
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00519	0.00147	0.28371	0.48431	0,69592	1760	1155	0.00224	0.00813			
Sexually active young women who have been tested for HIV and know the results		0.00519	0.00147	0.28371	0.48431	0.69592	1760	1155	0.00224	0.00813			
UNDER FIVE													
Underweight prevalence	2.1	0.41364	0.02315	0.05597	1.79658	1.34037	1289	814	0.36734	0.45994			
Stunting prevalence	2.2	0.46688	0.01995	0.04274	1.22535	1.10696	1221	767	0.42697	0.50679			
Wasting prevalence	2.3	0.18122	0.01869	0.10316	1.79461	1.33963	1215	763	0.14383	0.2186			
Exclusive breastfeeding under 6 months	2.6	0.3717	0.05107	0.1374	1.28437	1.1333	178	116	0.26956	0.47384			
Age-appropriate breastfeeding	2.14	0.47292	0.03427	0.07247	1.81423	1.34693	603	386	0.40437	0.54146			
Tuberculosis immunization coverage	3.1	0.70868	0.04452	0.06283	1.74764	1.32198	287	183	0.61963	0.79773			
Received polio immunization	3.2	0.58166	0.0409	0.07032	1.26518	1.1248	291	185	0.49986	0.66347			
Received DPT immunization	3.3	0.4815	0.0426	0.08847	1.3374	1.15646	291	185	0.3963	0.5667			
Received measles immunization	3.4	0.543	0.03662	0.06744	0.98897	0.99447	289	184	0.46976	0.61624			
Received Hepatitis B immunization	3.3	0.33471	0.03872	0.11569	1.23911	1.11315	291	185	0.25726	0.41216			
Birth registration	8.1	0.49464	0.03349	0.06771	4.04375	2.01091	1422	902	0.42765	0.56163			

# Table ES14. Sampling Error – South Kordofan state

				Coefficient	Design	Square root of		Un-	Confiden	ce limits			
A CARL STATE OF A CARL STATE OF A CARL	MICS Indicator	Value (r)	Standard error (se)	of variation	effect (cleff)	design	Weighted count	weighted	1-256 ···	г. <b>н 25</b> ерт			
					(den)	(deft)			1				
HOUSEHOLDS													
lodized salt consumption	2.16	0.01592	0.005	0.31394	1.51517	1.23092	659	951	0.00593	0.02592			
Household availability of insecticide-treated nets (ITNs)		0.59682	0.02329	0.03903	2.22531	1.49175	685	988	0.55023	0.6434			
HOUSEHOLD MEMBERS													
Use of improved drinking water sources	4.1	0.72856	0.06266	0.08601	19.596	4.42674	3816	988	0.60324	0.85388			
Use of improved sanitation facilities	4.3	0.25595	0.03825	0,14943	7.58121	2.7534	3816	988	0.17946	0.33244			
Secondary school net attendance ratio (adjusted)	7.5	0.1241	0.01685	0.13575	1.75208	1.32366	462	672	0.09041	0.1578			
Prevalence of children with at least one parent dead	9.18	0.05353	0.00668	0.12487	2.74515	1.65685	2157	3114	0.04016	0.06689			
School attendance of orphans	9.19	0	0	0	0	0	0	0*	0	0			
School attendance of non-orphans	9.2	0.74637	0.03858	0.05169	5.28285	2.29844	471	673	0.66922	0.82352			
WOMEN													
Pregnant women		0.12929	0.01226	0.09484	1.4225	1.19269	703	1066	0.10477	0.15382			
Intermittent preventive treatment for malaria		0.02676	0.01247	0,46603	1.3495	1.16168	143	227	0.00182	0.0517			
Early childbearing	5.2	0.17908	0.02641	0.14749	0.98698	0.99347	136	209	0.12626	0.23191			
Contraceptive prevalence	5.3	0.03552	0.00587	0.16531	0.779	0.88261	513	775	0.02378	0.04727			
Unmet need	5.4	0.10992	0.01244	0.11322	1.22519	1.10588	513	775	0.08503	0.13481			
Antenatal care coverage - at least once by skilled personnel	5.5a	0.45226	0.02633	0.05822	1.30155	1.14086	309	466	0.3996	0.50493			
Antenatal care coverage – at least four times by any provider	5.5b	0.47561	0.03571	0.07507	2.377	1.54175	309	466	0.40419	0.54702			
Skilled attendant at delivery	5.7	0.1024	0.01767	0.17258	1.57998	1.25697	309	466	0.06706	0.13775			
Caesarean section	5.9	0.94906	0.00778	0.00819	0.58177	0.76274	309	466	0.93351	0.96462			
Literacy rate among young women	7.1	0.40104	0.04017	0.10017	2.91591	1.70761	289	435	0.32069	0.48138			
Marriage before age 18	8.6	0.48097	0.02774	0.05768	2.58643	1.60824	550	840	0.42549	0.53645			
Polygamy	8.7	0.2822	0.01392	0.04934	0.74066	0.86062	513	775	0.25436	0.31005			

Comprehensive knowledge about HIV prevention among young people	9.1	0.04901	0.00727	0.1484	0.49263	0.70187	289	435	0.03447	0.06356			
Knowledge of mother-to-child transmission of HIV	9.3	0.29452	0.01967	0.0668	1.98375	1.40846	703	1066	0.25517	0.33386			
Accepting attitudes towards people living with HIV	9.4	0.07665	0.01506	0.19644	2.57533	1.60478	524	805	0.04653	0.10676			
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00479	0.00216	0.45152	1.04589	1.02269	703	1066	0.00046	0.00912			
Sexually active young women who have been tested for $\ensuremath{HIV}$ and know the results		0.00479	0.00216	0.45152	1.04589	1.02269	703	1066	0.00046	0.00912			
UNDER FIVE													
Underweight prevalence	2.1	0.40335	0.02543	0.06306	2.40051	1.54936	601	894	0.35248	0.45422			
Stunting prevalence	2.2	0.36544	0.02176	0.05954	1.68249	1.29711	554	825	0.32192	0.40896			
Wasting prevalence	2.3	0.17446	0.01501	0.08602	1.28235	1.13241	552	821	0.14444	0.20447			
Exclusive breastfeeding under 6 months	2.6	0.32281	0.0333	0.10317	0.61901	0.78677	83	123	0.2562	0.38942			
Age-appropriate breastfeeding	2.14	0.45045	0.02384	0.05292	1.05143	1.02539	306	459	0.40277	0.49813			
Tuberculosis immunization coverage	3.1	0.71753	0.045	0.06271	2.04783	1.43102	136	206	0.62753	0.80752			
Received polio immunization	3.2	0.59446	0.04092	0.06884	1.43111	1.19629	137	207	0.51262	0.67631			
Received DPT immunization	3.3	0.51883	0.04032	0.07771	1.33476	1.15532	136	206	0.4382	0.59946			
Received measles immunization	3.4	0.63883	0.04932	0.07721	2.1403	1.46298	135	204	0.54018	0.73747			
Received Hepatitis B immunization	3.3	0.36238	0.03774	0.10415	1.26377	1.12417	136	206	0.2869	0.43787			
Birth registration	8.1	0.49483	0.04412	0.08916	7.93487	2.81689	684	1020	0.40659	0.58307			

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# Table ES15. Sampling Error – North Darfur state

	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect (deft)	Weighted count	Un- weighted count	Confiden	<b>ce limits</b> r + Zse			
HOUSEHOLDS													
lodized salt consumption	2.16	0.21838	0.0232	0.10623	3.09007	1.75786	897	981	0.17198	0.26478			
Household availability of insecticide-treated nets (ITNs)		0.51454	0.03146	0.06115	3.92783	1.98188	907	992	0.45161	0.57747			
HOUSEHOLD MEMBERS													
Use of improved drinking water sources	4.1	0.78362	0.02907	0.03709	4.93735	2.22202	5352	992	0.72549	0.84175			
Use of improved sanitation facilities	4.3	0.22558	0.02922	0.12952	4.84212	2.20048	5352	992	0.16715	0.28401			
Secondary school net attendance ratio (adjusted)	7.5	0.22269	0.02505	0.11247	2.75063	1.6585	703	760	0.1726	0.27279			
Prevalence of children with at least one parent dead	9.18	0.05623	0.00874	0.15544	4.77639	2.1855	3076	3319	0.03875	0.07371			
School attendance of orphans	9.19	0.42526	0	0	0	0	1	2*	0.42526	0.42526			
School attendance of non-orphans	9.2	0.85065	0.02209	0.02597	2.95811	1.71992	723	771	0.80647	0.89483			
WOMEN													
Pregnant women		0.09252	0.01271	0.13732	1.96677	1.40242	930	1024	0.06711	0.11793			
Intermittent preventive treatment for malaria		0.01467	0.01348	0.91862	2.04826	1.43117	139	164	-0.0123	0.04163			
Early childbearing	5.2	0.18954	0.04031	0.21268	1.91476	1.38375	162	182	0.10892	0.27017			
Contraceptive prevalence	5.3	0.02485	0.00634	0.25502	1.20345	1.09702	669	727	0.01218	0.03753			
Unmet need	5.4	0.04686	0.00852	0.1818	1.17966	1.08612	669	727	0.02982	0.0639			
Antenatal care coverage - at least once by skilled personnel	5.5a	0.34786	0.03987	0.11461	2.9849	1.72769	387	427	0.26813	0.4276			
Antenatal care coverage – at least four times by any provider	5.5b	0.32969	0.03477	0.10546	2.33038	1.52656	387	427	0.26015	0.39922			
Skilled attendant at delivery	5.7	0.09898	0.01946	0.19659	1.80868	1.34487	387	427	0.06006	0.1379			
Caesarean section	5.9	0.94238	0.01629	0.01728	2.08106	1.44259	387	427	0.90981	0.97495			
Literacy rate among young women	7.1	0.48705	0.04704	0.09659	3.37515	1.83716	346	382	0.39296	0.58114			
Marriage before age 18	8.6	0.33906	0.02095	0.0618	1.61229	1.26976	746	824	0.29715	0.38097			
Polygamy	8.7	0.28599	0.01729	0.06046	1.06293	1.03098	669	727	0.25141	0.32058			
Comprehensive knowledge about HIV prevention among young people	9.1	0.03389	0.00969	0.28601	1.09327	1.0456	346	382	0.0145	0.05327			

Knowledge of mother-to-child transmission of $HIV$	9.3	0.20026	0.01748	0.08731	1.95263	1.39736	930	1024	0.1653	0.23523			
Accepting attitudes towards people living with HIV	9.4	0.04188	0.0091	0.21737	1.24729	1.11682	555	605	0.02367	0.06008			
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00744	0.00375	0.50406	1.94867	1.39595	930	1024	-6E-05	0.01494			
Sexually active young women who have been tested for $\ensuremath{HIV}$ and know the results		0.00744	0.00375	0.50406	1.94867	1.39595	930	1024	-6E-05	0.01494			
UNDER FIVE													
Underweight prevalence	2.1	0.35732	0.02454	0.06868	2.58293	1.60715	896	986	0.30824	0.4064			
Stunting prevalence	2.2	0.35272	0.02557	0.07249	2.79721	1.67249	890	978	0.30158	0.40385			
Wasting prevalence	2.3	0.21583	0.02162	0.10018	2.6876	1.63939	885	974	0.17259	0.25908			
Exclusive breastfeeding under 6 months	2.6	0.70293	0.0403	0.05733	0.93343	0.96614	106	121	0.62233	0.78354			
Age-appropriate breastfeeding	2.14	0.52191	0.0195	0.03735	0.6306	0.79411	369	415	0.48292	0.5609			
Tuberculosis immunization coverage	3.1	0.73777	0.03174	0.04302	0.93211	0.96546	160	180	0.67429	0.80125			
Received polio immunization	3.2	0.62332	0.03928	0.06302	1.1828	1.08757	161	181	0.54476	0.70188			
Received DPT immunization	3.3	0.4842	0.04127	0.08524	1.21406	1.10184	158	179	0.40165	0.56674			
Received measles immunization	3.4	0.69989	0.02941	0.04202	0.74117	0.86091	161	181	0.64108	0.75871			
Received Hepatitis B immunization	3.3	0.30848	0.02976	0.09647	0.73898	0.85964	158	179	0.24896	0.368			
Birth registration	8.1	0.58851	0.02969	0.05046	3.79401	1.94782	946	1043	0.52912	0.6479			
## Table ES16. Sampling Error - West Darfur state

	MICS	Value (r)	Standard	Coefficient of variation	Design effect	Square root of design	Weighted	Un- weighted	Confiden	ce limits
	moneator		entor (ea)	(selt)	(deff)	elfect (deft)	count	count	i 25e	r + Zse
			HOUSE	HOLDS		an a				
lodized salt consumption	2.16	0.40115	0.03783	0.0943	5.78457	2.40511	702	972	0.32549	0.47681
Household availability of insecticide-treated nets (ITNs)		0.38842	0.02661	0.06852	2.93973	1.71456	711	987	0.3352	0.44165
			HOUSEHOLI	OMEMBERS						
Use of improved drinking water sources	4.1	0.5449	0.04236	0.07774	7.1342	2.67099	3615	987	0.46018	0.62962
Use of improved sanitation facilities	4.3	0.30861	0.03597	0.11655	5.97872	2.44514	3615	987	0.23667	0.38055
Secondary school net attendance ratio (adjusted)	7.5	0.08471	0.01974	0.23298	3.2452	1.80144	462	647	0.04524	0.12418
Prevalence of children with at least one parent dead	9.18	0.069	0.00854	0.12375	3.27911	1.81083	2088	2890	0.05192	0.08608
School attendance of orphans	9.19	0.87455	0.14673	0.16778	0.78498	0.88599	2	5*	0.58108	1.16802
School attendance of non-orphans	9.2	0.68176	0.04478	0.06568	5.83115	2.41478	457	632	0.5922	0.77131
			WOI	VIEN						
Pregnant women		0.12878	0.0064	0.04971	0.36493	0.60409	672	1000	0.11598	0.14159
Intermittent preventive treatment for malaria		0.04744	0.02118	0.44636	0.80373	0.89651	48	82	0.00509	0.08979
Early childbearing	5.2	0.16296	0.02769	0.16994	1.07948	1.03898	135	193	0.10757	0.21834
Contraceptive prevalence	5.3	0.04174	0.01353	0.32408	3.42177	1.8498	513	749	0.01468	0.06879
Unmet need	5.4	0.03633	0.0074	0.20361	1.16899	1.0812	513	749	0.02153	0.05112
Antenatal care coverage - at least once by skilled personnel	5,5a	0.15525	0.02402	0.1547	1.77689	1.333	278	405	0.10722	0.20329
Antenatal care coverage – at least four times by any provider	5.56	0.46013	0.03978	0.08646	2.57422	1.60444	278	405	0.38056	0.5397
Skilled attendant at delivery	5.7	0.0629	0.01112	0.17686	0.84818	0.92097	278	405	0.04065	0.08515
Caesarean section	5.9	0.94603	0.00937	0.00991	0.6955	0.83397	278	405	0.92728	0.96478
Literacy rate among young women	7.1	0.18905	0.03633	0.19219	3.30643	1.81836	263	385	0.11638	0.26171
Marriage before age 18	8.6	0.49452	0.03427	0.06929	3.79095	1.94704	543	808	0.42598	0.56305
Polygamy	8.7	0.41806	0.02518	0.06022	1.94865	1.39594	513	749	0.36771	0.46842
Comprehensive knowledge about HIV prevention among young people	9.1	0.01	0.00486	0.48602	0.91661	0.9574	263	385	0.00028	0.01973

Knowledge of mother-to-child transmission of HIV	9.3	0.23968	0.0255	0.10641	3.56605	1.8884	672	1000	0.18867	0.29069
Accepting attitudes towards people living with HIV	9.4	0.03649	0.01152	0.31586	2.13088	1.45975	365	565	0.01344	0.05954
Women who have been tested for $HIV$ during last 12 months and who have been told the results	9.6	0.00591	0.00375	0.63428	2.38787	1.54527	672	1000	-0.0016	0.0134
Sexually active young women who have been tested for HIV and know the results	9	0.00591	0.00375	0.63428	2.38787	1.54527	672	1000	-0.0016	0.0134
		(* 547 M (* 5	UNDER	R FIVE	an galaga an talaga					
Underweight prevalence	2.1	0.33071	0.01561	0.04719	1.01109	1.00553	649	920	0.2995	0.36192
Stunting prevalence	2.2	0.36571	0.01518	0.04152	0.89535	0.94623	637	902	0.33535	0.39608
Wasting prevalence	2.3	0.18619	0.01796	0.09644	1.91957	1.38548	636	903	0.15028	0.22211
Exclusive breastfeeding under 6 months	2.6	0.47887	0.0495	0.10337	1.11929	1.05796	84	115	0.37987	0.57787
Age-appropriate breastfeeding	2.14	0.31116	0.03116	0.10013	1.80689	1.34421	282	400	0.24885	0.37347
Tuberculosis immunization coverage	3.1	0.59356	0.04139	0.06973	1.20707	1.09867	121	171	0.51078	0.67633
Received polio immunization	3.2	0.52675	0.04137	0.07855	1.18111	1.08679	122	173	0.44401	0.6095
Received DPT immunization	3.3	0.458	0.04489	0.09801	1.38796	1.17812	121	172	0.36823	0.54778
Received measles immunization	3.4	0.48263	0.04906	0.10165	1.65798	1.28763	122	173	0.38451	0.58075
Received Hepatitis B immunization	3.3	0.20602	0.03321	0.16119	1.15282	1.07369	121	172	0.1396	0.27243
Birth registration	8.1	0.23255	0.02765	0.11892	4.13953	2.03458	682	967	0.17724	0.28786

### Table ES17. Sampling Error - South Darfur state

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	MICS Indicator	Value (r)	Standard error (se)	Coefficient of variation (se/r)	Design effect (deff)	Square root of design effect	Weighted count	Un- weighted	Confider	ce limits	
	un construit a la construit recur ainstant					(deft)					Station and the second s
			HOUSE	HOLDS							· ·
lodized salt consumption	2.16	0.43258	0.03323	0.07682	4.08094	2.02013	1604	908	0.36611	0.49904	
Household availability of insecticide-treated nets (ITNs)		0.61534	0.02147	0.03489	1.90641	1:38073	1742	980	0.5724	0.65828	
	1		HOUSEHOL	d members						din An India and An	
Use of improved drinking water sources	4.1	0.82677	0.04473	0.0541	13.6772	3.69827	10231	980	0.73731	0.91623	a
Use of improved senitation facilities	4.3	0.07533	0.01585	0.21048	3.53324	1.87969	10231	980	0.04362	0.10704	
Secondary school net attendance ratio (adjusted)	7.5	0.13952	0.01777	0.12734	1.90881	1.3816	1266	727	0.10399	0.17505	
Prevalence of children with at least one parent dead	9.18	0.07374	0.00983	0.13326	4.56481	2.13654	5734	3230	0.05409	0.09339	
School attendance of orphans	9,19	1	0	0	0	Q	7	5*	1	1	1
School attendance of non-orphans	9.2	0.73152	0.03092	0.04226	3.28533	1.81255	1200	676	0.66969	0.79336	t Gertledte skore
	and the second sec		WO	MEN	ber en						
Pregnant women		0.1241	0.01437	0.11577	2.05852	1.43475	1924	1085	0.09536	0.15283	
Intermittent preventive treatment for malaria	•	0.03165	0.0143	0.45198	1.14831	1.07159	286	173	0.00304	0.06025	
Early childbearing	5.2	0.2037	0.02561	0.12575	0.70785	0.84134	310	176	0.15247	0.25493	
Contraceptive prevalence	5.3	0.02103	0.00517	0.24568	0.97352	0.98667	1364	752	0.01069	0.03136	1
Unmet need	5.4	0.10407	0.00905	0.08694	0.65936	0.81201	1364	752	0.08597	0.12216	
Antenatal care coverage - at least once by skilled personnel	5.5a	0.36294	0.02715	0.0748	1.35479	1.16396	771	426	0.30865	0.41724	
Antenatal care coverage - at least four times by any provider	5.5b	0.40901	0.0388	0.09487	2.64724	1.62703	771	426	0.33141	0.48662	-
Skilled attendant at delivery	5.7	0.09319	0.01169	0.12549	0.68778	0.82933	771	426	0.0698	0.11658	
Caesarean section	5.9	0,94967	0.00911	0.0096	0.73846	0.85934	771	426	0.93144	0.96789	
Literacy rate among young women	7.1	0.39886	0.03878	0.09723	2.6846	1.63848	758	429	0.3213	0.47642	
Marriage before age 18	8.6	0.53837	0.02496	0.04637	2.08374	1.44352	1476	832	0.48844	0.5883	
Polygamy	8.7	0.38831	0.02248	0.05788	1.59724	1.26382	1364	752	0.34336	0.43327	

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Comprehensive knowledge about HIV prevention among young people	9.1	0.04511	0.01214	0.26912	1.46433	1.21009	758	429	0.02083	0.06939
Knowledge of mother-to-child transmission of HIV	9.3	0.34916	0.01952	0.05589	1.81688	1.34792	1924	1085	0.31013	0.3882
Accepting attitudes towards people living with HIV	9.4	0.07969	0.01119	0.14039	1.44553	1.2023	1478	848	0.05731	0.10206
Women who have been tested for HIV during last 12 months and who have been told the results	9.6	0.00503	0,0023	0.45801	. 1,14849	1.07168	1924	1085	0.00042	0.00963
Sexually active young women who have been tested for HIV and know the results		0.00503	0.0023	0.45801	1.14849	1.07168	1924	1085	0.00042	0.00963
			UNDER	FIVE						
Underweight prevalence	2.1	0.31185	0,0204	0.06543	1.89935	1.37817	1730	980	0.27104	0.35266
Stunting prevalence	2.2	0.31129	0.01657	0.05321	1.21212	1.10096	1665	948	0.27816	0.34442
Wasting prevalence	2,3	0.14004	0.01069	0.07635	0.89421	0.94562	1655	943	0.11866	0.16143
Exclusive breastfeeding under 6 months	2.6	0.33656	0.04465	0.13265	1.03554	1.01761	214	117	0.24727	0.42586
Age-appropriate breastfeeding	2.14	0.43084	0.02355	0.05466	0.92737	0.963	732	411	0.38374	0.47795
Tuberculosis immunization coverage	3.1	0.62323	0.04869	0.07812	1.90794	1.38128	332	190	0.52585	0.7206
Received polio immunization	3.2	0.60751	0.03237	0.05328	0.83049	0.91131	332	190	0.54278	0.67225
Received DPT immunization	3.3	0.35137	0.03678	0.10469	1.1221	1.05929	332	190	0.2778	0.42494
Received measles immunization	3.4	0.51548	0.04538	0.08803	1.55825	1.2483	332	190	0.42472	0.60624
Received Hepatitis B immunization	3.3	0.31994	0.03585	0.11205	1.1164	1.0566	332	190	0.24824	0.39164
Birth registration	8.1	0.3311	0.01826	0.05514	1.55436	1.24674	1828	1034	0.29459	0.36761

# Appendix D

## Data Quality Tables

		1			Sex		
		N	fale	F	emale		Missing
		Number	Percent	Number	Percent	Number	Percent
Age	0	1504	3.6	1518	3.5	0	.0
J.	1	1360	3.3	1300	3.0	0	.0
	2	1482	3.6	1386	3.2	0	.0
	3	1468	3.6	1414	3.3	0	.0
	4	1206	29	1185	27	0	0
	5	1460	2.5	1/21	3.2	1 0	, <u>u</u>
	6	1400	2.4	1220	2.5	0	
	7	1424	3.4	1000		+ 0	,0,
		1441	3.5	1380	3.2		
	0	1210	2.9	1288	3.0	<u> </u>	.0
	9	1100	2.1	1031	2.4		.0
	10	1417	3.4	1335	3.1	0	.0
	11	895	2.2	906	2.1	0	.0
	12	1358	3.3	1291	3.0	0	.0
	13	1019	2.5	1038	2.4	0	.0
	14	1097	2.7	1254	2.9	0	.0
	15	746	1,8	663	1.5	0	.0
	16	775	1.9	768	1.8	0	.0
	17	700	1.7	800	1.9	0	.0
	18	918	2.2	1064	2.5	0	.0
	19	597	1.4	739	1.7	0	.0
	20	884	21	1257	2.9	0	0.
	21	430	10	515	12	1 0	0
	22	643	16	775	1.2	1 <u>0</u>	<u>, , , , , , , , , , , , , , , , , , , </u>
	22	400	1.0	1/3 575	1.0		
	23	409	1.1	5/5	1.3	0	<u>, v</u>
	24	414	1.0	5//	1.3	- U	
	25	849	2.1	1276	3.0	0	.0
	26	422	1.0	518	1.2	0	.0
	27	506	1.2	648	1.5	0	.0
	28	454	1,1	597	1.4	0	.0
	29	268	.6	432	1.0	0	.0
	30	928	2.2	1141	2.6	0	.0
	31	249	.6	247	.6	0	.0
3	32	398	1.0	447	1.0	0	.0
	33	293	7	245	.6	0	.0
1	34	234	6	234	5	0	0
	35	991	24	1204	2.8	0	0
	36	228	6	275	6	0	
	37	360		207	0.	0	
	20	209		420	10	0	.0
	30	300		420	1.0	0	
	39	223	.5	330			
	40	953	2.3	864	2.0	<u> </u>	
	41	188	.5	163	.4	0	.0
	42	321	.8	292	./	U	0.
	43	183	.4	184	.4	0	.0
	44	135	.3	107	.2	0	.0.
	45	723	1.7	599	1.4	0	.0
[	46	189	.5	123	.3	0	.0
	47	174	.4	190	.4	0	.0
	48	210	.5	176	.4	0	.0
1	49	170	.4	104	.2	0	.0
	50	758	1.8	1327	3.1	0	0.
1	51	120	.3	231	.5	0	.0
ļ.	52	264	.6	317	.7	0	Ö
F	53	141	.3	168	.4	0	.0
H	54	135	3	101	.2	0	0
F	55	567	1.4	583	1 2	<u> </u>	
H	55	1/2	A	77	2	<u> </u>	<u></u>
H	57	110		82	· <u>'</u>	0	
H	57	00		<u> </u>	.2		
ŀ	00	30	.2	00	······		<u>U.</u>
H	59	720	.4	48		0	<u> </u>
-	60	133	1.8	012	1.4	U	.0
Ļ	61	53		22		0	0,
F	62	112	.3	58	.1	0	.0
-	63	/5	.2	54	.1	0	.0
	64	43	.1	14	.0	0	.0
	65	485	1.2	315		0	.0
	66	33	.1	20	.0	0	.0
Γ	67	59	1	43	.1	0	.0
	68	43	.1	21	.0	0	.0
F	69	22	.1	19	.0	0	.0
1	70	441	1.1	380	.9	0	.0
-	71	22	.1	16	.0	0	.0
-	72	50	.1	30	.1	0	.0
			in the second		1.1 million (1.1	~	.~

Table DQ.1: Age distribution of household populationSingle-year age distribution of household population by sex, Sudan, 2010

73	22	.1	11	.0	0	.0
74	10	.0	6	.0	0	.0
75	220	.5	171	.4	0	.0
76	13	.0	4	.0	0	.0
77	18	.0	6	.0	0	.0
78	25	.1	17	.0	0	.0
79	4	.0	5	.0	0	.0
80+	394	1.0	347	.8	0	.0
DK/missing	21	.1	24	.1	0	.0
	41314	100.0	43217	100.0	0	0.
	73 74 75 76 77 78 79 80+ DK/missing	73         22           74         10           75         220           76         13           77         18           78         25           79         4           80+         394           DK/missing         21           41314	73         22         .1           74         10         .0           75         220         .5           76         13         .0           77         18         .0           78         25         .1           79         4         .0           80+         394         1.0           DK/missing         21         .1           41314         100.0	73         22         .1         11           74         10         .0         6           75         220         .5         171           76         13         .0         4           77         18         .0         6           78         25         .1         17           79         4         .0         5           80+         394         1.0         347           DK/missing         21         .1         24	73         22         .1         11         .0           74         10         .0         6         .0           75         220         .5         171         .4           76         13         .0         4         .0           77         18         .0         6         .0           78         25         .1         17         .0           79         4         .0         5         .0           80+         394         1.0         347         .8           DK/missing         21         .1         24         .1	73         22         .1         11         .0         0           74         10         .0         6         .0         0           75         220         .5         171         .4         0           76         13         .0         4         .0         0           77         18         .0         6         .0         0           78         25         .1         17         .0         0           79         4         .0         5         .0         0           80+         394         1.0         347         .8         0           DK/missing         21         .1         24         .1         0

Table DQ.2: Age distribution of eligible and interviewed women Household population of women age 10-54, interviewed women age 15-49, and percentage of eligible women who were interviewed, by five-year age groups, Sudan, 2010

		Household population of women age 10-54	Interviewed w	romen age 15- 19	Percentage of eligible women interviewed (Completion rate)
		Number	Number	Percent	
Age	10-14	5825			
	15-19	4035	3643	20.7	90.3
	20-24	3700	3405	19.4	92.0
	25-29	3471	3250	18.5	93.6
	30-34	2314	2187	12.4	94.5
	35-39	2626	2500	14.2	95.2
	40-44	1610	1501	8.5	93.2
	45-49	1192	1093	6.2	91.7
	50-54	2143			
Total (15-49)		18948	17577	100.0	92.8

Table DQ.3: Age distribution of under-5s in household and under-5 questionnaires Household population of children age 0-7, children age 0-4 whose mothers/caretakers were interviewed, and percentage of under-5 children whose mothers/caretakers were interviewed, by single ages, Sudan, 2010

		Household population of children 0-7 years	Interviewed u	nder-5 children	Percentage of eligible under-5s interviewed (Completion rate)
		Number	Number	Percent	
Age	0	3022	2963	21.9	98.0
	1	2660	2623	19.4	98.6
	2	2868	2809	20.8	98.0
	3	2882	2807	20.8	97.4
	4	2392	2319	17.1	96.9
	5	2881			
	6	2753			
	7	2829	,		
Total (0-4)		13823	13521	100.0	97.8

		Hou: popul women	schold ation of age 15-49 ars	Inter warnen ye	viewed age 15-49 ars	Percent of eligible women interviewed (Completion rates)
state	Nonhern	387	2.0	337	1.9	86.9
	River Nile	705	3.7	635	3.6	90.1
	Red Sea	529	2.8	493	2.8	93.1
	Kassala	1105	5.8	1037	5.9	93.9
	Gadarif	850	4.5	794	4.5	93.5
)	Khantoum	3315	17.5	2977	16.9	89.8
	Gezira	3079	16.2	3011	17,1	97.8
	Wite Nile	994	5.2	889	5.1	89.4
	Sinnar	748	3.9	702	4.0	93.8
	Blue Nile	623	3.3	581	3.3	93.3
	North Kordofan	1950	10.3	1858	10,6	95.3
	South Kordolan	771	4.1	727	4.1	94.3
	North Darfur	1025	5.4	935	5.3	91.3
	West Darfur	743	3.9	713	4.1	96.0
	South Darfur	2125	11.2	1888	10.7	88.9
Area	Urban	6442	34.0	5824	33.1	90.4
	Rural	12505	66.0	11753	66.9	94.0
Household size	1-3	2391	12.6	2314	13.2	96,8
-	4-6	7330	38.7	6881	39.1	93.9
	7+	9226	48.7	8382	47.7	90.8
Education of household head	None	10345	54.6	9511	54.1	91.9
	Primary	5004	26.4	4707	26.8	94.0
	Secondary +	3478	18.4	3250	18.5	93.4
	Missing/DK	120	.6	110	.6	91.9
Wealth index quintiles	Poorest	3334	17.6	3071	17.5	92.1
	Second	3475	18.3	3291	18.7	94.7
	Middle	3709	19.6	3488	19.8	94.1
	Fourth	3988	21.0	3675	20.9	92.1
	Richest	4442	23.4	4052	23.1	91.2
Total		18948	100.0	17577	100,0	92.8

Table DQ.4: Women's completion rates by socio-economic characteristics of households Household population of women age 15-49, interviewed women age 15-49, and percentage of eligible women who were interviewed, by selected social and economic characteristics of the household, Sudan, 2010

		Hou popu under-	sehold lation of 5 children	Interviev 5 cł	ved under- iildren	Percent of eligible under-5s with completed under-5 questionnaires (Completion rates)
state	Northern	175	1.3	168	1.2	95.9
	River Nile	422	3.1	407	3.0	96.4
	Red Sea	295	2.1	285	2.1	96.7
	Kassala	812	5.9	806	6.0	99.2
	Gadarif	707	5.1	681	5.0	96.4
	Khartoum	1937	14.0	1869	13.8	96.5
	Gezira	1823	13.2	1814	13.4	99.5
	Wite Nile	701	5.1	677	÷ 5.0	96.6
	Sinnar	538	3.9	532	3.9	98.8
	Blue Nile	619	4.5	608	4.5	98.2
	North Kordofan	1484	10.7	1472	10.9	99.2
	South Kardofan	708	5.1	701	5.2	98.9
	North Darfur	985	7.1	964	7.1	97.9
	West Darfur	710	5.1	705	5.2	99.3
	South Darfur	1907	13.8	1832	13.6	96.1
Area	Urban	3815	27.6	3697	27.3	96.9
	Rural	10008	72.4	9824	72.7	98.2
Household size	1-3	1065	7.7	1044	7.7	98.0
	4-6	6152	44.5	6024	44.6	97.9
	7+	6606	47.8	6454	47.7	97.7
Education of household head	None	7188	52.0	6981	51.6	97.1
	Primary	4060	29.4	4007	29.6	98.7
	Secondary +	2499	18.1	2461	18.2	98.5
	Missing/DK	76	.5	71	.5	94.0
Wealth index quintiles	Poorest	3327	24.1	3267	24.2	98.2
	Second	3033	21.9	2968	22.0	97.8
	Middle	2909	21.0	2859	21.1	98.3
	Fourth	2589	18.7	2528	18.7	97.7
	Richest	1965	14.2	1898	14.0	96.6
Total	1	13823	100.0	13521	100.0	97.8

Table DQ.5: Completion rates for under-5 questionnaires by socio-economic characteristics of households Household population of under-5 children, under-5 questionnaires completed, and percentage of under-5 children for whom interviews were completed, by selected socio-economic characteristics of the household, Sudan, 2010

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	Percent with missing/incomplete	
	information*	Number of cases
Age	.1	83510
Salt testing	.2	14778
Starting time of interview	.7	14778
Ending time of interview	90.5	14778
Date of first birth: Only month	28.6	10708
Date of first birth: Both month and year	1.9	10708
Completed years since first birth	0.0	10708
Date of last birth: Only month	4.8	10708
Date of last birth: Both month and year	.9	10708
Age at first marriage/union	0.0	11006
Starting time of interview	2.2	17174
Ending time of interview	1.6	17174
Date of birth: Only month	.7	13282
Date of birth: Both month and year	.0	13282
Anthropometric measurements: Weight	7.2	<b>13</b> 282
Anthropometric measurements: Height	8.7	<b>132</b> 82
Anthropometric measurements: Both weight and height	7.1	13282
Starting time of interview	.5	13282
Ending time of interview	.4	13282

 Table DQ.6: Completeness of reporting

 Percentage of observations that are missing information for selected questions and indicators, Sudan, 2010

				Reason for exclus	ion from analysis				
		Valid weight and date of birth	Weight not measured	Incomplete date of birth	Weight not measured, incomplete date of birth	Flagged cases (outliers)	Total	Percent of children excluded from analysis	Number of children under 5
Weight	<6 months	88.8	.1	.1	0.0	.9	100.0	1.1	1524
by age	6-11 months	92.6	.1	0.0	0.0	.4	100.0	.6	1440
	12-23 months	92.2	.2	.4	0.0	.4	100.0	.9	2652
	24-35 months	91.4	.1	1.1	0.0	.4	100.0	1.6	2746
	36-47	89.9	.1	1.5	0.0	.2	100.0	1.8	2802
	48-59 months	90.6	.0	1.1	0.0	.2	100.0	1.4	2118
Total	monario	91.0	.1	.8	0.0	.4	100.0	1.3	13282

Table DQ.7: Completeness of information for anthropometric indicators Distribution of children under 5 by completeness of information for anthropometric indicators, Sudan, 2010

				Reason for exclus	sion from analysis	******		Percent of						
		Valid height and date of birth	Height not measured	Incomplete date of birth	Height not measured, incomplete date of birth	Flagged cases (outliers)	Total	children excluded from analysis	Number of children under 5					
Weight	<6 months	79.9	7.0	0.0	.1	3.0	100.0	10.0		1524				
by age	6-11 months	90.3	1.0	0.0	0.0	1.9	100.0	2.8		1440				
	12-23 months 24-35 months 36-47 months	90.5	.9	.2	.2	1.3	100.0	2.6		2652				
		24-35 months 36-47 months	24-35 months	24-35 months	24-35 months	89.8	1.2	1.1	.1	.9	100.0	3.2		2746
			88.9	.5	1.3	.2	.9	100.0	2.9		2802			
	48-59 months	89.3	.4	.8	.3	1.1	100.0	2.6		2118				
Total		88.6	1.5	.7	.2	1.3	100.0	3.7		13282				

					Reason fo	r exclusion fro	m analysis			]		
		Valid weight and height	Weight not measured	Height not measured	Incomplete date of birth	Weight not measured, incomplete date of birth	Height not measured incomplete date of birth	Weight and height not measured, incomplete date of birth	Flagged cases (outliers)	Total	Percent of children excluded from analysis	Number of children under 5
Weight	<6	78.8	.1	7.0	0.0	0.0	.1	0.0	3.9	100.0	11.2	1524
by age	months 6-11 months	90.1	.1	1.0	0.0	0.0	0.0	0.0	1.9	100.0	3.0	1440
	12-23 months	90.3	.1	.9	.2	0.0	.2	0.0	1,4	100.0	2.8	2652
	24-35	89.2	.1	1.2	1.1	0.0	.1	0.0	1.5	100.0	3.8	2746
	36-47	88.6	.1	.5	1.3	0.0	.2	0.0	1.1	100.0	3.2	2802
	48-59 months	89.5	.0	.4	.8	0.0	.3	0.0	.8	100.0	2.4	2118
Total	1101010	88.2	.1	1.5	.7	0.0	.2	0.0	1.6	100.0	4.0	13282

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#### Table DQ.8: Heaping in antimopometric measurements Distribution of weight and height/length measurements by digits reported for decimals, Sudan (North), 2010

		Weigh	It		Height
Dinite 0		Number	Percent	Number	Percent
Digits	0	1470	12.0	3896	31.8
	1	1201	9.8	827	6.7
	2	1206	9.9	1231	10.0
	3	1298	10.6	1251	10.2
	4	1172	9.6	959	7.8
	5	1332	10.9	1452	11.9
	6	1109	9.1	684	5.6
	7	1114	9.1	740	6.0
	8	1119	9.1	586	4.8
	9	1218	10.0	616	5.0
	0 or 5	2802	22.9	5358	43.7
	Total	12239	100.0	12252	100.0

*е.* 

#### Table DQ.11: Observation of under-5s birth certificates Percent distribution of children under 5 by presence of birth certificates,and percentage of birth calendar seen, Sudan (North), 2010

			2				* 2 <sup>1</sup>	
[			Child has birth	certificate			Dement of hirth	
		Child does not have birth certificate	Seen by the interviewer (1)	Not seen by the interviewer (2)	Missing/DK	Total	certificates seen by the interviewer (1)/(1+2)*100	Number of children under age 5
state	Northern	21.6	28.7	49.8	0.0	100.0	36.6	607
	River Nile	35.8	28.2	35.9	0.0	100.0	44.0	765
	Red Sea	38.9	20.2	40.5	.3	100.0	33.2	625
	Kassala	65.4	13.3	21.3	0.0	100.0	38.5	818
1	Gadarif	49.6	25.5	24.9	0.0	100.0	50.7	901
	Khartoum	23.8	32.4	43.6	.2	100.0	42.6	828
	Gezira	33.5	31.8	34.4	.2	100.0	48.0	839
	White Nile	52.8	19.3	27.9	0.0	100.0	40.8	856
	Sinnar	47.6	27.8	24.7	0.0	100.0	52.9	843
	Blue Nile	69.4	14.4	16.0	.2	100.0	47.3	1234
	North Kordofan	6 <b>3</b> .2	16.9	20.0	0.0	100.0	45.0	902
	South Kordofan	70.0	11.3	18.2	.5	100.0	38.2	1020
	North Darfur	59.2	15.8	24.9	.1	100.0	38.8	1043
	West Darfur	76.4	7.0	16.3	.2	100.0	30.1	967
	South Darfur	80.9	6.2	12.8	.1 -	100.0	32.7	1034
Area	Urban	29.9	32.0	38.0		100.0	45.7	3771
	Rural	64.8	13.9	21.1		100.0	39.8	9511
Age of	0	59.5	17.7	22.6	.2	100.0	43.9	2911
child in vears	1	52.6	19.9	27.5	.0	100.0	42.0	2607
,	2	51.5	20.7	27.7	.1	100.0	42.8	2742
	3	56.2	17.0	26.7	.1	100.0	38.9	2760
	4	54.3	20.3	25.2	.2	100.0	44.7	2262
Total		54.9	19.1	25.9	.1	100.0	42.4	13282

Contraction of the local division of the loc											
	Children Ever Born				Children Living		CI	uldren Deceas	ed		
	1	Number of sons ever born	Number of daughters ever born	Sex ratio	Number of sons living	Number of daughters living	Sex ratio	Number of deceased sons	Number of deceased daughters	Sex ratio	Number of women
Age	15-19	319	313	1.02	294	297	.99	25	16	1.56	3447
	20-24	1774	1677	1.06	1631	1555	1.05	143	122	1.17	3286
	25-29	3964	3805	1.04	3581	3512	1.02	383	293	1.31	3219
	30-34	4281	3965	1.08	3838	3617	1.06	443	338	1.31	2250
	35-39	6255	6004	1.04	5469	5359	1.02	786	645	1.22	2458
	40-44	4255	3993	1.07	3721	3500	1.06	534	493	1.08	1441
1	45-49	3320	3184	1.04	2794	2740	1.02	526	444	1.18	1073
	Total	24168	22931	1.05	21328	20580	1.03	2840	2351	1.26	17174

Table DQ.16: Sex ratio at birth emeng children ever born and living Sex ratio (makes of males per 160 females) among children ever born (at birth), children living, and deceased children, by age of women, Sudan (North), 2010



Figure 1. Scatterplot of weight (Y-axis) by height (x-axis) (unweighted), Country, Year

Figure 3. Scatterplot of heights of children by age in months (unweighted), Country, Year





Figure 5. Number of female household population (Y-axis) by single ages (X-axis) (unweighted), Country, Year

SHHS2 INDICATOR		Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>	
			1. MORTALITY			
1.1	Neonatal mortality rate	ВН	Probability of infants dying during the first 28 completed day	s of life, per 1000 live births		
1.2	Post neonatal mortality rate	ВН	Probability of infants dying between one month and exact fir	st anniversary (exact age one), per 1000 live births		
1.3	Infant mortality rate	CM/ BH	Probability of dying by exact age 1 year			
1.4	1.4 Child Mortality Rate BH		Probability of dying between exact ages one and five years			
1.5	Under-five mortality rate	CM/ BH	Probability of dying by	exact age 5 years	MDG 4.1	

### Appendix E: SHHS2 Indicators - Numerators and Denominators

<sup>1</sup>Some indicators are constructed by using questions in several modules. In such cases, only the module(s) which contains most of the necessary information is indicated. <sup>2</sup>MDG indicators as of February 2010

	SHHS2 INDICATOR Mod		Numerator	Denominator	MDG <sup>2</sup>
			2. NUTRITION		
2.1a 2.1b	Underweight prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for age of the WHO standard	Total number of children under age 5	MDG 1.8
2.2a 2.2b	Stunting prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median height for age of the WHO standard	Total number of children under age 5	
2.3a 2.3b	Wasting prevalence	AN	Number of children under age 5 who (a) fall below minus two standard deviations (moderate and severe) (b) fall below minus three standard deviations (severe) from the median weight for height of the WHO standard	Total number of children under age 5	
	Severe Acute Malnutrtion	AN	Proportion of children age 6-59 months who fail below minus three standard deviations from the median weight- for-height of the WHO growth standard and/or experience oedema;	Total number of children under age 5	
	Moderate Acute Malnutrition	AN	Proportion of children age 6-59 months who fall below minus two standard deviations and greater than or equal to minus three standard deviation from the median weight-for-height of the WHO growth standard without being affected by oedema;	Total number of children under age 5	
	Global Acute Malnutrition	AN	Proportion of children age 6-59 months who fall below minus two standard deviations from median weight-for- height of the WHO growth standard and/or experience oedema;	Total number of children under age 5	
2.4	Children Ever Breastfed	BF	Number of women with a live birth in the 2 years preceding the survey who breastfed the child at any time	Total number of women with a live birth in the 2 years preceding the survey	
2.5	Early initiation of breastfeeding	MN	Number of women with a live birth in the 2 years preceding the survey who put the newborn infant to the breast within 1 hour of birth	Total number of women with a live birth in the 2 years preceding the survey	

	SHHS2IINDICATOR	Module	Numerator	Denominator	MDG <sup>2</sup>
2.6	Exclusive breastfeeding under 6 months	BF	Number of infants under 6 months of age who are exclusively breastfed <sup>3</sup>	Total number of infants under 6 months of age	
2.7	Continued breastfeeding at 1 year	BF	Number of children age 12-15 months who are currently breastfeeding	Total number of children age 12-15 months	
2.8	Continued breastfeeding at 2 years	BF	Number of children age 20-23 months who are currently breastfeeding	Total number of children age 20-23 months	
2.9	Predominant breastfeeding under 6 months	BF	Number of infants under 6 months of age who received breast milk as the predominant source of nourishment <sup>4</sup> during the previous day	Total number of infants under 6 months of age	
2.10	Duration of breastfeeding	BF	The age in months when 50 percent of children age 0-35 m day	onths did not receive breast milk during the previous	
2.11	Bottle feeding	BF	Number of children age 0-23 months who were fed with a bottle during the previous day	Total number of children age 0-23 months	
2.12	Introduction of solid, semi-solid or soft foods	BF	Number of infants age 6-8 months who received solid, semi-solid or soft foods during the previous day	Total number of infants age 6-8 months	
2.13	Minimum meal frequency	BF	Number of children age 6-23 months receiving solid, semi-solid and soft foods (plus milk feeds for non- breastfed children) the minimum times <sup>5</sup> or more, according to breastfeeding status, during the previous day	Total number of children age 6-23 months	
2.14	Age-appropriate breastfeeding	BF	Number of children age 0-23 months appropriately fed <sup>6</sup> during the previous day	Total number of children age 0-23 months	
 2.15	Milk feeding frequency for non- breastfed children	BF	Number of non-breastfed children age 6-23 months who received at least 2 milk feedings during the previous day	Total number of non-breastfed children age 6-23 months	
2.16	lodized salt consumption	SI	Number of households with salt testing 15 parts per million or more of iodide/iodate	Total number of households in which salt was tested or with no salt	
2.17	Vitamin A supplementation (children under age 5)	IM	Number of children age 6-59 months who received at least one high-dose vitamin A supplement in the 6 months preceding the survey	Total number of children age 6-59 months	
2.18	Vitamin A supplementation (postpartum mothers)	MN	Number of women with a live birth in the 2 years	Total number of women that had a live birth in	

<sup>&</sup>lt;sup>3</sup>Infants receiving breast milk, and not receiving any other fluids or foods, with the exception of oral rehydration solution, vitamins, mineral supplements and medicines

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<sup>&</sup>lt;sup>5</sup>Breastfeeding children: Solid, semi-solid, or soft foods, two times for infants age 6-8 months, 3 times for children 9-23 months; Non-breastfeeding children: Solid, semi-solid, or soft foods, or milk feeds, four times for children age 6-23 months

<sup>&</sup>lt;sup>6</sup>Infants age 0-5 who are exclusively breastfed, and children age 6-23 months who are breastfed and ate solid, semi-solid or soft foods

SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>2</sup>
		preceding the survey that received a high-dose vitamin A supplement within 8 weeks after birth <sup>7</sup>	the 2 years preceding the survey $^{\rm B}$	

<sup>&</sup>lt;sup>7</sup> Maternal and Newborn Health module, MN1=1. <sup>8</sup> See footnote **Error! Bookmark not defined.**.

		SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>
	3. CHII	LD HEALTH				
	3.1	Tuberculosis immunization coverage <sup>9</sup>	IM	Number of children age 12-23 months who received BCG vaccine before their first birthday	Total number of children age 12-23 months	
	3.2	Polio immunization coverage	IM	Number of children age 12-23 months who received OPV3 vaccine before their first birthday	Total number of children age 12-23 months	
	3.3	Immunization coverage for Pentavalent	IM	Number of children age 12-23 months who received Penta1 vaccine first dose before their first birthday	Total number of children age 12-23 months	
	3.4	Measles immunization coverage	IM	Number of children age 12-23 months who received measles vaccine before their first birthday	Total number of children age 12-23 months	MDG 4.3
	3.7	Neonatal tetanus protection	MN	Number of women age 15-49 years with a live birth in the 12 months preceding the survey who were given at least two doses of tetanus toxoid vaccine within the appropriate interval <sup>10</sup> prior to giving birth	Total number of women age 15-49 years with a live birth in the 12 months preceding the survey	
	3.8.a	Children under age 5 with diarrhoea in the last two weeks preceding the survey	CA	Number of children under age 5 with diarrhoea in the last 2 weeks prior to survey	Total number of children under age 5	
·	3.8.b	Use of Oral Dehydration Solution (ORS)	CA	Number of children under age 5 with diarrhoea in the previous 2 weeks that received oral rehydration salts and/or an appropriate household solution	Total number of children under age 5 with diarrhoea in the previous 2 weeks	
	3.8	Oral rehydration therapy with continued feeding (ORT)	CA	Number of children under age 5 with diarrhoea in the previous 2 weeks who received ORT (ORS packet or recommended homemade fluid or increased fluids) and continued feeding during the episode of diarrhoea	Total number of children under age 5 with diarrhoea in the previous 2 weeks	
	3.8.c	Care-seeking for diarrhoea (taken to an appropriate health provider)	СА	Number of children under age 5 with diarrhoea in the previous 2 weeks who were taken to an appropriate health provider	Total number of children under age 5 with diarrhoea in the previous 2 weeks	
	3.9 a	Children under age 5 with suspected pneumonia in the last two weeks preceding the survey	СА	Number of children under age 5 with suspected pneumonia in the last 2 weeks prior to survey	Total number of children under age 5 in survey	
	3.9	Care-seeking for suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who were taken to an appropriate health provider.	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	
	3.10	Antibiotic treatment of suspected pneumonia	CA	Number of children under age 5 with suspected pneumonia in the previous 2 weeks who received antibiotics	Total number of children under age 5 with suspected pneumonia in the previous 2 weeks	

<sup>&</sup>lt;sup>9</sup>Age groups used in indicators 3.1 to 3.6 are applicable when basic immunization schedules are used (with measles administered at 9 months). For the calculation of indicators when different schedules are used, see MICS4 manual for detailed descriptions <sup>10</sup>See MICS4 manual for a detailed description

	SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>
3.9b	Knowledge of the two danger signs of pneumonia	СА	Number of mothers/caretakers of children under age 5 who recognise fast and difficult breathing as signs of pneumonia for seeking immediate treatment	Total number of mothers/caretakers of children under age 5	
3.11	Solid fuels	нс	Number of household members in households that use solid fuels as the primary source of domestic energy to cook	Total number of household members	
3.12a	Household availability of bed nets	TN	Number of households with at least one net (ITN)	Total number of households	
3.12	Household availability of insecticide- treated nets (ITNs) <sup>11</sup>	TN	Number of households with at least one insecticide treated net (ITN)	Total number of households	
3.13	Children under age 5 with fever in the last two weeks preceding the survey		Number of children under age 5 with fever in the last 2 weeks prior to survey	Total number of children under age 5	
3.16	Malaria diagnostics usage	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who had a finger or heel stick for malaria testing	Total number of children under age 5 reported to have had fever in the previous 2 weeks	
3.17a	Anti-malarial treatment of children with anti-malarial drugs	CA	Number of children under age 5 reported to have had fever in the previous 2 weeks who received any anti-malarial treatment	Total number of children under age 5 reported to have had fever in the previous 2 weeks	
3.17	Antimalarial treatment (children under age 5) according to national policy within 24 hours of onset of symptoms	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who were treated with an appropriate anti-malarial according to national policy (first- line treatment) within 24 hours of onset of symptoms	Total number of children under age 5 reported to have had fever in the previous 2 weeks	
3.18	Antimalarial treatment (children under age 5)	ML	Number of children under age 5 reported to have had fever in the previous 2 weeks who received any anti-malarial treatment	Total number of children under age 5 reported to have had fever in the previous 2 weeks	MDG 6.8
3.20	Intermittent preventive treatment for malaria	MN	Number of women age 15-49 years who received at least 2 doses of SP/Fansidar to prevent malaria during antenatal care visits for their last pregnancy leading to a live birth in the 2 years preceding the survey	Total number of women age 15-49 years who have had a live birth in the 2 years preceding the survey	

<sup>&</sup>lt;sup>11</sup>An ITN is (1) a factory treated net which does not require any treatment, (2) a pretreated net obtained within the past 12 months, or (3) a net that has been soaked with insecticide within the past 12 months

	SHHS2 INDICATOR		Numerator	Denominator	MDG <sup>z</sup>
			4. ENVIRONMENT		
4.1	Use of improved drinking water sources	ws	Number of household members using improved sources of drinking water	Total number of household members	MDG 7.8
4.2	Water treatment Appropriate water treatment (all drinking water sources)	WS	Number of household members using drinking water that has been treated	Total number of household members	
4.3	Use of improved sanitation facilities	WS	Number of household members using improved sanitation facilities	Total number of household members	MDG 7.9
4.3a	Use of both improved drinking water sources and sanitary means of excreta disposal	WS	Number of household members living in households with improved sources of drinking water and sanitary means of excreta disposal	Total number of household members	
4.4	Disposal of child's faeces	СА	Number of children age 0-2 years whose (last) stools were disposed of safely	Total number of children age 0-2 years	

	SHHS2 INDICATOR		Module	Numerator	Denominator	MDG <sup>2</sup>
27 - 142 - 2 1 - 2 - 122 - 1 1 - 2 - 122 - 1	5. WO	MAN REPRODUCTIVE HEALTH				
	5.1	Adolescent birth rate	CM	Age-specific fertility rate for women age 15-19 years		MDG 5.4
	5.2	Early childbearing	СМ	Number of women age 20-24 years who had at least one live birth before age 18	Total number of women age 20-24 years	
	5.3	Contraceptive prevalence rate	СР	Number of women age 15-49 years currently married who are using (or whose partner is using) a (modern or traditional) contraceptive method	Total number of women age 15-49 years who are currently married	MDG 5.3
	5.4	Unmet need <sup>12</sup>	UN	Number of women who are currently married who are fecund and want to space their births or limit the number of children they have and who are not currently using contraception	Total number of women age 15-49 years who are currently married	MDG 5.6
	5.5a 5.5b	Antenatal care coverage (a) at least once by skilled personnel (b) at least four times by any provider	MN	Number of women age 15-49 years who were attended during pregnancy in the 2 years preceding the survey	Total number of women age 15-49 years with a live birthin the 2 years preceding the survey	MDG 5.5
	5.6	Content of antenatal care	.MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who had their blood pressure measured and gave urine and blood samples during the last pregnancy	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	
	5.7	Skilled attendant at delivery	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who were attended during childbirth by skilled health personnel	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	MDG 5.2
	5.8	Institutional deliveries	MN	Number of women age 15-49 years with a live birth in the 2 years preceding the survey who delivered in a health facility	Total number of women age 15-49 years with a live birth in the 2 years preceding the survey	
	5.9	Caesarean section	MN	Number of last live births in the 2 years preceding the survey who were delivered by caesarean section	Total number of last live birth in the 2 years preceding the survey	

<sup>&</sup>lt;sup>12</sup>See MICS4 manual for a detailed description

	SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>
6. LITI	ERACY AND EDUCATION	nik i se provi Se se provinsi Se se provinsi se			
6.1	Literacy rate (for women age 15-24 years)	WB	Number of women age 15-24 years who are able to read a short simple statement about everyday life or who attended secondary or higher education	Total number of women age 15-24 years	MDG 2.3
6.2	School readiness	ED	Number of children in first grade of primary school who attended pre-school during the previous school year	Total number of children attending the first grade of primary school	
6.3	Net intake rate in primary education	ED	Number of children of school-entry age who are currently attending first grade of primary school	Total number of children of school-entry age	
6.4	Net primary school attendance ratio	ED	Number of children of primary school age currently attending primary or secondary school	Total number of children of primary school age	MDG 2.1
6.5	Net secondary school attendance ratio	ED	Number of children of secondary school age currently attending secondary school or higher	Total number of children of secondary-school age	
6.6	Children reaching last grade of primary	ED	Proportion of children entering the first grade of primary sch	ool who eventually reach last grade	MDG 2.2
6.7	Primary completion rate	ED	Number of children (of any age) attending the last grade of primary school (excluding repeaters)	Total number of children of primary school completion age (age appropriate to final grade of primary school)	
6.8	Transition rate to secondary school	ED	Number of children attending the first grade of secondary school who were in the last grade of primary school during the previous school year	Total number of children who are attending the first grade of secondary school	
6.9	Gender parity index (primary school)	ED	Net primary school attendance ratio for girls	Net primary school attendance ratio for boys	MDG 3.1
6.10	Gender parity index (secondary school)	ED	Net secondary school attendance ratio for girls	Net secondary school attendance ratio for boys	MDG 3.1

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	SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>
7. CHI	LD AND WOMAN PROTECTION				e da Statige Providensi
7.1	Birth registration	BR	Number of children under age 5 whose births are reported registered	Total number of children under age 5	
7.6	Marriage before age 15	MA	Number of women age 15-49 years who were first married by the exact age of 15	Total number of women age 15-49 years	
7.7	Marriage before age 18	MA	Number of women age 20-49 years who were first married by the exact age of 18	Total number of women age 20-49 years	
7.8 Young women age 15-19 years currently married		MA	Number of women age 15-19 years who are currently married	Total number of women age 15-19 years	
7.9	Polygamy	MA	Number of women age 15-49 years who are in a polygamous union	Total number of women age 15-49 years who are currently married	
7.11	Women approval for female genital mutilation/cutting (FGM/C)	FG-WM	Number of women age 15-49 years favouring the continuation of female genital mutilation/cutting (FGM/C)	Total number of women age 15-49 years	
7.12 Prevalence of female genital mutilation/cutting (FGM/C)		FG-HL	Number of women age 15-49 years who report to have undergone any form of female genital mutilation/cutting (FGM/C)	Total number of women age 15-49 years	
7.12a	Care providers performing FGM/C	FG-HL	Number of circumcised females who were circumcised by a health professional	Total number of circumcised females	
7.12b	Women intending to circumcise their daughters	FG	Number of women age 15-49 years intending to circumcise their daughters	Total number of women age 15-49 years	
7.14	Women attitudes towards domestic violence	DV - WM	Number of women who state that a husband is justified in hitting or beating his wife in at least one of the following circumstances: (1) she goes out without telling him, (2) she neglects the children, (3) she argues with him, (4) she refuses sex with him, (5) she burns the food	Total number of women age 15-49 years	
7.17	Children's living arrangements	HL	Number of children age 0-17 years not living with a biological parent	Total number of children age 0-17 years	
7.18	Prevalence of orphans	HL	Number of children age 0-17 years with at least one dead parent	Total number of children age 0-17 years	
7.19	School attendance of orphans	HL - ED	Number of children age 10-14 years, who are double orphans (who have lost both parents) and attending school	Total number of children age 10-14 years, both of whose parents are alive, who are living with at least one parent and are attending school	MDG 6.4
7.20	School attendance of non-orphans	HL - ED	Number of children age 10-14 years, whose parents are alive, who are living with at least one parent, and who are attending school	Total number of children age 10-14 years, whose parents are alive, and who are living with at least one parent	MDG 6.4

		SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>2</sup>
	8. HIV	//AIDS, SEXUAL BEHAVIOUR AND	ORPHANS			
Standard	8.1	Women comprehensive knowledge about HIV prevention	HA-WM	Number of women age 15-49 years who correctly identify two ways of preventing HIV infection, know that a healthy looking person can have HIV, and reject the two most common misconceptions about HIV transmission	Total number of women age 15-49 years	
	8.2	Comprehensive knowledge about HIV prevention among young women	HA-WM	Number of women age 15-24 years who correctly identify two ways of preventing HIV infection, know that a healthy looking person can have HIV, and reject the two most common misconceptions about HIV transmission	Total number of women age 15-24 years	MDG 6.3
	8.3	Women knowledge of mother-to-child transmission of HIV	HA-WM	Number of women age 15-49 years who correctly identify all three means <sup>13</sup> of mother-to-child transmission of HIV	Total number of women age 15-49 years	
	8.4	Women who know where to be tested for HIV	HA-WM	Number of women age 15-49 years who state knowledge of a place to be tested	Total number of women age 15-49 years	
	8.5	Women accepting attitudes towards people living with HIV	НА-₩М	Number of women age 15-49 years expressing accepting attitudes on all four questions <sup>14</sup> toward people living with HIV	Total number of women age 15-49 years who have heard of HIV	
	8.6	Women who have been tested for HIV	HA-WM	Number of women age 15-49 years who have been tested for HIV in the 12 months preceding the survey and who know their results	Total number of women age 15-49 years	
	8.8	Women counselling coverage for the prevention of mother-to-child transmission of HIV	HA-WM	Number of women age 15-49 years who gave birth in the 2 years preceding the survey and received antenatal care reporting that they received counselling on HIV/AIDS during antenatal care	Total number of women age 15-49 years who gave birth in the 2 years preceding the survey	

<sup>&</sup>lt;sup>13</sup>Transmission during pregnancy, during delivery, and by breastfeeding
<sup>14</sup>Women (1) who think that a female teacher with the AIDS virus should be allowed to teach in school, (2) who would buy fresh vegetables from a shopkeeper or vendor who has the AIDS virus, (3) who would not want to keep it as a secret if a family member became infected with the AIDS virus, and (4) who would be willing to care for a family member who became sick with the AIDS virus

		SHHS2 INDICATOR	Module <sup>1</sup>	Numerator	Denominator	MDG <sup>z</sup>
	10. Ch	ronic Illness				
	10.1	Injury suffered over the past 12 months:	ÇD	Number of household members who had an injury (e.g. accident etc.) during the past 12 months	Total number of household members 10 years of age and abover	
	10.2	Diability due to injury	•	Number of household members who were injured during the past 12 months and suffered a disability as a result of the injury	Total number of household members 10 years of age and abover	
	10.3	Prevalence of chronic illness	CD	Number of household members who has a chronic disease (e.g. hypertension etc.) that was diagnosed by a doctor or ••medical assistant	Total number of household members	
11. Food	l securi	ly				
	11.1	Food consumption status	FS	Number of of households with poor, borderline and acceptable/adequate food consumption score;	Total number of households	
	11.2	Food security status	FS	Number of food secure households	Total number of households	
	11.3	Food insecurity status	FS	Number of moderately and severely food insecure households;	Total number of households	

Appendix F. The Questionnaires

SUDAN HOUSEHOLD HEALTH SURVEY (SHHS2 2010) HOUSEHOLD DOUESTIONNAIRE									
HOUSEHOLD INFORMATION PANEL	НН								
HH1. Codes:									
HH3.: Interviewer number:	HH4 Supervisor number:								
Interviewer Name:	Supervisor Name:								
HH5. Day/Month/Year of interview	Dav Month Year								
HH6. Area:	HH7. Location County/Mahaliya								
Urban1	Payam/ Administrative Unit (AU)								
	Boma/ Popular AU								
Rural2	Enumeration Area								
	Town/Village name								
May I start now?         □       Yes, permission is given ⇒ Go to HH18 to record th         □       No, permission is not given ⇒ Complete HH9. Discus         HH8. Name of head of household:	he time and then begin the interview. s this result with your supervisor.								
After all questionnaires for the nousehold have been complet	HH10. Respondent to HH questionnaire:								
THE RESULT OF HELITICE VIEW.									
Completed1	Household Line No. (from HL1):								
Not at home2 Refused	Name:								
HH not found/destroyed4	HH11. Total # of household members:								
Other (specify)6									
HH12. # of women age 15-49 years:	HH13. # of women questionnaires completed:								
HH13a. # of men age 15-49 years:	HH13b. # of men questionnaires completed:								
HH14. # of children under age 5:	HH15. # of child questionnaires completed:								
HH16. Field Editor name and number:	HH17. Data entry clerk name and number:								
Name	Name								

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M_1.	1412	14:3	H14.	H16.	HLEA	H17.	HL7A	ML9.	HLto.	년211.	HL12,	HL 13.	HL14	H115.	HL15A	ECO.	ED3	ED:	1	ED 5.	ED6	1	E07.	EDS	-
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\* Codes for HL3: Relationship to head of the household

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5 Grandania	to unde l'Aut	15 patres
		15 Nete Network Ferlage
		98 Diont innas

Check HL7. Enter the number of women age 15-49 here

Check HLIA. Enter the number of men age 15-49 here Check HL9. Enter the number of children under age 5 here

(copy to HH12) (copy to HELIsa) (copy to HELIs)

\* 9

Female Genital Muti This module is applie	lation/Cu d to all fe	<b>itting</b> males in the h	FGM/C ousehold	Di	sabili	ty M	odule (2-9 years) DA
				i	DA1	ĺ	DAZ
FGM/C1 has (name) beer	n circumcise	ed /cut?	FGM/C2 Who has done the circumcision/ cutting for (name)?	ts (nam FROM Al	e) Suffe Ny Disabi	UNG UTV	WHICH OF THE FOLLOWING TYPES OF DISABILITY THE (name) IS SUFFERING FROM?
1. YES			Traditional personnel :	FROM F	DERFORM	инен ING	(circle all that apply)
2. NO ⇔ NEXT	MODULE		Traditional midwives	NOR	MAL DAIL	*	A. Difficulty in seeing
8. Don't know 🖙 NEX	T MODULE		Others	OAU:	(W 1072);		
			Health professionals :		1. Yes		B. Blindness
Circle the numberof the a	inswer belo	w	Doctor	2. No ⇒	NEXT M	DOVLE	C. Difficulty in hearing
			Nurse or midwife	B. DK ⇒	NEXT N	asuco	D. Deafness
			Don't know				E. Difficulty in speaking
			Record the numberof the answer in the box				F. Mute/Dumb
			below				G. Physical disability
`Yes	No	Dk	PERSON				H. Mental retardation
1	2	8					I. Epilepsy
1	2	8					Z Others (specify in the same raw)
1	2	8		Yes	No.	Dk.	Citcle all applied
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1	2	8			2	ð	Z
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A B C D E F G H I Z

WATER AND SANITATION MODULE		WS
WS1 WHAT IS THE MAIN SOURCE OF DRINKING WATER FOR	Piped water (network):	11-14/00
MEMBERS OF YOUR HOUSEHOLD?	Piped into average plot	11 - WS6
		12-20050
	Public tap/standpipe14	
IF MORE THAN ONE SOURCE; RECORD THE MAIN SOURCE		
THAT IS MAINLY USED	Water yard/hand pump 21	
	Dug well: Protocted/covered well 21	
	I Protected/covered weil	
	Spring:	
	Protected spring 41	⇒WS3
	Unprotected spring 42	
	Surface water:	
	Filtered (river, stream, dam, hafir, lake, pond, canal or rain) water51	
	Unfiltered (river, stream, dam, hafir, lake, pond, canal or rain) water52	
	Transported water by tankers/carts:	
	From the water sources with the following codes	61⇔WS6
		62⇔WS6
	(32, 42, 52)	91 ⇔WS2
	Bottled water	96 ⇔WS3
	Other( <i>specify</i> )	
WS2. WHAT IS THE MAIN SOURCE OF WATER USED BY	Piped water	
YOUR HOUSEHOLD FOR GOUKING AND OTHER	Piped into dwelling	11⇔WS6
E MORE THAN ONE SOURCE: RECORD THE MAIN SOURCE	Public tap / standpipe 14	12⇔WS6
THAT IS MAINLY USED		
	I ube Well, Borehole21	
	Dug well	
	Protected well	
	Water from spring	
	Protected spring	
	Unprotected spring 42	
	Surface water:	
	Filtered rainwater, hafir, dam, river water 51	
	pond, channel water	
	Transported water by tankers/carts	61 - MIS C
	From the water sources with the following codes	0157020
	TION THE WALLET SOUTCES WILL THE TOHOWING CODES	

Household Questionnaire 73

	(11,12,14, 21, 31, 41, 51)	62⇔WS6
	From the water sources with the following codes $(32, 42, 52)$	
	(32, 42, 32)	
	Other (specify) 96	
WS3. WHERE IS THAT WATER SOURCE LOCATED?	In own dwelling 1	1⇔WS6
	In own yard / plot 2	2⇔WS6
	Elsewhere	
WS4. BY FOOT, HOW LONG DOES IT TAKE TO GO THERE,		
GET WATER, AND COME BACK?	Number of minutes	
	DK 998	
WS4A. WHAT IS THE DISTANCE TO THE WATER SOURCE		
FROM YOUR RESIDENCE?	Distance to water source:	
	Less than or equal 1 km11	
	More than 1 km12	
	DK	
WS5. WHO USUALLY GOES TO THIS SOURCE TO COLLECT	Adult woman1	
THE WATER FOR YOUR HOUSEHOLD?	Adult man2	
	Female child (under 15) 3	
Probe:	Male child (under 15) 4	
IS THIS PERSON UNDER AGE 15? WHAT SEX?		
Circle code that best describes this person.	DK8	
WS6. DO YOU TREAT YOUR WATER IN ANY WAY TO MAKE IT	Yes 1	
SAFER TO DRINK?	No	2⇔WS8
	DK	8⇔WS8
WS7 WHAT DO YOULISUALLY DO TO THE WATER TO	Boil	
MAKE IT SAFER TO DRINK?	Add bleach / chlorine B	
while it on ex to brink.	Strain it through a cloth	
Probe	Use water filter (ceramic, sand, composite,	
ANYTHING ELSE?	etc)	
/ WITHING LEDET	Solar disinfection	
Record all items mentioned.	Let it stand and settleF	
	response and anomalan for SMSALL A - Full-STRASS AN ANTIMARY LOAD AND AND AND AND AND AND AND AND AND A	
	Other (specify) X	
	DKZ	
WS8. WHAT KIND OF FACILITY DO MEMBERS OF	Flush / pour flush	
YOUR HOUSEHOLD USUALLY USE TO EASE	Flush to piped sewer system 11	1
THEMSELVES / DISPOSE OF HUMAN WASTE?	Flush to septic tank 12	
	Flush to pit (latrine) 13	
If "flush" or "pour flush", probe:	Flush to somewhere else 14	
Where does it flush to?	Flush to unknown place/not sure/DK 15	
	Ventilated Improved Pit latrine (VIP) 21	
	Pit latrine with slab	
	Pit latrine without slab / open pit	
If necessary, ask permission to observe the facility.	and the second sec	
	Composite toilet 31	
	Bucket 41	

Household Questionnaire 74

	Ranging toilet/hanging latring	
	No facilities or bush or field	ss⇔WS11a
	Other ( <i>specify</i> )	
WS9. DO YOU SHARE THIS FACILITY WITH OTHERS WHO ARE NOT MEMBERS OF YOUR HOUSEHOLD?	Yes	2⇒ WS11a
WS10. DO YOU SHARE THIS FACILITY ONLY WITH MEMBERS OF OTHER HOUSEHOLDS THAT YOU KNOW, OR IS THE FACILITY OPEN TO THE USE OF THE GENERAL PUBLIC?	Other households only (not public)	24 WS11 A
WS11. HOW MANY HOUSEHOLDS IN TOTAL USE THIS FACILITY?	No. of households. (if less than 10) 0	
	Ten or more households    10      DK    98	
WS 11A WHAT DO YOU DO TO GET RID OF HOUSEHOLD GARBAGE?	Through garbage collection trucks	
	Dumping outside the whole resedential area.2	
	Throwing outsdie the house	
	Burning	
n. 19 19 19	Other (specify)	lean are assign a success

Household Question and 75

HOUSEHOLD CHARACTERISTICS MO	DULE	НС
HC02. HOW MANY ROOMS/VERANDAS/ TUKULS BELONG TO THIS HOUSEHOLD?	No. of rooms/ tukuls belong to this household	
HC2. HOW MANY ROOMS/VERANDAS/ TUKULS ARE USED FOR SLEEPING?	Used for sleeping	
HC2A. WHAT TYPE OF DWELLING DOES THIS HOUSEHOLD LIVE IN? Record observation.	Tent01Dwelling of straw mats02Tukul/gottiya- mud03Tukul/gottiya- sticks04Flat or apartment05Villa06House of one floor - mud07House of one floor - brick/concrete08House constructed of wood09Multi-storey house10Incomplete11	
HC6. What type of fuel does your household mainly use for cooking?	Other (specify)96Electricity01Gas03Biogas04Kerosene05Charcoal07Wood08Straw/shrubs/grass09Animal dung10Agricultural crop residue11No food cooked in household95Other (marif)96	01⇔HC8
HC7. IS THE COOKING USUALLY DONE IN THE HOUSE, IN A SEPARATE ROOM/TUKUL, OR OUTDOORS? If 'In the house', probe: IS IT DONE IN A SEPARATE ROOM USED AS A KITCHEN?	Other (specify)       96         In the house       1         In a separate room used as kitchen	95⇔HC8

Household Questionnaire 76

HC8. Does your household have any of the following: (Read aloud, and circle either "1" for yes or "2" for no for each item?)	Yes No	
[A] Electricity?	HC8A. Electricity1 2	
[B] A radio?	HC8B. Radio1 2	
[C] A television?	HC8C. Television1 2	
[D] A non-mobile telephone?	HC8D. Non-mobile telephone1 2	
[E] A refrigerator?	HC8E. Refrigerator1 2	
[F] A Computer?	HC8F. A Computer1 2	
[G]Internet?	HC8G. Internet1 2	
[H] A Digital Receiver?	HC8H. Digital Receiver1 2	
HC9. DOES ANY MEMBER OF YOUR HOUSEHOLD OWN:READ ALOUD, AND CIRCLE EITHER "1" FOR YES OR "2" FOR NO FOR EACH ITEM.	YesNo	
[A] A watch?	HC9A. Watch1 2	
[B] A mobile telephone?	HC9B. Mobile telephone1 2	
[C] A bicycle?	HC9C. Bicycle 1 2	
[D] A motorcycle or scooter?	HC9D. Motorcycle / S cooter	
[E] An animal-drawn cart?	HC9E. Animal drawn-cart1 2	
[F] A car or truck?	HC9F. Car / Truck 1 2	
[G] A boat with a motor?	HC9G. Boat with motor1 2	
HC10. DO YOU OR SOMEONE LIVING IN THIS HOUSEHOLD OWN THIS DWELLING?	Own1	
If "No", then ask:	Rent2	
Do you rent this dwelling from someone not Living in this household?	Other; specify (Not owned or rented)3	
If "Rented from someone else", circle "2". For other responses, circle "3".		

Household Questionnaire 77
INSECTICIDE-TREATED NET MO	DULE							TN
HC11. DOES ANY MEMBER OF THIS HOUSEHOLD OWN LAND FOR FARMING, GRAZING, OR FISHING?	Yes No						1 2	2 ⇔HC 13
HC12. HOW MANY FADDANS OF AGRICULTURAL LAND DO MEMBERS OF THIS HOUSEHOLD OWN? If less than 1, record "00". If 95 or more, record '95'. If unknown, record '98'.	FADANs	******						- 2
HC13. DOES THIS HOUSEHOLD OWN OR HAVE ANY LIVESTOCK, HERDS, OR FARM ANIMALS?	Yes No						1 2	2 ⇔next Module
HC14. How many of the following does this Household have?	ANIMALS / BIRDS	0	1 - 10	11 - 20	21 - 50	50 +	DK	
ICI GOATS?	CATTLE	0	1	2	3	4	98	
	GOATS	0	1	2	3	4	98	
	SHEEP	0	1	2	3	4	98	
[E] CHICKENS, PIGEONS AND DUCKS? Circle the corresponding answer	CHICKENS/PIG ONS/DUCKS	0	1	2	3	4	98	
HC14A. HOW MANY OF THE FOLLOWING ANIMALS DOES THIS HOUSEHOLD HAVE?	ANIMALS	0	1 - 4	6 - 5	10 - 14	15 +	DK	
A MIKCOWS	MILKCOWS	0	1	2	3	4	98	
[B]Horses, donkeys, or mules?	HORSES, DONKEYS, OR MULES	0	1	2	3	4	98	
[G] CAMELS?	CAMELS	0	1	2	3	4	98	
[F] PIGS?	PIGS	0	1	2	3	4	98	
Circle the corresponding answer								

2) 2)

TN1. DOES YOUR HOUSEHOLD HAVE ANY MOSQUITO NETS THAT CAN BE USED WHILE SLEEPING?	Yes No	1 2	2⇔HH19 ⇔NEXT MODULE
TN2. How MANY AND WHAT KIND OF MOSQUITO NETS DOES YOUR HOUSEHOLD HAVE? If respondent does not know whether or not net(s) have been treated, count as "other." TN6. How MANY MONTHS AGO DID YOUR HOUSEHOLD GET THE MOST RECENT TREATED MOSQUITO NET? If less than one month, record "00"	TN2A. Number of long lasting trea DK TN2B. Number of treated nets DK TN2C. Number of untreated nets DK TN2D. Number of other/unknown DK Months ago More than 36 mo. ago95 DK / Not sure98	ated nets     98       98     98       98     98       nets     98       98     98	TN2C AND/OR TN2D ONLY ⇔ TN11
TN11. DID ANYONE SLEEP UNDER THE MOSQUITO NET LAST NIGHT?	Yes2 No2 DK / Not sure8	1	2 ⇔ HH19 ⇔NEXT MODULE 8⇔ HH19 ⇔NEXT MODULE
<ul> <li>TN12. WHO SLEPT UNDER THIS MOSQUITO NET LAST NIGHT</li> <li>Record the person's name and line number from the household listing form,</li> <li>Circle the type of net</li> <li>If someone not in the household list slept under the mosquito net, record "00",</li> <li>Circle the type of net</li> </ul>	Name and Line number Type: 1 = LLIN , 2 = TN , 3 = non TN Name and Line number Type: 1 = LLIN , 2 = TN , 3 = non TN Name and Line number Type: 1 = LLIN , 2 = TN , 3 = non TN Name and Line number	Name and Line r Type: 1 = LLIN , 2 = TN , 3 Name and Line r Type: 1 = LLIN , 2 = TN , 3 Name and Line r Type: 1 = LLIN , 2 = TN , 3 Name and Line r	number B = non TN number = non TN number = non TÑ number

1 = LLIN, 2 = TN, 3 = non TN	Type:
	1 = LLIN , 2 = TN , 3 = non TN
Name and Line number	
	Name and Line number
Туре:	
1 = LLIN, $2 = TN$ , $3 = non TN$	Туре:
	1 = LLIN , 2 = TN , 3 = non TN

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			A COLORIDA CONTRACTOR OF A COLORIDA CONTRACTOR A		the states have all have a subject the state of a sub-

SALT IODIZATION MODULE		SI
S11. WE WOULD LIKE TO CHECK WHETHER THE SALT USED IN YOUR HOUSEHOLD IS IODIZED. MAY I SEE A SAMPLE OF THE SALT USED TO COOK THE MAIN MEAL EATEN BY MEMBERS OF YOUR HOUSEHOLD LAST NIGHT?	Not iodized 0 PPM 1 Less than 15 PPM 2 15 PPM or more	
Once you have examined the salt, circle number that corresponds to test outcome.	Salt not tested 4 No salt in home 5	5⇔ NEXT MODULE
SI2. WHERE DID YOU ACQUIRE THIS SALT?	Local market	

÷

HH20, Does any eligible woman age 15-49 reside in the household?

Check HL7. You should have entered the total number of women in the household who are between the ages of 15 and 49 years old. Begin a separate questionnaire for each eligible woman (check HL7) by filling in the Information Panel.

☐ Yes. 

Go to WOMAN'S QUESTIONNAIRE to administer the questionnaire to the first eligible woman.

 $\square$  No.  $\Rightarrow$  Continue.

HH21. Does any child under the age of 5 reside in the household?

Check household listing, column HL8. You should have a questionnaire with the Information Panel filled in for each eligible child.

 $\Box$ Yes.  $\Rightarrow$  Go to UNDER 5 QUESTIONNAIRE to administer the questionnaire to caretaker of the first eligible child.

□ No. \$ Continue

HH21A. Does any eligible man age 15-49 reside in the household?

Check household listing, column HL7A for any eligible man.

You should have a questionnaire with the Information Panel filled in for each eligible man.

 $\square$  Yes.  $\Rightarrow$  Go to QUESTIONNAIRE FOR MENto administer the questionnaire to the first eligible man.

 $\square$  No.  $\Rightarrow$ . End the interview by thanking the respondent for his/her cooperation.

Gather together all questionnaires for this household and tally the number of interviews completed on the cover page.



stand and a second as the first man to a share all the stands with the

## SUDAN HOUSEHOLD HEALTH SURVEY

#### QUESTIONNAIRE FOR CHILDREN UNDER FIVE

UNDER-FIVE CHILD INFORMATION PANEL	UF					
This questionnaire is to be administered to all mo	This questionnaire is to be administered to all mothers or caretakers (see household listing, column HL6)					
who care for a child that lives with them and th	at is under the age of 5 years (see household listing,					
colu	mn HL7).					
A separate questionnaire should be used for each	eligible child. Fill in the cluster and household number,					
and names and line numbers of the child and the	mother/caretaker in the space below. Insert your own					
name and nur	nber, and the date.					
State						
UF0. CODES OF :						
	1					
UF1.: L Cluster Number	UF2 HOUSEHOLD NUMBER:					
LIE3 Child's Name						
	F4.Child's Line Number					
UF5, Mother's/Caretaker's Name and	UF6. Mother S/Caretaker's Line Number (from HLT)					
Household Line Number (Irom HLT):						
	Lit.,					
UF7. Interviewer Name and Number:	UF8. Day/Month/Year of interview					
	LJ					

Repeat greeting if not already read to this respondent:

We are from (*COUNTRY-SPECIFIC AFFILIATION*). We are working on a project concerned with family health and education. I would like to talk to you about (*NAME*)'s health and well-being. The interview will take about (*NUMBER*) minutes. All the information we obtain will remain strictly confidential and your answers will never be shared with anyone other than our project team.

### May | start now?

 $\square$  Yes, Permission is given  $\Rightarrow$  Go to UF12 to record the time and then begin the interview.

 $\square$  No, permission is not given  $\Rightarrow$  Complete UF9. Discuss this result with your supervisor

UF9. Result of interview for children under 5 Codes refer to mother/caretaker.	Completed       1         Not at home       2         Refused       3         Partly completed       4         Incapacitated       5         Other (specify)       6
UF10. Field edited by (Name and number): Name	UF11. Data entry clerk (Name and number): Name

	AGEAG
AG1. Now I would like to ask you some questions about the health of each child under the age of 5 in your care, and who lives with you now. Now I want to ask you about ( <i>name</i> ). IN what month and year was ( <i>name</i> ) BORN? <i>Probe</i> : What is his/her date of birth?	Date of birth: Day
If the mother/caretaker knows the exact birth date, also enter the day; otherwise, circle 98 for day.	
AG2. HOW OLD WAS ( <i>name</i> )? Record age in completed months.	Age in completed months

BIRTHREGISTRATIONMODULE		BR
BR1. DOES (name)HAVE A BIRTH	Yes, seen1	1 ⇔EC
MAY I SEE IT?	Yes, not seen 2	2⇔EC
	No 3	
	DK 8	

BR2. HAS (name)'S BIRTH BEEN	Yes 1	
AUTHERITY?	No 2	
·	DK 8	
BR3. DO YOU KNOW HOW TO	Yes 1	0
REGISTER YOUR CHILD'S BIRTH?	No2	Z⇔EC
BR4. WHY DOES (name)NOT HAVE A	Costs too much	
BIRTH CERTIFICATE?	Must troval tao for	
	Did not know child should have birth certificate 3	
	Did not want to pay fine4	
	Does not know where to get	
	birth certificate5	
	Other(specify)	
	DK	

EARLY CHILDH	IOOD DEVELOPMENTEC		
EC4. Check AG2: Age of child			
$\Box$ Child age 3 or 4 $\Rightarrow$ Continue with EC5			
□ CHILD AGE 0, 1 OR 2 => GO TO NE	EXT MODULE		
EC5. Does ( <i>name</i> ) ATTEND ANY ORGANIZED LEARNING OR EARLY CHILDHOOD EDUCATION PROGRAMME, SUCH AS A PRIVATE OR GOVERNMENT FACILITY, INCLUDING KINDERGARTEN OR COMMUNITY CHILD CARE?	Yes1 No2 DK8	2 ⇔1 8 ⇔	Vext Module NextModule
EC6. WITHIN THE LAST WEEK OF THE LAST SCHOOL YEAR (2009-2010), ABOUT HOW MANY DAYS DID (name) ATTEND?	Number of days		
CARE FOR ILLNESS MODULE			CA
CA1. HAS (name) HAD DIARRHOEA IN THE LAST TWO WEEKS, THAT IS, SINCE (day of the week) OF THE WEEK BEFORE LAST? Diarrhoea is determined as perceived by mother or caretaker, or as more than usual/loose or watery stools per day, or blood in stool.	Yes No DK	1 2 8	2⇒CA7 8⇔CA7
CA1A. DID YOU SEEK ADVICE OR TREATMENT FOR THE DIARRHEA FROM ANY SOURCE?	Yes No DK	1 2 8	2⇔ CA2 8⇔ CA2
CA1B. FROM WHERE DID YOU SEEK CARE (ADVICE OR TREATMENT? Probe: Anywhere ELSE? Circle all providers mentioned, but do NOT prompt with any suggestions. Probe to identify the type of source and circle the	Public sector:         Govt. hospital	A B C D E F	

	Drivete medical costor:	{·····
appropriate code.	Private medical sector:	
If unable to determine if public or private	Private nospital/Gillit	
sector, write the name of the place.	Private physicial	
	Mobile clinic (private)	
	Other private sector(specifi)	
(Name of place)		
	Other source:	
	Religious healerL	
1	Traditional healerM	
	Relative or friendN	
	Other ( <i>specify</i> )X	
CAZ. I WOULD LIKE TO KNOW HOW MUCH		
(name) WAS GIVEN TO DRINK DURING	About the same3	
THE DIARRHOEA (INCLUDING	Morethan usual4	
BREAS TWILKJ.	Nothing to drink5	
DURING THE TIME (nome) HAD	DK8	
DIARRHOFA WAS HE/SHE GIVEN LESS		
THAN USUAL TO DRINK ABOUT THE		
SAME AMOUNT. OR MORE THAN USUAL?		
CA3. DURING THE TIME (name) HAD	less than usual1	
DIARRHOEA, WAS HE/SHE GIVEN LESS	About the same	
THAN USUAL TO EAT, ABOUT THE SAME	Morethan usual4	
AMOUNT, MORE THAN USUAL, OR	Stopped food5	
NOTHING TO EAT?	Never given food6	
	DK8	
CA4. DURING THIS LAST EPISODE OF		
DIARRHEA, WAS (name) GIVEN TO DRINK		
ANY OF THE FOLLOWING:	UA4A. Fluid from URS packet	
	No2	2⇔CA3
	DK8	8⇔CA3
Read each item aloud and record response	CA45 Harranda (hija)	
before proceeding to the next item.	Ves CA4B. Homemade Iluid	r
CAAA A FLUID MADE EDOMA SDECIAL	No	≻⇒ CA3

PACKET CALLED ORS (ORADEX)? CA 4B. RECOMMENDED HOMEMADE FLUID?	DK	
CA4C. FROM WHERE DID YOU GET THE	Public sector:	
ELUID MADE FROM A SPECIAL PACKET	Govt. hospitalA	
CALLED ORS (ORADEX)?Probe:	Govt. health centre B	
ANYWHERE ELSE?	Govt. PHC unitC	
	Community health worker D	
	Mobile/outreach clinic E	
Circle all providers mentioned, but do NOT prompt with any suggestions.	Other public sector(specify)F	
	Private medical sector:	
Probe to identify the type of source and circle the	Private hospital/clinicG	
appropriate code.	Private physicianH	
If unable to determine if public or private sector,	Private pharmacyI	
write the name of the place.	Mobile clinic (private)J	
	Other private sector( <i>specify</i> )K	
(Name of place)		
	Relative or friendN	
	Other( <i>specify</i> )X	
CA5. WAS ANYTHING (ELSE) GIVEN TO TREAT THE DIARRHOEA?	Yes	2⇔CA7 8⇔CA
		ĥ

.

CA6. WHAT (ELSE) WAS GIVEN TO TREAT THE DIARRHOEA? <i>Probe:</i> ANYTHING ELSE? <i>Record all treatments given. Write</i> <i>brand name(s) of all medicines</i> <i>mentioned.</i> (Name)	Pill or Syrup         Antibiotic.       A         Antimotility.       B         Zinc.       C         Other (Not antibiotic, antimotility)       G         Unknown pill or syrup.       H         Injection       A         Antibiotic.       L         Non-antibiotic.       M         Unknown injection.       N         Intravenous.       O         Home remedy/Herbal medicine.       Q         Other ( <i>specify</i> )       X	
CA7. HAS (name) HAD AN ILLNESS WITH A COUGH OR DIFFICULT BREATHING AT ANY TIME IN THE LAST TWO WEEKS, THAT IS, SINCE (day of the week) OF THE WEEK BEFORE LAST? CA8. WHEN (name) HAD AN ILLNESS WITH A COUGH, DID HE/SHE BREATHE FASTER THAN USUAL WITH SHORT, QUICK BREATHS DUE TO A PROBLEM/ INFECTION IN THE CHEST?	Yes	2⇔CA13A 8⇔CA13A
CA10. DID YOU SEEK ADVICE OR TREATMENT FOR THE ILLNESS FROM ANY SOURCE?	Yes	2⇔CA12
	DK8	8⇔CA12
CA11. FROM WHERE DID YOU SEEK CARE (ADVICE OR TREATMENT?	Public sector:           Govt. hospital         A           Govt. health centre         B	
<i>Probe:</i> ANYWHERE ELSE?	Govt. health UnitC Village health workerD Mobile/outreach clinic	
<i>Circle all providers mentioned, but do NOT prompt with any suggestions.</i>	Other public sector( <i>specify</i> )F Private medical sector:	

<i>Probe to identify the type of source and circle the appropriate code.</i>	Private hospital/clinicG Private physicianH	
If unable to determine if public or private sector,	Private pharmacy	
write the name of the place.	Other private sector( <i>specify</i> )	
(Name of place)	Other source:	
	Religious healerL	
	Traditional healerM	
	Relative or friendN Other	
	(specify)X	
CA12. WAS (name) GIVEN ANY MEDICINE TO TREAT THIS ILLNESS?	Yes1 No2	2⇔CA13A
	DK8	8⇔CA13A
CA13. WHAT MEDICINE WAS (name)	Antibiotic	
GIVEN?	Pill / Syrup A Injection	
Prohe:	Anti-malarialsM	
ANY OTHER MEDICINE?	Paracetamol / Panadol / Acetaminophen P	
Circle all medicines given. Write brand	Aspirin	
name(s) of all medicines mentioned.		
(Names of medicines)	Other ( <i>specify</i> )X DKZ	
Ask the following question (CA13A) only once		
for each caretaker.	Child not able to drink or breastfeed A	
	Child becomes sickerB	
	Child develops a fever C	
CA13A. SOMETIMES CHILDREN HAVE	Child has fast breathingD	
SEVERE ILLNESSES AND SHOULD BE	Child has difficulty breathing E	
	Child has blood in stoolF	
WHAT SYMPTOMS WOULD CAUSE YOU TO	Child is drinking poorlyG	

TAKE YOUR CHILD TO A HEALTH FACILITY URGENTLY? Circle all symptoms mentioned, but do NOT prompt with any suggestions.	ConvulsionsH DrowsinessI Other (specify)X	
<i>Keep asking for more signs or symptoms until the caretaker cannot recall any additional symptoms.</i>		
CA14. Check AG2: Child aged under 3?		
□ Yes. 🔿 Continue with CA15		
□ No. ⇒ Go to Next Module		
CA15. THE LAST TIME <i>(name)</i> PASSED STOOLS, WHAT WAS DONE TO DISPOSE OF THE STOOLS?	Child used toilet/latrine01Put / Rinsed into toilet or latrine02Put / Rinsed into drain or ditch03Thrown into garbage (solid waste)04Buried05Left in the open06Other ( <i>specify</i> )96DK98	

MALARIA MODULE		
ML1. IN THE LAST TWO WEEKS, THAT IS, SINCE (day of the week) OF THE WEEK	Yes1	
BEFORE LAST, HAS (name) BEEN ILL	No2	2 ⇔ BF 1.
WITH FEVER OR MALARIA:	DK8	8 ⇔ BF1.
ML4. WAS ( <i>name</i> ) TAKEN TO A HEALTH FACILITY DURING THIS ILLNESS?	Yes1	
	No	
	DK8	
ML2. AT ANY TIME DURING THE ILLNESS, DID ( <i>name</i> ) HAVE BLOOD TAKEN FROM	Yes1 No2	
HIS/HER FINGER OR HEEL FOR TESTING?	DK8	
FOR FEVER OR MALARIA AT THE HEALTH	Yes1	
FACILITY?	No2	2⇔ML8
	DK8	8⇔ML8
ML6. WHAT MEDICINE WAS (name) GIVEN?	Anti-malarials:	
Probe:	SP/Faijsidal tablet	
ANY OTHER MEDICINE?	Chloroquine tablet	
	Chioroquine injection	
	Chloroquine syrup D	
Circle all medicines mentioned. Write brand	Amodiaquine tablet E	
name(s) of all medicines, if given.	Amodiaquine injectionF	
	Metacalfin tablet G	
	Quinine pillsH	
	Quinine injectionI	
(Name)	Artemisinin-based combinationsJ	
	Other medications:	
	Paracotamol/Panadol/Acotaminophon/	
	r aracelambin anadoinAcelaminopheni	1
	ActionP	
	ActionP AspirinQ	

The second s	n <mark>a harden an /mark>	
	Other( <i>specify</i> )X	
MICA EDOMMUEDE MAC THE MEDIONIE	Dublic sector:	
WILDA. FROM WHERE WAS THE MEDICINE		
OBTAINED?	Govi. nospital A	ĺ
	Govt. health centre B	
	Govt. health Unit C	
	Village health worker D	
	Mobile/outreach clinic E	
	Other public sector( <i>specify</i> )F	
	Private medical sector:	
	Private hospital/clinic G	
	Private physicianH	
	Private pharmacyI	
	Mobile clinic (private)J	
	Other private sector(specify)K	
	Relative or friend N	
	Other ( <i>specify</i> )X	
ML7. WAS (name) GIVEN MEDICINE FOR	Yes 1	1⇔ML9
THE FEVER OR MALARIA BEFORE BEING	No	( FIVILO
TAKEN TO THE HEALTH FACILITY?		
	DK8	n analos a particular a
ML8. WAS (name) GIVEN MEDICINE FOR	Yes	
FEVER OR MALARIA DURING THIS		
ILLNESS?	NO	ZHZ DE I
	DK8	8⇔ BF1
ML9. WHAT MEDICINE WAS (name) GIVEN?	Anti-malarials:	
	SP/Fansidar tablet	
Probe:	Chioroquine tablet	
ANY OTHER MEDICINE?	Chloroquine injection	
Circle all medicines mentioned Write hund	Chloroquine syrup D	
name(s) of all medicines, if given.	Amodiaquine tablet E	
	Amodiaquine injectionF	
	Metacalfin tabletG	
	Quinine pillsH	
	Quinine injectionI	

(Name)       Artemisinin-based combinationsJ         (Name)       Other medications: Paracetamol/Panadol/AcetaminophenP AspirinQ         IbuprofenQ       IbuprofenR         Other (specify)X       DKZ         ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)?         □Yes. ⇔Continue with ML11
(Name)       Other medications:         Paracetamol/P anadol/AcetaminophenP       AspirinQ         IbuprofenQ       IbuprofenR         Other (specify)
Paracetamol/Panadol/AcetaminophenP         AspirinQ         IbuprofenR         Other(specify)X         DKZ         ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)?         □Yes. ⇔Continue with ML11
AspirinQ         IbuprofenQ         IbuprofenR         Other(specify)X         DKZ         ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)?         □Yes. ⇔Continue with ML11
Ibuprofen       R         Other(specify)       X         DK       Z         ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)?         □Yes. ⇔Continue with ML11
Other( <i>specify</i> )
DKZ ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)? □Yes. ⇔Continue with ML11
ML10. Check ML6 & ML9:ifAnti-malarial mentioned (code A - J)? □Yes. ⇔Continue with ML11
$\Box$ Yes. $\Rightarrow$ Continue with ML11
$\Box$ No. $\Rightarrow$ Go to BF
ML11. HOW LONG AFTER THE FEVER Same day0
STARTED DID (name) FIRST TAKE (name of Next day
anti-malarial from ML6 or ML9)?
4 or more days after the fever
If multiple anti-malarials mentioned in ML6 or
ML9, name all anti-malarial medicines mentioned. DK
Record how long after the fever started the first
anti-malarial was given.
BREASTFEEDING MODULE (CHILDREN UNDER 2 YEARS OF AGE) BF
BF1. Check AGE2: Child aged under 2 years?
□ Yes.  Continue with BF1
LI No. ⇒ Go to IM MODULE
BF1/MN24.HAS (name) EVER BEEN Yes 1
BREASTFED? No
DK
MN25. HOW LONG AFTER BIRTH DID (name) Immediately00
FIRSTBEEN PUT TO THE BREAST? Hours 1
If less than 1 hour, record '00' hours. If less than 24 hours, record hours, Days
Otherwise, record days. Don't know/remember

·		
BF1a. DID ( <i>name</i> ) RECEIVE ANY OTHER LIQUIDS OR SOLIDS BESIDES BREASTMILKIN THE FIRST 6 MONTHS?	Yes	
BF2. IS HE/SHE STILL BEING BREASTFED?	Yes 1 No 2 DK 8	1⇔BF2в
BF2A. AT WHAT AGE DID ( <i>name</i> ) STOP BEING BREASTFED?	Number of months	
BF2B. HAS ( <i>name</i> ) STARTED TO HAVE FOODS BESIDES BREAST FEEDING?	Yes	2⇔BF3 8⇔BF3
BF2C. AT WHAT AGE DID ( <i>name</i> ) BEGIN TO HAVE ADDITIONAL FOODS?	Number of months	
WOULD LIKE TO ASK YOU ABOUT LIQUIDS	THAT (name) MAY HAVE HAD YESTERDAY DU	RING THE
DAY OR THE NIGHT. I AM INTERESTED	IN WHETHER (name) HAD THE ITEM EVEN IF I	TWAS
COMBINE	D WITH OTHER FOODS.	
BF3:DID ( <i>name</i> ) DRINK PLAIN WATER YESTERDAY, DURING THE DAY OR NIGHT?	Yes	
BF4. DID ( <i>name</i> ) DRINK INFANT FORMULA YESTERDAY, DURING THE DAY OR NIGHT?	Yes	2⇔BF6 8⇔BF6
BF5. HOW MANY TIMES DID ( <i>name</i> ) DRINK INFANT FORMULA?	Number of times	
BF6. DID (name) DRINK MILK, SUCH AS	Yes 1	

	24 U 17 U 1	
TINNED, POWDERED OR FRESH ANIMAL	No 2	2⇔BF8
MILK YESTERDAY, DURING THE DAY OR NIGHT?	DK 8	8⇔BF8
BF7. HOW MANY TIMES DID ( <i>name</i> ) DRINK TINNED, POWDERED OR FRESH ANIMAL MILK?	Number of times	
BF8. DID (name) DRINK JUICE OR JUICE	Yes	
OR NIGHT?	DK 8	
BF9. DID (name) DRINK SOUP YESTERDAY,	Yes	
DURING THE DAY OR NIGHT?	NO	
	DK 8	
BF10. DID ( <i>name</i> ) DRINK OR EAT VITAMIN	Yes1 No2	
DAY OR NIGHT?	DK 8	
BF11. DID (name) DRINK ORS (ORAL	Yes1	
REHYDRATION SOLUTION) YESTERDAY,	No 2	
DURING THE DAY OR NIGHT?	DK 8	
BF12. DID (name) DRINK ANY OTHER	Yes	
LIQUIDS YESTERDAY, DURING THE DAY	NO 2	
OR NIGHT?	DK	
BE13, DID (name) DRINK OR FAT YOGURT	Yes 1	
YESTERDAY, DURING THE DAY OR	No	2⇔BF15
NIGHT?	DK 9	
	Δκ	0-VDF15
OD FAT YOCUDT VESTERDAY, DUDING	Number of times	
THE DAY OD NICHT?	The second se	
	Voc 1	
BETS, DID (NAME) EAT THIN PORRIDGE	No	
YESTERDAY, DURING THE DAY OR		
NIGHT (	DK 8	
BF16. DID (name) EAT SOLID OR SEMI-	Yes	
SOLID (SOFT, MUSHY) FOOD	NU Z	Z-YDF10
YESTERDAY, DURING THE DAY OR	DK 8	8⇔BF18
NIGHT?		
BF17. HOW MANY TIMES DID (name) EAT		

SOLID OR SEMI-SOLID (SOFT, MUSHY) FOOD YESTERDAY, DURING THE DAY OR NIGHT?	Number of times
BF18. YESTERDAY, DURING THE DAY OR NIGHT, DID ( <i>name</i> ) DRINK ANYTHING FROM A BOTTLE WITH A NIPPLE?	Yes

N. 19			- MO				XXX (1		CONCEP-	10425			C (36)	20205	2012/07/07	20.00			/122.24	100 C 100	ACMIC.	200
80	- 62	- 22	-		-	1. YA	6 H K	100 Y 1	1000	66 i C	_	6.056	1. C 26	6 G (G	FT 12	e no		100 A	94693	100.00	-	
S2.1	10	1.75		- A.		101		6 M I G	02.0		9 <b>71 I</b> P	B 87.	87 M		68 H K K		- 66			12.2	10.00	8 A C
W.	- 7				<b>n</b> 12/1	55			6.00	-	27 B V	8. 12	20 E E	10.000	6 14 1		20.1	1.62	- 19 I	110.106	10002	
84	- 63				8 M	12.1			1.00	-	- C - C - C	20.54	87 A.	6 C A	80.0			1 S M		1.1	1.065	
200		2	6 H.	. 8	99.2S		: A.A.	-04-0		100	ion i i	8 . A .		0.000		C 122	1000		NO 12			

This module to be administered to mothers of children 12-23 months of age

If an immunization card is available, copy the dates in IM3 for each type of immunization dose recorded on the card

IM6-IM16 will only be asked when a card is not available or data is missing in the card.

IM1. IS THERE A VACCINATION CARD FOR (name)?	Yes, seen		· · · · · · · · · · · · · · · · · · ·			
	Yes, not se	Yes, not seen				
	No			3⇔IM6		
IM3	er er					
<ul> <li>(a) Copy dates for each vaccination from the card.</li> <li>(b) If the card shows only part of the date, record "98" in the column for the missing information.</li> </ul>	Da	Date of Immunization				
<ul> <li>(c) Write '44' in day column if card shows that vaccination was given but no date recorded.</li> <li>(d) If a vaccination was not given, leave that line blank</li> </ul>	DAY	MONTH	YEAR			
IM3 00. BCG						
IM301. OPV0						
IM301a. OPV1						
IM301b. OPV2						
IM301c. OPV3						
IM302. DPTHBHIB1						
IM302A. DPTHBHIB2						
IM302 B DPTHBHIB3						
IM303. Measles						
IM4. Check IM3. Are all vaccines (BCG to MEASLES) recor	ded?					
$\Box Yes \Rightarrow Go to IM18$						
$\Box$ No $\Rightarrow$ Continue with IM6						

IM6. Has ( <i>name</i> ) EVER RECEIVED ANY VACCINATIONS TO PREVENT HIM/HER FROM GETTING DISEASES (ROUTINE VACCINATION)?	Yes No DK	2⇔IM18 8⇔IM18
IM7. Has ( <i>name</i> ) ever been given a BCG vaccination against tuberculosis – that is, an injection in the arm?	Yes No DK	2⇔IM8 8⇔IM8
IM7A. HAS IT CAUSED A SCAR? IF YES: CAN I SEE IT?	Yes scar seen Yes scar not seen2 No	
IM8. Has ( <i>name</i> ) EVER BEEN GIVEN ANY "VACCINATION DROPS IN THE MOUTH" TO PROTECT HIMHER FROM GETTING DISEASES – THAT IS, POLIC?	Yes No DK	2⇔IM12a 8⇔IM112a
IM9. How old was ( <i>name</i> ) when the first dose was given – just after birth (within two weeks) or later?	Just after birth (within two weeks) Later DK	
IM10. How many times has he/she been given these DROPS? COUNT ONLY ROUTINE VACCINATION	No. of times	
IM12A. HAS ( <i>name</i> ) EVER BEEN GIVEN "DPTHBHIB (PENTAVALENT) VACCINATION INJECTIONS" – THAT IS, AN INJECTION IN THE THIGH – TO PREVENT HIM/HER FROM GETTING TETANUS, WHOOPING COUGH, DIPHTHERIA, HEPATITIS B, MENINGITIS? (SOMETIMES GIVEN AT THE SAME TIME AS POLIO)	Yes No DK	2⇔IM16 8⇔IM16
IM12b. How many times has he/she been given DP T HB HIB vaccination injections?	No. of times	
IM16. Has ( <i>name</i> ) ever received a Measles injection – that is, a shot in the arm at the age of <b>9</b> MONTHS OR OLDER - TO PREVENT HIM HER FROM GETTING MEASLES?	Yes No DK	
IMT8. HAS (name) EVER RECEIVED A VITAMIN A CAPSULE (SUPPLEMENT) LIKE THIS ONE? Show capsule or dispenser for different doses	Yes No	2⇔ I <b>M1</b> 8в
100,000 1U for those 6-11 months old, 200,000 IU for those 12-59 months old.	DK	8⇔IM18в
IM18a. How many months ago did ( <i>name</i> ) take the Last capsule?	Less than 6 months ago More than 6 months ago	

· · · · · · · · · · · · · · · · · · ·	DK
IM18B. WHERE DID ( <i>name</i> ) GET THE LAST CAPSULE?	On routine visit to health facility Sick child visit to health facility National Immunization Day campaign Other( <i>specify</i> ) DK
IM18D ASK THE MOTHER WHETHER ( <i>name</i> ) SUFFERING FROMANY DIFFICULTIES IN SEEING AT NIGHT	Yes No DK

2 ( Sec. 14. 1. 14)	College Vier 20	tene Burger	121 1 22	972 C. C. 15	19 1 1 1 1 1 1 1 A
	10125 64 64		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1 Saide	10 - 20 Million 10-3
<ul> <li>10.100 (2011)</li> </ul>	0.000 - 0.000 - 0.000				States I'm
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C. S. 10, 10, 10, 10	and in the de-	The set	·	27 Hander	A
N.S. 32 1 1 1	The prime way I	Por	nra 1	no i	inno
201 B	1. 1. 1. 1. 1. 1.	100	HULL	110 1	HILE.
State State	1. T		Sec. 20. 11.	2	22.2.2.2.22
CLAR-CHISR.	- 11 - 2 - 12 - 12	7-21122	1.000		1
	10. 10 Per 201 U.S.	C 10 10 1 1 100			and the second second

#### HOUR AND MINUTES

UF14. Is the respondent the mother or caretaker of another child age 0-4 living in this household?

 $\Box$  Yes.  $\Rightarrow$  Indicate to the respondent that you will need to measure the weight and height of the child later. Go to the next QUESTIONNAIRE FOR CHILDREN UNDER FIVE to be administered to the same respondent

 $\square$  No.  $\Rightarrow$  End the interview with this respondent by thanking him/her for his/her cooperation and tell her/him that you will need to measure the weight and height of the child.

Check to see if there are other woman's or under-5 questionnaires to be administered in this household.

Move to another woman's or under-5 questionnaire, or start making arrangements for anthropometric measurements

## ANTHROPOMETRY MODULE

After questionnaires for all children under 5 are complete, the measurer weighs and measures each child under 5.

AN

Record weight and length/height below, taking care to record the measurements on the correct questionnaire for each child. Check the child's name and household line number (HL1) on the household listing before recording measurements.

AN1. Measurer's Name and identification	Name CODE	
code.		
AN2. Result of height / length and weight	Either or both measured1	
medsulement	Child not present2	2⇔AN6
	Child or caretaker refused 3	3 <b>⇔AN</b> 6
	Other (specify)6	6⇔AN6
AN3.Child's weight	Kilograms (kg)	
	WEIGHT notmeasured 99.9	
AN4.Child's length or height.	Length (cm)	
Check age of child in AG2.	Lying downL	
$\Box$ Child under 2 years old. $\Rightarrow$ Measure length (lying down).	Height (cm) Standing up., H	
□ Child age 2 or more years. ⇔ Measure height (standing up).	Length / Height not measured 9999.9	
AN5. Perform the oedemapress test to both feet	Child has oedema	
TO DETERMINE IF THE CHILD HAS OEDEMA AND MARK THE RESULT OF THE TEST.	Yes	
	No2 Not present	
	Refused	

AN6. Is there another child in the household who is eligible for measurement?

 $\square$  Yes.  $\Rightarrow$  Record measurements for next child in his/her questionnaire.

 $\square$ *No.*  $\Rightarrow$  *End the interview with this household by thanking all participants for their cooperation.* 

Gather together all questionnaires for this household and check that all identification numbers are inserted on each page. Tally on the Household Information Panel the number of interviews completed.

Segment Number:

Household Number:

SUDAN HOUSEHOLD HEALTH SURVEY 2
QUESTIONNAIRE FOR INDIVIDUAL WOMEN
WOMAN'S INFORMATION PANEL WM
This questionnaire is to be administered to all women age 15 through 49 (see column HL7 of HH listing). Fill in one
form for each eligible woman. Fill in the segment and household number, and the name and household line number
of the woman in the space below. Fill in your name, number, and the d <b>ate.</b>

WM1. CODES	WM2. HOUSEHOLD NUMBER:			
WM3. Woman's Name :	WM4. Woman's Household Line Number:			
Name :		4		
WM5. Interviewer Name and Number:		<u> </u>		
		<u>+</u> J		
WM6. Day/Month/Year of interview:				
Repeat greeting IF NOT ALREADY READ to this wor	nan:			
We are from the Sudan Household Health Survey 2 <sup>nd</sup> socioeconomic indicators. I would like to talk to you a the pretest) minutes. All the information we obtain w identified.	round which is concerned with family health and bout this. The interview will take about (will be deci ill remain strictly confidential and your answers will	ded after never be		
May I start now?				
$\square$ Yes, permission is given $\Rightarrow$ GO to $WM10$ to record	D THE TIME AND THEN BEGIN THE INTERVIEW.			
$\square$ No, permission is not given $\Rightarrow$ Complete WM7. Discuss	this result with your supervisor FOR A FUTURE REVIS	SIT -		
WMA7 Denute of unemandary interview	Completed	. 1		
wivi7. Result of women's interview.	Not at home2			
Circle the appropriate code	Refused	. 3		
encie ine appropriate code	Partly completed	. 4		
	Incapacitated	. 5		
	Other(SPECIFY)	. 6		
WM8. Field edited by (Name and number):	WM9. Data entry clerk (Name and number):			
Name	Name			

Hour and minutes......

WM10. Record the starting time.

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Household Number: Woman's Line Number:

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WOMAN'S BACKGROUND		WB
WB2. How old are you?	Age (in completed years)	
<i>Probe:</i> How old were you at your last birthday?		
WB3. HAVE YOU EVER ATTENDED SCHOOL?	Yes	2⇔WB7
WB4. WHAT IS THE HIGHEST LEVEL OF SCHOOL YOU ATTENDED: PRIMARY, SECONDARY, OR HIGHER?	Primary	
WB5. IF 1 A OR 2 WHAT IS THE HIGHEST GRADE YOU COMPLETED AT THAT LEVEL? If less than 1 grade, enter "00"	Grade	
WB6. Check WB4:	8. ° + 8	
□Secondary or higher. ⇔ Go to Next Module		
□All Other answers  Continue with WB7		
WB 7. NOW IWOULD LIKE YOU TO READ THIS SENTENCE TO ME:	Cannot read at all Able to read only parts of sentence Able to read whole sentence	1 2 3
SHOW SENTENCES TO RESPONDENTS. IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE:	No sentence in required language <i>(specify language)</i> Blind / visually / speech impaired	4
CAN YOU READ PART OF THE SENTENCE TO ME? EXAMPLE OF SENTENCES FOR LITERACY 1. THE CHILD IS READING A BOOK.		
<ol> <li>THE RAINS CAME LATE THIS YEAR.</li> <li>PARENTS MUST CARE FOR W THEIR CHILDREN.</li> <li>FARMING IS HARD WORK</li> </ol>	oman's Questionnaire 108	

Logic Station

Woman's Line Number:

		Contraction of the second
MARRIAGE/UNION MA1. ARE YOU CURRENTLY MARRIED OR LIVING TOGETHER WITH A MAN AS IF MARRIED?	Yes, currently married	MA 3⇔MA5
MA3. BESIDES YOURSELF, DOES YOUR HUSBAND/PARTNER HAVE ANY OTHER WIVES OR PARTNERS OR DOES HE LIVE WITH OTHER WOMEN AS IF MARRIED?	Yes1 No2 DK98	⇔MA9 ⇔MA9
MA4. How many other wives or partners does he have?	Number	⇔MA9
	DK	98⇔MA9
MA5. HAVE YOU EVER BEEN MARRIED OR LIVED TOGETHER WITH A MAN AS IF MARRIED?	Yes, formerly married1 Yes, formerly lived with a man2 No	3 ⇔CP Module
MA6. WHAT IS YOUR MARITAL STATUS NOW: ARE YOU WIDOWED, DIVORCED OR SEPARATED?	Widowed    1      Divorced    2      S eparated    3	
MA9. How old were you when you started LIVING WITH YOUR FIRST HUSBAND/PARTNER?	Age in years	

Cluster Number:

.....

Household Number: Woman's Line Number:

REPRODUCTION AND CHILD SU	RVIVAL (CHILD MORTALITY)	CM		
This Module is to be administered to cu All que	This Module is to be administered to currently or ever married or in union women in the age group 15-49 All questions refer only to LIVE births.			
CM1. Now I would like to ask about all the births you have had during your life. Have you ever given birth to a <b>LIVE baby</b> ? I mean that the child has shown any signs of life; cried, breathed or moved his/her limbs.	Yes	2⇔CP моdule		
CM3. How many years ago did you Have Your first birth? I mean the very first time you gave Birth, even if the child is no LONGER LIVING, OR WHOSE FATHER IS NOT YOUR CURRENT PARTNER.	Completed years since first birth			
CM4. Do you have any sons or DAUGHTERS TO WHOM YOU HAVE GIVEN BIRTH WHO ARE NOW LIVING WITH YOU?	Yes 1 No 2	2⇔CM6		
CM5. How many sons live with you? How many daughters live with you? If none, record '00'.	Sons at home			
CM6. Do you have any sons or DAUGHTERS TO WHOM YOU HAVE GIVEN BIRTH WHO ARE ALIVE BUT DO NOT LIVE WITH YOU?	Yes 1 No 2	2⇔CM8		

Linder of Automatic

Cluster Number:

Woman's Line Number:

CM7. How many sons are alive but Do not live with you? How many daughters are alive But do not live with you?	Sons elsewhere			
If none, record '00'.				
CM8. HAVE YOU EVER GIVEN BIRTH TO A BOY OR GIRL WHO WAS BORN ALIVE BUT LATER DIED?	Yes	2⇔CM10		
If "No" probe by asking: I MEAN, TO A CHILD WHO EVER BREATHED OR CRIED OR SHOWED O THER SIGNS OF LIFE – EVEN IF HE OR SHE LIVED ONLY A FEW MINUTES OR HOURS?				
CM9. HOW MANY BOYS HAVE DIED? HOW MANY GIRLS HAVE DIED?	Boys dead			
If none, record '00'.				
CM10.Sum answers to CM5, CM7, and CM9.	Sum			
CM 11 JUST TO MAKE SURE THAT I HAVE THIS RIGHT:         SO YOU HAVE HAD IN TOTAL         III        LIVE BIRTHS (sum CM5, CM7 and CM9).         IF YES ⇒ Continue with CM12         IF No CHECK CM4, CM6, CM8 and AccordingLy correct CM10 and CM11				

Woman's Questionnaire 111

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S	ta	te	N	Ja	n	7	e	•
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CM12. OF THESE ( <i>total number</i> ) BIRTHS YOU HAVE HAD, WHEN DID YOU DELIVER THE LAST ONE (EVEN IF HE OR SHE HAS DIED)? Month and year must be recorded.	Date of last birth           Day
CM13. Check CM12: Last birth occurred within t $\square$ No live birth in last 2 years. $\Rightarrow$ Go to Next Mod	the last 2 years, that is, since (MARCH-APRIL, <b>2008)</b> hile.
$\Box$ Yes, live birth in last 2 years. $\Rightarrow$ Ask for the nam	te of the child
Name of child	
If child has died, take special care when referring	to this child by name in the following modules.

- Carling

Household Number: Woman's Line Number:

DB

# DESIRE FOR LAST BIRTH

This module is to be administered to all women with a live birth in the 2 years preceding date of interview. Check child mortality module CM13 and record name of last-born child here\_ Use this child's name in the following questions, where indicated.

DB1. WHEN YOU GOT PREGNANT WITH ( <i>name</i> ), DID YOU WANT TO GET PREGNANT	Yes1	1⇔Next Module
AT THAT TIME?	No2	
DB2. DID YOU WANT TO HAVE A BABY LATER	Later1	
CHILDREN?	No more2	2⇔Next Module
DB3. How much longer did you want to wait?	Months 1	
	Years	
	DK8	

Cluster Number:

Household Number: Woman's Line Number:

LIVE BIRTH HISTORY TABLE											
Now I would like to record the NAMES OF ALL YOUR BIRTHS, WHETHER THE CHILD IS STILL ALIVE OR NOT. I WOULD LIKE TO START WITH THE FIRST ONE YOU HAD.											
	BH1	BH2	ВНЗ	BH4	BH5	BH6	BH7	BH8	BH9		
Live birth Line No.	<i>Name</i> All children, whether Alive or dead:	WERE ANY OF THESE BIRTHS TWINS? 1 SINGLE 2 MULTIPLE	IS ( <i>name</i> ) MALE OR FEMALE? 1 MALE 2 FEMALE	IN WHAT MONTH AND YEAR WAS ( <i>name</i> ) BORN? <i>Probe:</i> WHAT IS HIS/HER BIRTHDAY? <i>If they don't know</i> <i>write "98" for months</i> <i>and "9998" for year</i>	IS ( <i>name</i> ) STILL ALIVE? 1YES 2No⊗ BH9	<i>If alive</i> How old WAS ( <i>name</i> ) ON HIS/HER LAST BIRTHDAY? Record age in completed years. If less than 1 year record (00) 98 DK	If alive: Is (name) LIVING WITH YOU? 1 YES 2 No	If alive Record household line number of child (from HL1). Write "00" if child is not listed on household listing form (HL module).	How OLD WAS (name) WHEN HE/SHE DIED? Record age at death. If less than 1 month, record days. If less than 2 years, record months. If more than 2 years, record years.		
LIÑE	NAME	S M	SEX	MONTH & YEAR	Y N	AGE	Y N ·	HH LINE NO.	AGE AT DEATH		
01				MONTH YEAR					DAYS MONTHS YEARS		
02				Month Year					Days Months Years		
03				Month Year					DAYS MONTHS YEARS		
Cluster Number:

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Household Number: Woman's Line Number:

	LIVE BIRTH HISTORY TAB	LE		ana ang kang kang kang kang kang kang ka			80 <sup>1</sup>		BH
	Now I would like 1	O RECORD THE	NAMES OF ALL	YOUR BIRTHS, WHETHER THE	CHILD IS STI	LL ALIVE OR NOT. I W	OULD LIKE TO	START WITH THE FIRS	T ONE YOU HAD.
		Re	cord names of a	all births; if name not given, re	cord 'x'. Re	ecord twins and triple	ts on separate i	lines.	
	BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8	BH9
Live birth Line No.	<i>Name</i> All children, whether Alive or dead:	WERE ANY OF THESE BIRTHS TWINS? 1 SINGLE 2 MULTIPLE	IS ( <i>name</i> ) MALE OR FEMALE? 1 MALE 2 FEMALE	IN WHAT MONTH AND YEAR WAS ( <i>name</i> ) BORN? <i>Probe:</i> WHAT IS HIS/HER BIRTHDAY? <i>If they don't know</i> <i>write "98" for months</i> <i>and "9998" for year</i>	IS ( <i>name</i> ) STILL ALIVE? 1YES 2No& BH9	If alive How OLD WAS (name) ON HIS/HER LAST BIRTHDAY? Record age in completed years. If less than 1 year record (00) 98 DK	If alive: IS (name) LIVING WITH YOU? 1 YES 2 No	If alive Record household line number of child (from HL1). Write "00" if child is not listed on household listing form (HL module).	How OLD WAS (name) WHEN HE/SHE DIED? Record age at death. If less than 1 month, record days. If less than 2 years, record months. If more than 2 years, record years.
LINE	NAME	S M	SEX	MONTH & YEAR	Y N	AGE	Y Ń.	HH LINE NO.	AGE AT DEATH
04									DAYS MONTHS YEARS
05				MONTH YEAR					Days Months Years
06				MONTH YEAR					DAYS MONTHS YEARS

State Name: Cluster Number: Household Number: Woman's Line Number:

	LIVE BIRTH HISTORY TAB	8LE							ВН
	Now I would like	TO RECORD THE	NAMES OF ALL	YOUR BIRTHS, WHETHER THE	CHILD IS STI	LL AUVE OR NOT. I V	VOULD LIKE TO	START WITH THE FIRS	TONE YOU HAD.
	D114	Re	cord names of a	all births; if name not given, re	cord 'x'. Re	ecord twins and triple	ts on separate	lines.	DUO
Live birth		WERE ANY OF THESE	IS (name) MALE OR	IN WHAT MONTH AND YEAR WAS ( <i>name</i> )	ls ( <i>name</i> )	If alive	If alive:	If alive Record household	How old was ( <i>name</i> ) WHEN HE/SHE DIED?
No.	ALIVE OR DEAD:	BIRTHS TWINS?	FEMALE?	BORN?	STILL ALIVE?	HOW OLD WAS ( <i>name</i> ) ON HIS/HEB LAST	ls ( <i>name</i> )	child (from HL1).	Record age at death.
		1 SINGLE	1 MALE	WHAT IS HIS/HER BIRTHDAY?		BIRTHDAY? Record age in	living With You?	Write "00" if child is not listed on household	days. If less than 2 years, record months.
		2 MULTIPLE	2 FEMALE	<i>If they don't know</i> write "98" for months	1 YES	completed years. If less than 1 year record (00)	1 Vrc	listing form (HL module).	If more than 2 years, record years.
				and "9998" for year	2 Nosi BH9	98 DK	2 No		
LINE	NAME	S M	SEX	MONTH & YEAR	Y N	AGE.	Y N	HH LINE NO.	AGE AT DEATH
07									DAYS MONTHS YEARS
08				Month Year					Days Months Years
09				Month Year					Days Months Years

State Name: Cluster Number: Household Number: Woman's Line Number:

		R	cord names of	all births: if name not given. re	cord 'x'. R	ecord twins and trible	is on separate	lines.	
·	BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8	BH9
ive Erth ine Io.	<i>Name</i> All children, whether Alive or dead:	WERE ANY OF THESE BIRTHS TWINS? 1 SINGLE 2 MULTIPLE	IS ( <i>name</i> ) MALE OR FEMALE? 1 MALE 2 FEMALE	IN WHAT MONTH AND YEAR WAS ( <i>name</i> ) BORN? <i>Probe:</i> WHAT IS HIS/HER BIRTHDAY? <i>If they don't know</i> <i>write "98" for months</i> <i>and "9998" for year</i>	IS (name) STILL ALIVE? 1 YES 2 NOS BH9	<i>If alive</i> How old was ( <i>name</i> ) ON HIS/HER LAST BIRTHDAY? Record age in completed years. If less than 1 year record (00) 98 DK	If alive: Is (name) LIVING WITH YOU? 1YES 2NO	If alive Record household line number of child (from HL1). Write "00" if child is not listed on household listing form (HL module).	HOW OLD WAS ( <i>name</i> ) WHEN HE/SHE DIED? Record age at death. If less than 1 month, record days. If less than 2 years, record months. If more than 2 years, record years.
INÉ	NAME	s M	SEX	MONTH & YEAR	Y N	AGE	Y N	HH LINE NO.	AGE AT DEATH
10				MONTH YEAR					DAYS MONTHS YEAR
11									DAYS MONTHS YEAF
12									Days Months Year

C	A I
Stato	Nomo
JUDIC	INGILIE,

Woman's Line Number:

MATERNAL AND NEWBORN HE	ALTH;	MIN
This module is to be administered to all wome. Check child mortality module CM13 and reco Use this child's name in the followin	n WHO WERE PREGNANT in the 2 years preceding date of a rd name of last-born child here g questions, where indicated.	nterview.
MN 00. CONFIRMATION QUESTION	Yes1	
HAVE YOU BEEN PREGNANT DURING THE LAST	No2	2 ⇔ CP
2 YEARS?	DK3	3⇔ CP
MN 01. HOW MANY PREGNANCIES DID YOU HAVE DURING THE PAST TWO YEARS?	The Number of pregnancies:	
MN 02. How did these pregnancies end?	MN 02A. LIVE BIRTH:A	1 ⇔MN 1
Ask for each outcome and record conclusion for each pregnancy reported in MN 01. Check that total number is equal to the number of pregnancies reported in MN	MN 02B. STILL BIRTH:B	2 ⇔MN 1
01. If Different, probe for MN 01 and correct if necessary.	MN 02C. MISCARRIAGE:C	IF D only and/or
		C only ⇔CP
FOR THE NEXT FEW QUESTIONS, I WILL BE AS BIRTH).	SKING ABOUT YOUR LAST COMPLETED PREGNANCY (LIVE	OR STILL
MN1. BEFORE YOU GAVE BIRTH TO THIS CHILD, DID YOU SEE ANYONE FOR ANTENATAL CARE?	Yes1 No2	2⇔MN5

Cluster Number:

Woman's Line Number:

	Health professional:
MN2. WHOM DID YOU SEE?	
	DoctorA
Probe:	Nurse midwife,B
ANYONE ELSE?	Health VisitorC
	Midwife D
Probe for the type of person seen and	
circle all answers given.	
	Other person:
	Traditional birth attendant
	Community health worker
	Other (specify) X
MN2 HOW MANY TIMES DID YOU	Number of times
RECEIVE ANTENATAL CARE	DK98
DURING THIS PREGNANCY ?	
NANA AS DADT OF YOUR ANTENATAL SADS	
WIN4. AS PART OF YOUR ANTENATAL CARE,	
WERE ANY OF THE FOLLOWING DONE AT	
LEAST ONCE?	
	Malda Dieed pressure
IVIN4A. WAS YOUR BLOOD PRESSURE	Vinta Blood pressure
MEASURED?	No 2
Malife Des unit and a second and a	MNMA Liring sample
WIN4B. DID YOU GIVE A URINE SAMPLE?	Yes 1
	No 2
MN4C, DID YOU GIVE A BLOOD SAMPLE?	MN//c Blood sample
	Yes 1
	No2
MN4D. AS PART OF YOUR ANTENATAL CARE,	MN4DA. MODE OF DELIVERY (Normal/CS)
WAS THE MODE AND/OR PLACE OF	Yes1
DELIVERY DISCUSSED WITH YOU?	No2
	MN4DB. PLACE OF DELIVERY
	Yes1
	No2
MN4EDURING THIS PREGNANCY, DID YOU	Yes1
RECEIVE IRON OR FEFOL TABLETS?	No. 2
	1νΟ
	DK 8

Woman's Line Number:

<ul> <li>MN5. DO YOU HAVE A CARD OR OTHER DOCUMENT WITH YOUR OWN IMMUNIZATIONS LISTED?</li> <li>MAY I SEE IT PLEASE? If a card is presented, use it to assist with answers to the following auestions.</li> </ul>	Yes (card seen) Yes (card not seen) No DK	3	
MNA During this pregnancy			1
NINO. During this pregnancy,	Yes1		t.
DID YOU RECEIVE ANY INJECTION		1	2⇔MN9
IN THE ARM OR SHOULDER TO	No		
PREVENT THE BABY FROM			8⇔MN9
GETTING TETANUS, THAT IS	DK8		
CONVULSIONS AFTER BIRTH?			
MN7. How many times did you RECEIVE THIS TETANUS INJECTION During this pregnancy?	Number of times DK8		8⇔MN9
If 7 or more times, record '7.	e en sus mannensues es coutres and a sur s		ಸೋಡಿಗೆ "ಎಟ್ ನಿಸ್ಥಾನ ಸ
MN8. How many tetanus injections during	last pregnancy were reported in MN7?		
$\Box At$ least two tetanus injections during las	t pregnancy. ⇔ Go to MN13		
□Fewer than two tetanus injections during	last pregnancy. $\Rightarrow$ Continue with MN9		2 2 2
and and an end of the second secon			

Cluster Number:

Woman's Line Number:

	Yes 1	
MN9. DID YOU RECEIVE ANY TETANUS INJECTION AT ANY TIME BEFORE YOUR LAST PREGNANCY, EITHER TO PROTECT YOURSELF OR ANOTHER BABY?	No2 DK	2⇔MN13 8⇔MN13
MN10. How many times did you Receive a tetanus injection BEFORE your last PREGNANCY?	Number of times8	8⇔MN13
If / or more times, record / .		
MN11. How many years ago DID YOU RECEIVE THE LAST TETANUS INJECTION BEFORE YOUR LAST PREGNANCY?	Years ago	
MN13. DURING ANY OF THESE ANTENATAL VISITS FOR THE PREGNANCY, DID YOU TAKE ANY MEDICINE IN ORDER TO <u>PREVENT</u> YOU FROM GETTING MALARIA?	Yes1 No2 DK8	2⇔MN16a 8⇔MN16a
MN14. WHICH MEDICINES DID YOU TAKE TO PREVENT MALARIA? Circle all medicines taken. If type of medicine is not determined, show typical anti-malarial to respondent. MN15. Check MN14 for medicine taken:	SP / FansidarA ChloroquineB Other ( <i>specify</i> )X DKZ	
$\Box$ SP / Fansidar taken. $\Rightarrow$ Continue with M	N16	
☐SP/Fansidar not taken.⇔ Go to M	N16A	· · · · · ·
MN16. DURING THIS PREGNANCY, HOW MANY TIMES DID YOU TAKE SP/FANSIDAR?	Number of times DK	
SHOW FANSIDAR TO RESPONDENT		

MN16AWHAT SIGNS AND SYMPTOMS DO YOU KNOW THAT TELLS SOMETHING IS WRONG DURING PREGNANCY, CHILDBIRTH/POSTPARTUM PERIOD THAT WOMAN SHOULD CONTACT HER CAREGIVER OR SEEK HEALTH CARE? Probe: ANY OTHER CAUSE? Circle all answers given	High fever.       A         Severe headache/ blurred vision.       B         High blood pressure.       C         Convulsions, fainting.       D         Vaginal bleeding.       E         Decreased or no fetal movements.       F         Green or brown fluid leaking from vaginaG       F         Foul smelling discharge from the vagina.       H         Difficult breathing.       I         Severe lower abdominal/back pain.       J         Lower Limb pain/redness.       K
	Other (Specify)X
MN17. WHO ASSISTED WITH THE DELIVERY OF	Health professional:
YOUR LAST COMPLETED PREGNANCY? Probe:	DoctorA Health visitorB Nurse midwifeC Village MidwifeD Medical AssistantE
ANYONE ELSE?	Other person:
Probe for the type of person assisting and circle all answers given. If respondent says no one assisted, probe	Traditional birth attendant F Community health worker G Other <i>(specify)</i> X
to determine whether any adults were present at the delivery.	No oneY

## Cluster Number:

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Woman's Line Number:

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MN18. WHERE DID YOU GIVE BIRTH TO YOUR	Home1
LAST CHILD (EITHER LIVE OR STILL BIRTH)?	PHCF (Primary Health Care Facility)2
	Hospital4
Probe to identify the type of source.	Other (specify)6
If unable to determine the type write the	
name of the place.	
(Name of place)	
MN19 PLEASE TELL ME THE MODE OF	Vecinal
DELIVERY OF YOUR LAST CHILD (LIVE OR	Forceps/evtractor 2
STILL BIRTH).	Capsarian Section 3
	DK8
MN19A WHAT ARE THE SIGNS AND	FeverA
SYMPTOMS YOU KNOW, THAT	ConvulsionsB
ALERTS A MOTHER TO SEEK	Jaundice (yellowing of skin)C
	Very sleepy or not able to wakeD
HEALTH CARE FOR HER	Not sucklingE
NEWBORN:	White spots in mouth or tongue
	Vomiting/spitting a lot or shooting out
Probe:	Diarrhea
ANY OTHER CAUSE?	Less than six wet dianers ner day
	skip rash
1	Other (Specify) X
MN23. HAS YOUR MENSTRUAL	Yes1
PERIOD RETURNED SINCE THE	
BIRTH OF (name)?	NOZ
	)
MN23A. IN THE FIRST 6 WEEKS AFTER THE	Health professional:
LAST DELIVERY, DID YOU SEE/WERE YOU	Doctor A
VISITED BY ANYONE FOR A CHECK-UP ON	Health visitor
YOUR HEALTH?	Nurse midwifeC
	Village Midwife
	Medical Assistant
If yes WHOM DID YOU SEE/ WERE YOU	
VICITED BV2	Other person:
VISITED DT :	and more going and addition
	Traditional birth attendant F
	Community health worker G
Probe for the type of person and circle all	Other (specify)X
answers given.	
	No one Y

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Cluster Number: Household Number: Woman's Line Number:

MN23B. IN THE FIRST 6 WEEKS AFTER THE	Yes		1		1		
LAST DELIVERY, DID YOU RECEIVE A VITAMIN	No		2				
A DOSE LIKE THIS?	Don't know		8		dan <sup>1</sup> asian an		
Show 200,000 IU capsule or dispenser.							
		Pregna	ancy	Labour / postpartum			
MN23C. AT ANY TIME DURING PREGNANCY,		YES	NO	DK	YES	NO	DK
LABOUR OR WITHIN <b>42</b> DAYS AFTER DELIVERY OF YOUR LAST COMPLETED	MN23C A. Excessive vaginal bleeding	1	2	8	1	2	8
PREGNANCY, DID YOU EXPERIENCE ANY OF THE FOLLOWING?	MN236 B. High blood pressure	1	2	8	1	2	8
	MN23C C. Convulsions	1	2	8	1	2	8
	MN23C D. High Fever	1	2	8	1	2	8
Read aloud each and circle the	MN23C E. Painful Urination	1	2	8	1	2	8
corresponding answer in the box.	MN23C F.Lower Abdominal/Back Pain	1	2	8	1	2	8
NO2 DK 8	MN23C G. Foul-smelling vaginal discharge	1	2	8	1	2	8
	MN23C h. Jaundice	1	2	8	1	2	8
	MN23C I. Prolongedlabour lasting more than 12 hours				1	2	8
	MN23CJ. Swelling, pain and redness in legs				1	2	8
_	MN23C K. Swollen, painful breast				1	2	8
	MN23CL Dribbling of urine				1	2	8

Cluster Number:

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Woman's Line Number:

YOW I WOULD LIKE TO TALK ABOUT FAMILY PLANNI	ING. THE VARIOUS WAYS OR METHODS THAT A COUPLE CAN L	ISE TO DELAY
AVOID PREGNANCY. (THIS QUESTION TO BE ASKED	D TO ALL WOMEN AGE 15 – 49 YEARS)	
CP00. Some people use methods to delay	Yes1	
or avoid pregnancy. Have you ever heard about these methods of Family planning?	No2	2 .⇒CP02
CP01. Which methods to avoid or delay PREGNANCY THAT YOU KNOW ABOUT?	CP1A. Condom (male)A	4
	CP1B. Diaphragm/Cervical cap/Female condomB	
	CP1c. Spermicides/Cream/Jelly/Foam/ Vaginal	4 /
ist and describe methods. Circle each method	pills/Suppositories <u>C</u>	
known by respondent.	CP1D. IUD	
	CP1E. Oral hormonal contraceptives (pills)E	
	CP1F. Hormonal injections F	1
	CP1G. Hormonal implantsG	
	СР1н. Emergency contraceptionН	
	CP1I. Lactation amenorrhea method	
	CP1J. WithdrawalJ	
	CP1K. Calendar method K	
	CP1L. Abstinence	
	СР1м. Douching M	
	CP1N. Tubal ligation (female sterilization)N	
	CP10. Vasectomy (male sterilization)0	
	CP1x. Other methods X	
	CP1Z. DK/difficult answerZ	
CP02.1F NOT MENTIONING CONDOM	Yes1	
ASK: HAVE YOU EVER HEARD OF A MALE CONDOM?	No2	L
CP03. DO YOU KNOW OF A PLACE	Yes1,	
WHERE A PERSON CAN GET CONDOMS?	No2	
CP04. IF YOU WANTED TO, COULD	Yes1	
YOU YOURSELF GET A CONDOM?	No2	

## State Name: Cluster Number: Household Number: Woman's Line Number:

CPO5: Check Marital/Union Status (MA IfMA5 = (NEVER MARRIED/IN UNION) If MA5 = FORMERLY MARRIED OR FOR IfMA1 = CURRENTLY MARRIED OR LIVE	1). ⇒FG Module/FG17 MERLY LIVED WITH A MAN⇔answerCP06 AND = NG WITH MAN⇔ continue with CP1	⇒FG
For ever married/in union women: CP06. Have you ever used anything or tried in any way to delay or avoid getting pregnant?	Yes1 No2	⇔FG
CP1: For currently married/in union women: Are you pregnant now?	Yes, currently pregnant1 No2 Unsure or DK8	1⇔UN
CP2. Couples use various ways or METHODS TO DELAY OR AVOID A PREGNANCY.	Yes	2⇔UN
ARE YOU CURRENTLY DOING SOMETHING OR USING ANY METHOD TO DELAY OR AVOID GETTING PREGNANT?		

me:

Cluster Number:

Household Number: Woman's Line Number:

CP3. WHAT ARE YOU DOING TO DELAY OR AVOID A PREGNANCY?	Female sterilizationA Male sterilizationB IUDC	A⇔ UN 13
Do not prompt.	InjectablesD ImplantsE Pill	B≓> UN 13
If more than one method is mentioned, circle each one.	Pill       F         Male condom       G         Female condom       H         Diaphragm       I         Foam / Jelly       J         Lactation amenorrhoeamethod (LAM)       K         Periodic abstinence/Rhythm       L         Withdrawal       M         Other ( <i>specify</i> )       X	

State	Name:

Woman's Line Number:

UNMET NEED		UN.
GNT. Gneck whether the woman is Carrent	y pregnant or not (CF1 IF CF module julea	<i>(.)</i> ?
$\Box$ Yes, currently pregnant $\Rightarrow$ Continue with UN	2	
. DNo, unsure or DK ⇔ Go to UN5		
UN2. NOW I WOULD LIKE TO TALK TO YOU ABOUT YOUR CURRENT PREGNANCY. WHEN YOU GOT PREGNANT, DID YOU WANT TO GET PREGNANT AT THAT TIME?	Yes	1⇔UN4
UN3. WHEN YOU GOT PREGNANT, DID YOU WANT TO HAVE A BABY LATER ON OR DID YOU NOT WANT ANY (MORE) CHILDREN?	Later	
UN4. NOW I WOULD LIKE TO ASK SOME QUESTIONS ABOUT THE FUTURE. AFTER THE CHILD YOU ARE NOW EXPECTING, WOULD YOU LIKE TO HAVE ANOTHER CHILD, OR WOULD YOU PREFER NOT TO HAVE ANY MORE CHILDREN?	Have another child	1⇔UN7 2⇔UN13 8⇔UN13
UN5. Check CP3. Currently using "Female	sterilization"?	J
⊡Yes. ⇒ Go to UN13		
□No. ⇔ Continue with UN6		
UN6. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT THE FUTURE. WOULD YOU LIKE TO HAVE (A/ANOTHER) CHILD, OR WOULD YOU PREFER NOT TO HAVE ANY (MORE) CHILDREN?	Have (a/another) child	2⇔UN9 3⇔UN11 8⇔UN9

0 11		
	C	Mana

**Westlering Index** 

Sector Se		a manufacture of the second
UN7. HOW LONG WOULD YOU LIKE TO WAIT BEFORE THE BIRTH OF (A/ANOTHER) CHILD?	Months       1         Years       2         S oon / Now       993         S ays she cannot get pregnant       994         Other       996         Don't know       998	994⇔UN11
UN8. Check CP1. Currently pregnant? $\Box$ Yes, currently pregnant $\Rightarrow$ Go to UN13 $\Box$ No. unsure or DK $\Rightarrow$ Continue with UN9	ł	

Woman's Questionnaire 130

Woman's Line Number:

abill. h

UN9. Check CP2. Currently using a method	<i>d</i> ?	
□Yes. ⇔ Go to UN13		
$\square$ No $\Rightarrow$ Continue with UN10		
UN10. Do you think you are	Yes 1	1 ⇔UN13
PHYSICALLY ABLE TO GET PREGNANT AT THIS TIME?	No	
	DK 8	8 ⇔UN13
UN11. WHY DO YOU THINK YOU ARE NOT	Infrequent sex / No sexA	
PHYSICALLY ABLE TO GET PREGNANT?	MenopausalB	
	Hysterectomy (surgical removal	
	of uterus)D	
	Has been trying to get pregnant	
	Postpartum amenorrheic	r 16
	Breastfeeding	
	Too oldH	
	FatalisticI	
	Other (specify)X	
	Don't know Z	4 6
UN12. Check UN11. "Never menstruated"	nentioned?	I
□Yes. ⇔ Go to Next Module		
$\square$ No $\Rightarrow$ Continue with UN13		
	Dave age 1	
PERIOD START?		
	vveeks ago	
	Months ago	
	Years ago4	
	In menopause / Has had hysterectomy	
		an an Chamadana an Chan (an balance)

Cluster	Number:
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Woman's Line Number:

FEMALE GENITAL MUTILATION/CUTTING	FG
FG9. Check CM5 and CM7, Child Mortality Module: Wo	oman has living daughter?
$\Box$ Yes. $\Rightarrow$ Continue with FG00	
□ No. ⇒ Go to FG17	
FG00. DO YOU INTEND TO CIRCUMCISE YOUR DAUGHTERS WHO ARE NOT YET BEEN CIRCUMCISED; IF ANY?	Yes
FG17. Do you think this practice should be continued or should it be discontinued?	Continued

~ ---a.

Household Number: Woman's Line Number:

ATTITUDES TOWARD DOMESTIC VIOLENCE				DV
DV1. SOMETIMES A HUSBAND IS ANNOYED OR ANGERED BY THINGS THAT HIS WIFE DOES. IN YOUR OPINION, IS A HUSBAND JUSTIFIED IN HITTING OR BEATING HIS				
WIFE IN THE FOLLOWING SITUATIONS:	Yes	No	DK	
[A] IF SHE GOES OUT WITHOUT TELLING HIM?	Goes out without telling1	2	8	
[B] IF SHE NEGLECTS THE CHILDREN?	Neglects children1	2	8	
[C] IF SHE ARGUES WITH HIM?	Argues1	2	8	
[D] IF SHE REFUSES TO HAVE SEX WITH HIM?	Refuses sex1	2	8	
[E] IF SHE BURNS THE FOOD?	Burns food1	2	8	

Woman's Line Number:

CUNVIII		
HA1. NOW I WOULD LIKE TO TALK WITH YOU ABOUT SOMETHING ELSE.		
HAVE YOU EVER HEARD OF AN ILLNESS	Yes	2⇔STI
	Vera	
HAZ. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY HAVING JUST ONE UNINFECTED SEX PARTNER WHO HAS NO OTHER SEX PARTNERS?	Yes         1           No         2           DK         8	
HA3. CAN PEOPLE GET THE AIDS VIRUS BECAUSE OF WITCHCRAFT OR OTHER SUPERNATURAL MEANS?	Yes	
	DK	
HA4. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY USING A	Yes	
CONDOM EVERY TIME THEY HAVE SEX?	DK	
HA5. CAN PEOPLE GET THE AIDS VIRUS FROM MOSQUITO BITES?	Yes	
HA6. CAN PEOPLE GET THE AIDS VIRUS BY SHARING FOOD WITH A PERSON WHO HAS AIDS?	Yes	
HA7. IS IT POSSIBLE FOR A HEALTHY- LOOKING PERSON TO HAVE THE AIDS VIRUS?	Yes	
HA8. Can the virus that causes AIDS be TRANSMITTED FROM A MOTHER TO HER BABY:		
<ul><li>[A] DURING PREGNANCY?</li><li>[B] DURING DELIVERY?</li><li>[C] BY BREASTFEEDING?</li></ul>	YesNoDKDuring pregnancy128During delivery128By breastfeeding128	
HA9. IN YOUR OPINION, IF A FEMALE TEACHER HAS THE AIDS VIRUS BUT IS	Yes	
NOT SICK, SHOULD SHE BE ALLOWED TO CONTINUE TE ACHING IN SCHOOL?	DK / Not sure / Depends 8	
HA10. Would you buy fresh vege tables FROMA SHOPKEEPER OR VENDOR IF YOU	Yes	
KNEW THAT THIS PERSON HAD THE AIDS VIRUS?	DK / Not sure / Depends 8	
HA11. IF A MEMBER OF YOUR FAMILY GOT INFECTED WITH THE AIDS VIRUS, WOULD	Yes	
YOU WANT IT TO REMAIN A SECRET?	DK / Not sure / Depends	

Cluster Number:

Household Number: Woman's Line Number:

Nanational and a second a second a second a second a second second as a second second by a second by a second s		
HA12. IF A MEMBER OF YOUR FAMILY	Yes1 No2	
WILLING TO CARE FOR HER OR HIM IN	DK / Not sure / Depends	
YOUR OWN HOUSEHOLD?	te e a se la secondada e las casas en la contrata e contrata exactador por e a secondada e a secondade	<u></u>
HA13. Check CM13: Any live birth in last 2 years?		
$\Box$ No live birth in last 2 years. $\Rightarrow$ Go to HA24.		
$\Box$ Yes, live birth in last 2 years. $\Rightarrow$ Continue with HA14.		
HA14. Check MNI: Received antenatal care?		
$\Box$ Yes, antenatal care received. $\Rightarrow$ Continue with HA15		
$\Box$ No antenatal care received $\Rightarrow$ Go to HA24		
HA15. DURING ANY OF THE ANTENATAL	Yes1	
VISITS FOR YOUR PREGNANCY WITH	NO	
( <i>name</i> ), were you given any INFORMATION ABOUT AIDS OR THE AIDS VIRUS?	DK 8	
HA16. I DON'T WANT TO KNOW THE RESULTS,	Yes	
BUT WERE YOU TESTED FOR THE AIDS	Νσ2	2⇔HA19
VIRUS AS PART OF YOUR ANTENATAL CARE?	DK 8	8⇔HA19
HA17. I DON'T WANT TO KNOW THE RESULTS,	Yes1	A
BUT DID YOU GET THE RESULTS OF THE	No 2	Z⇔HA22
	DK 8	8⇔HA22
HA18. REGARDLESS OF THE RESULT, ALL	Yes	1⇔HA22 2⇔HA22
WOMEN WHO ARE LESTED ARE SUPPOSED		
THE RESULT.	DK	8⇔HA22   
AFTER YOU WERE TESTED, DID YOU RECEIVE COUNSELLING?		
HA19. Check MN17: Birth delivered by health professio	nal (A, B or C)?	(
$\Box$ Yes, birth delivered by health professional $\Rightarrow$ Continue with HA20		
$\Box$ No, birth not delivered by health professional $\Rightarrow$ Go to HA24		
HA20. I DON'T WANT TO KNOW THE RESULTS,	Yes	0
BUT WERE YOU TESTED FOR THE AIDS	NO	Z⇔HA24
VIRUS BEIWEEN THE TIME YOU WENT FOR DELIVERY BUT BEFORE THE BARY WAS		
BORN?		

Cluster Number:

Woman's Line Number:

HA21. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes	14 - X <sup>2</sup> - X
HA22. HAVE YOU BEEN TESTED FOR THE AIDS VIRUS SINCE THAT TIME YOU WERE TESTED DURING YOUR PREGNANCY?	Yes	
HA23. WHEN WAS THE MOST RECENT TIME YOU WERE TESTED FOR THE AIDS VIRUS?	Less than 12 months ago	1⇔STI 2⇔STI 3⇔STI
HA24. I DON'T WANT TO KNOW THE RESULTS, BUT HAVE YOU EVER BEEN TESTED TO SEE IF YOU HAVE THE AIDS VIRUS?	Yes 1 No 2	2⇔HA27
HA25. WHEN WAS THE MOST RECENT TIME YOU WERE TESTED?	Less than 12 months ago	- x
HA26. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes	1⇔STI 2⇔STI 8⇔STI
HA27. Do you know of a place where PEOPLE CAN GO TO GET TESTED FOR THE AIDS VIRUS?	Yes	

STI1. Check MA1-MA5: □ Never married/in union ⇒ Go to SB		
$\square$ Currently/ ever married $\Rightarrow$ Continue with STT2		
STI2. SOMETIMES WOMEN EXPERIENCE A BAD SMELLING ABNORMAL GENITAL DISCHARGE DURING THE LAST 12 MONTHS, HAVE YOU HAD AN ABNORMAL GENITAL DISCHARGE?	Yes1 No2	
STI3SOMETIMES WOMEN HAVE A GENITAL SORE OR ULCER. DURING THE LAST 12 MONTHS, HAVE YOU HAD A GENITAL SORE OR ULCER?	Yes1 No2	2⇔SB
STI4. The last time you had a genital sore OR <i>abnormal genital</i> <i>discharge</i> ; did you seek any kind of advice or treatment?	Yes1 No2	

State Name: Cluster Number: Household Number: Woman's Line Number:

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FINAL WOMAN'S QUESTIONNAIRE INSTRUCTIONS	FN
WM12. Is the respondent the mother or caretaker of any child age 0-4 living in this household? Check household listing, column HL8.	
$\Box$ Yes. $\Rightarrow$ Go to QUESTIONNAIRE FOR CHILDREN UNDER FIVE for that child and start the interview with Respondent.	this
$\Box$ No. $\Rightarrow$ End the interview with this respondent by thanking her for her cooperation.	
W12A. Do any other eligible women reside in the household? Check household listing column. HH6.	
□ Yes. $\Rightarrow$ Go to the next WOMAN'S QUESTIONNAIRE to administer the questionnaire to the next eligible woman.	
$\square$ No. $\Rightarrow$ End the interview by thanking the respondent for her cooperation. Gather together all questionnaires for this household and tally the number of interviews completed page on the household questionnaire.	on the cover

## SUDAN HOUSEHOLD HEALTH SURVEY QUESTIONNAIRE FOR INDIVIDUAL MAN

MEN'S INFORMATION PANEL	MM		
This questionnaire is to be administered to all men age 15 through 49 (see column <b>HL7A</b> of Household Listing Form). Fill in one form for each eligible man			
MM1. Cluster number:	MM2. Household number:		
MM3. Man's name:	MM4. Man's line number:		
Name	ALL MARKET		
MM5. Interviewer name and number:	MM6. Day / Month / Year of interview:		
Name	///		

Repeat greeting if not already read to this man:

We are from the Sudan Household Health Survey  $2^{nd}$  round which is concerned with family health and socioeconomic indicators. I would like to talk to you about this. The interview will take about 10 to 15 minutes. All the information we obtain will remain strictly confidential and your answers will never be identified.

May I start now?

 $\square$  Yes, permission is given  $\Rightarrow$  Go to MM10 to record the time and then begin the interview.

 $\square$  No, permission is not given  $\Rightarrow$  Complete MM7. Discuss this result with your supervisor.

MM7. Result of Man's interview	Completed.       1         Not at home.       2         Refused.       3         Partly completed.       4         Incapacitated.       5         Other (specify)       6
MM8. Field edited by (Name and number):	MM9. Data entry clerk (Name and number): Name

MM10. Record the time.	Hour and minutes	Lic <u>ion (1999) - Andrew Brits</u> hourd (1999) - San Licion (1999) - San Licion (1999)
MAN'S BACKGROUND		MB
MB1. IN WHAT MONTH AND YEAR WERE YOU BORN?	Date of birth Month	
	DK year	
MB2. How old are you?	Age (in completed years)	
<i>Probe:</i> How old were you at your last birthday?		
Compare and correct MB1 and/or MB2 if inconsistent		
MB3. HAVE YOU EVER ATTENDED SCHOOL OR PRESCHOOL?	Yes1 No2	2⇔MB7
MB4. What is the highest level of school you attended?	Preschool	0 ⇔WB6 4 ⇔ Next
	Adult education	5 ⇔WB6 6 ⇔WB6
MB5. IF 1, 2 OR3; WHAT IS THE HIGHEST GRADE YOU COMPLETED AT THAT LEVEL?	Grade	
If less than I grade, enter "00"		
MB6. Check MB4:		
$\Box$ Secondary or higher. $\Rightarrow$ Go to Next Module		
$\Box$ <i>Primary</i> $\Rightarrow$ <i>Continue with MB7</i>		

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## MB7. Now I would like you to read this sentence to me.

Show sentence on the card to the respondent. If respondent cannot read whole sentence, probe:

CAN YOU READ PART OF THE SENTENCE TO ME?

Cannot read at all1	
Able to read only parts of sentence2	
Able to read whole sentence	

4

No sentence in required language \_\_\_\_\_\_(*specify language*)

Blind / mute, visually / speech impaired.....5

MARRIAGE/UNION		MA
MA1. ARE YOU CURRENTLY MARRIED OR LIVING TOGETHER WITH A WOMAN AS IF MARRIED?	Yes, currently married1 Yes, living with a woman2 No, not in union3	3⇔MA5
MA1 A. IS YOUR WIFE/PARTNER LIVING WITH YOU NOW OR IS SHE STAYING ELSEWHERE?	Living together 1 Staying elsewhere2	
MA2. How old was your wife/partner on her last birthday?	Age in years	
MA3. DO YOU HAVE ANY OTHER WIVES OR FEMALE PARTNERS WHO YOU LIVE WITH AS IF MARRIED?	Yes1 No2	2 <b>⇔MA</b> 7
MA4. HOW MANY WIVES OR PARTNERS DO YOU HAVE?	Number	⇔MA7 98⇔MA7
MA5. HAVE YOU EVER BEEN MARRIED OR LIVED TOGETHER WITH A WOMAN AS IF MARRIED?	Yes, formerly married1 Yes, formerly lived with a woman2 No3	3⇔Next Module
MA6. WHAT IS YOUR MARITAL STATUS NOW: ARE YOU WIDOWED, DIVORCED OR SEPARATED?	Widowed1 Divorced2 Separated3	
MA7. HAVE YOU BEEN MARRIED OR LIVED WITH A WOMAN ONLY ONCE OR MORE THAN ONCE?	Only once1 More than once2	
MA9. HOW OLD WERE YOU WHEN YOU STARTED LIVING WITH YOUR FIRST WIFE/PARTNER?	Age in years	

SP-182

2

CONTRACEPTION		СР
CP1. SEXUAL PARTNERS USE VARIOUS WAYS OR METHODS TO DELAY OR AVOID A PREGNANCY. ARE YOU AND YOUR PARTNER CURRENTLY DOING SOMETHING OR USING ANY METHOD TO DELAY OR AVOID PREGNANCY?	Yes1 No2 DK8	2⇔ CP3 8⇔ CP3
CP2. WHAT ARE YOU DOING TO DELAY OR AVOID A PREGNANCY? Do not prompt. If more than one method is mentioned, circle each one.	Female sterilization       A         Male sterilization       B         Pill       C         IUD       D         Injectables       E         Implants       F         Male condom       G         Female condom       H         Diaphragm       J         Lactational amenorrhoea       M         method (LAM)       K         Periodic abstinence/Rhythm       L         Withdrawal       M         Other (specify)       X	G⇔ CP4
CP3. HAVE YOU EVER HEARD OF A MALE CONDOM?	Yes1 No2	2 ⇔Next Module
CP4. Do you know of a place where a PERSON CAN GET CONDOMS?	Yes1 No2	
CP5. IF YOU WANTED TO, COULD YOU YOURSELF GET A CONDOM?	Yes1 No2	

CIRCUMCISION & FEMALE GENITAL MUTIL	ATION/CUTTING	CF
CF1. HAVE YOU BEEN CIRCUMCISED?	Yes1	1⇔CF2
	No2	
CF1A. IF OFFERED TO BE CIRCUMCISED,	Yes1	9
WOULD YOU ACCEPT THAT?	No2	
CF2. HAVE YOU EVER HEARD OF FEMALE	Yes1	1⇔CF4
CIRCUMCISION?	No2	
CF3. IN SOME COUNTRIES, THERE IS A	Yes1	
PRACTICE IN WHICH A GIRL MAY HAVE PART OF HER GENITALS CUT. HAVE YOU EVER HEARD ABOUT THIS	No2	2⇔Next Module
PRACTICE?		
CF4. DO YOU THINK THIS PRACTICE SHOULD BE CONTINUED OR SHOULD IT BE DISCONTINUED?	Continued1 Discontinued2 Depends3	
	DK8	s <sup>2</sup>

ATTITUDES TOWARD DOMESTIC VIOLENCE				DV
DV1. SOMETIMES A HUSBAND IS ANNOYED				
DOES. IN YOUR OPINION, IS A HUSBAND				
JUSTIFIED IN HITTING OR BEATING HIS WIFE IN THE FOLLOWING SITUATIONS:		.YesNo	DK	
[A] IF SHE GOES OUT WITHOUT TELLING HIM?	Goes out without telling1	2	8	
[B] IF SHE NEGLECTS THE CHILDREN?	Neglects children1	2	8	
[C] IF SHE ARGUES WITH HIM?	Argues 1	2	8	
[D] IF SHE REFUSES TO HAVE SEX WITH	Refuses sex1	2	8	
[E] IF SHE BURNS THE FOOD?	Burns food1	2	8	

SEXUALY TRANSMITTED INFECTIONS SI 1 Check SB 1: □ Never had sexual intercourse ⇒ Go to Next Modu □ Have had sexual intercourse ⇒ Continue with SI	Ь. 2	SI.
S12. Sometimes men experience Abnormal genital discharge from the penis. During the last 12 Months, have you had an abnormal genital discharge?	Yes 1 No 2	F
S13. SOMETIMES MEN HAVE A GENITAL SORE OR ULCER ON THEIR PENIS. DURING THE LAST 12 MONTHS, HAVE YOU HAD A GENITAL SORE OR ULCER?	Yes	
S14. Check S12 and S13 $\Box$ Never had genital discharge, sore or ulder $\Rightarrow$ Go i $\Box$ Have had genital discharge, sore or ulder $\Rightarrow$ Go to	a Nexi Module -SJ 5	
SI5. The last time you had a genital sore OR <i>abnormal genital</i> <i>discharge</i> ; did you seek any kind of advice or treatment?	Yes	

KNOWLEDGE HIV/AIDS		КА
KA1. Now I would like to talk with You about something else.	Yes	
HAVE YOU EVER HEARD OF AN ILLNESS CALLED AIDS?	NO 2	
KA2. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY HAVING JUST ONE UNINFECTED SEX PARTNER WHO HAS NO OTHER SEX PARTNERS?	Yes	
KA3. CAN PEOPLE GET THE AIDS VIRUS BECAUSE OF WITCHCRAFT OR OTHER SUPERNATURAL MEANS?	Yes1 No2 DK8	
KA4. CAN PEOPLE REDUCE THEIR CHANCE OF GETTING THE AIDS VIRUS BY USING A CONDOM EVERY TIME THEY HAVE SEX?	Yes1 No2 DK8	
KA5. CAN PEOPLE GET THE AIDS VIRUS FROM MOSQUITO BITES?	Yes1 No2 DK8	
KA6. CAN PEOPLE GET THE AIDS VIRUS BY SHARING FOOD WITH A PERSON WHO HAS AIDS?	Yes1 No2 DK8	
KA7. IS IT POSSIBLE FOR A HEALTHY- LOOKING PERSON TO HAVE THE AIDS VIRUS?	Yes1 No2 DK8	
KA8. CAN THE VIRUS THAT CAUSES AIDS BE TRANSMITTED FROM A MOTHER TO HER BABY:		
<ul><li>[A] DURING PREGNANCY?</li><li>[B] DURING DELIVERY?</li><li>[C] BY BREASTFEEDING?</li></ul>	YesNoDKDuring pregnancy128During delivery128By breastfeeding128	
KA9. IN YOUR OPINION, IF A FEMALE TEACHER HAS THE AIDS VIRUS BUT IS NOT SICK, SHOULD SHE BE ALLOWED TO CONTINUE TEACHING IN SCHOOL?	Yes	
KA10. WOULD YOU BUY FRESH VEGETABLES FROM A SHOPKEEPER OR VENDOR IF YOU KNEW THAT THIS PERSON HAD THE AIDS VIRUS?	Yes	
KA11. IF A MEMBER OF YOUR FAMILY GOT INFECTED WITH THE AIDS VIRUS, WOULD YOU WANT IT TO REMAIN A SECRET?	Yes	

KA12. IF A MEMBER OF YOUR FAMILY BECAME SICK WITH AIDS, WOULD YOU BE WILLING TO CARE FOR HER OR HIM IN YOUR OWN HOUSEHOLD?	Yes	
KA13. I DON'T WANT TO KNOW THE RESULTS, BUT HAVE YOU EVER BEEN TESTED TO SEE IF YOU HAVE THE AIDS VIRUS?	Yes	2⇔KA16
KA14. WHEN WAS THE MOST RECENT TIME YOU WERE TESTED?	Less than 12 months ago	
KA15. I DON'T WANT TO KNOW THE RESULTS, BUT DID YOU GET THE RESULTS OF THE TEST?	Yes	
KA16. Do you know of a place where People can go to get tested for The AIDS virus?	Yes 1 No 2	

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SEXUAL BEHAVIOUR	a the state of the second	SB
Check for the presence of others, Before contin	nuing, ensure privacy.	
SB1. NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT SEXUAL ACTIVITY IN ORDER TO GAIN A BETTER UNDERSTANDING OF SOME IMPORTANT LIFE ISSUES.	Never had intercourse	00⇔KA Module
THE INFORMATION YOU SUPPLY WILL REMAIN STRICTLY CONFIDENTIAL. HOW OLD WERE YOU WHEN YOU HAD SEXUAL INTERCOURSE FOR THE VERY	*. *	
FIRST TIME?		
SB2. THE FIRST TIME YOU HAD SEXUAL INTERCOURSE, WAS A CONDOM USED?	Yes	
SB3. WHEN WAS THE LAST TIME YOU HAD SEXUAL INTERCOURSE? Record 'years ago' only if last intercourse was one or more years ago. If 12 months or more the answer must be recorded in years.	Days ago1         Weeks ago2         Months ago	4⇔SB11
SB4. THE LAST TIME YOU HAD SEXUAL INTERCOURSE, WAS A CONDOM USED?	Yes	
SB5. WHAT WAS YOUR RELATIONSHIP TO THIS PERSON WITH WHOM YOU LAST HAD SEXUAL INTERCOURSE? If person is 'girlfriend' or 'fiancée', ask: WERE YOU LIVING TOGETHER AS IF MARRIED? If 'yes', circle '01'. If 'no', circle' 02'.	Current spouse       01         Current cohabiting partner       02         Ex-spouse       03         Ex-cohabitingpartner       04         Girlfriend/ Fiancée       05         Casual acquaintance       06         Sex worker       07         Other (specify)       96	01⇔SB7 02⇔SB7
SB6. How old is this person?	Age of sexual partner	
If response is DK, probe: ABOUT HOW OLD IS THIS PERSON?	DK	
SB7. HAVE YOU HAD SEXUAL INTERCOURSE WITH ANY OTHER PERSON IN THE LAST 12 MONTHS?	Yes 1 No 2	2⇔SB11
SB8. IN TOTAL, WITH HOW MANY DIFFERENT PEOPLE HAVE YOU HAD SEXUAL INTERCOURSE IN THE LAST 12	Number of partners	

A DESCRIPTION OF THE OWNER OWNER OF THE OWNER OWNER OF THE OWNER 
MONTHS?		
<ul> <li>SB9. FOR MEN: THINK ABOUT THE FEMALE SEXUAL PARTNERS YOU'VE HAD IN THE LAST 12 MONTHS.</li> <li>HOW MANY WERE: #YOUR SPOUSE(S) OR LIVE-IN SEXUAL PARTNERS ("REGULAR" PARTNERS)</li> <li># SEXUAL PARTNERS WHO YOU ARE NOT MARRIED TO, HAVE NEVER LIVED WITH AND DID NOT PAY FOR SEX ("NON- REGULAR" PARTNERS)</li> <li># PARTNERS WITH WHOM YOU HAD SEX IN EXCHANGE FOR MONEY ("PAID" PARTNERS)</li> </ul>	Number of spouse(s) or live-in sexual partners ("regular" partners)	
(SHOULD MATCH WITH THE NUMBER OF SEXUAL PARTNERS IN LAST 12 MONTHS)		
SB10. IN THE LAST 12 MONTHS WAS CONDOM USED EVERY TIME YOU HAD SEXUAL INTERCOURSE WITH ALL YOUR PARTNER(S) WHO YOU ARE NOT MARRIED TO AND/OR HAVE NEVER LIVED WITH?	Yes 1 No	
SB11. IN TOTAL, WITH HOW MANY DIFFERENT PEOPLE HAVE YOU HAD SEXUAL INTERCOURSE IN YOUR LIFETIME?	Number of lifetime partners DK	
If a non-mumeric answer is given, probe to get an estimate. If number of partners is 95 or more, write '95'.		

MMi 1. Record the time.	Hour and minutes
MM12. GO TO SAMPLE COLLECTION CONSEN	TFORM

Man's Questionnaire 12

Interviewer's Observations
Field Editor's Observations
Supervisor's Observations



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