Chapter One

INTRODUCTION

1.1: Background

Child mortality is one of important indicators of public health as well as socio-economic conditions in any country. Under-five mortality rate (probability of dying by age 5 per 1000 live births) is unacceptably high in many countries, the burden of which is mainly borne by the poor. Whereas country characteristics are known to influence under-five mortality, it is unknown whether these have a different impact on the poor and the rich, also Under-five mortality increase is not only undesirable but also indicative of a decline in general living standard. Data indicate that under-five mortality has dropped from nearly 12 million in 1990 to 6.9 million in 2011. (UNICEF, 2011).

The international conference on Primary Health Care held in Alma Ata in 1978 was the first to consider how child mortality could be reduced world wide by systematic development of primary health care system (WHO, 1978).

The United Nations has been actively involved in reducing infant and under –five mortality in developing countries. The plan of action adopted at the world summit for children, held in New York in September 1990, incorporated specific targets for reduction of infant and under –five mortality. Reducing mortality and improving the health of young children has long been concern of the international community. One of the eight Millennium Development Goals (MDGs) adopted after the Millennium Summit in 2000 is to reduce child mortality (MDG4). Donors and

development agencies, the United Nations and national governments around the world committed themselves to the goal of reducing child mortality by two –thirds between 1990 and 2015. Three indicators used for monitoring progress towards this goal are the under –five mortality, infant mortality, and proportion of 1 year-old children immunized against measles (U.N, 2008). In 2015, countries adopted the 2030 Agenda for Sustainable Development Goals (SDGs) and its 17 Goals. The SDGs build on the success of MDGs; the new Goals are unique in that they call for action by all countries, poor, rich and middle-income to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and addresses a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. That is achievement of SDG3 (good health and well being) by increasing life expectancy and reducing some of the common killers associated with child and maternal mortality, and reducing premature deaths due to incommunicable diseases.

Estimates of the level and trends in childhood mortality for country are needed to help set priorities, shape policies, design programmes and monitor progress towards the (MDGs) at the national level .These estimates are needed at the international level to inform funding decisions for activities directed towards reducing child mortality. To be useful for later purpose, the country estimates must be internationally comparable. Yet developing accurate and timely estimates of childhood morality poses a considerable challenge.

There are limited data in many developing countries and lacks of agreement on how best to generate estimates from what data are available and mortality of under-five remains high in many developing countries.

Deteriorating health systems have resulted in fewer children being vaccinated against childhood diseases, and thus stagnation in mortality levels have occurred. Recent data from two states in India (Rajasthan and Arunachal Pradesh) show stagnation of child mortality coinciding with lower vaccination coverage between 1992 and 1998**.** (Adetunji, 2008)

Change in socio-economic conditions such as women's level of education and investment in health sector have affected child survival. behavioral characteristics is one of the factors that affects both the mother's health status – and thus indirectly the probability of infant and child mortality – as well as the probability of infant and child mortality directly such as mothers smoking and other relevant behavioral characteristics are more directly linked to pregnancy and childbirth, like the use of private or public healthcare, and using different types of place of delivery. (Kaldewei and Pitterle, 2011)

Pre-natal controls are expected to improve maternal health and reduce the risk of infant mortality. In this vein, WHO guidelines on prenatal care in developing countries recommend at least four prenatal visits.

Evidence shows that breastfeeding, particularly in the first 6 months of a child's life, is critical for child survival because of the associated benefits, including a reduction in the risk of diarrhea diseases. (Manda, 1999)

It is found that household size and environmental contamination like food, water, and soil have direct effect on under 5 mortality. (Mousley Chen, 1984)

A child's sex has been shown to affect the probability of infant and child mortality: Owing to biological factors, male infants have a higher risk of mortality during the first year of life, as highlighted for example in WHO (2003).

The 20th century witnessed dramatic slow decline in under-five mortality in Sudan table 1.1 shows a decrease of under-five mortality rate for selected years 1970, 1990, 2000, 2010, and 2014.

Table (1.1): Sudan's under-five mortality rate for selected years

Year	1970	1990	2000	2010	2014
under-five mortality rate/1000 live births	158	124	114	103	68

Source: UNICEF, 2011and MICS indicators 2014.

Table (1.2) presents the change in under –five mortality rates in 15 states of Sudan for the period 1993-2008. All states experienced decrease in under-five mortality rate except Blue Nile State which experienced retarded condition. Also table 1.2 shows that the under –five mortality rate in Sudan trends differ wildly from high level in some states to low level in other states, that means there is a difference among all 15 states of Sudan in determinants of under–five mortality.

Table 1.2: Under-Five Mortality Rates in State of Sudan in 1993 and 2008.

State	2008 census	1993 census	% change
Khartoum	105	131	-20
Northern	89	143	-38
Nahr el nil	96	131	-27
Red sea	91	175	-48
Kassala	106	147	-28
Algadarif	147	190	-23
Gazira	97	127	-24
White Nile	111	152	-27
Blue Nile	205	192	7
Sinnar	128	168	-24
Northern kordofan	114	168	-32
Southern kordofan	143	189	-24
Northern Darfur	80	153	-48
western Darfur	125	170	-26
southern Darfur	96	163	-41
Sudan		80.4	

Sources: 1993, 2008, CBS, Sudan

1.2: Research Problem

Globally, under-five mortality rate has decreased regularly. Although the world as a whole has been progress in reducing the under-five mortality rate, different countries such as Sudan witnessed slow decline of under-five mortality. It is observable from table (1.2) above that Khartoum State has achieved the least percentage decline in under-five mortality in the time

lapse between the two censuses years. The question is what caused that? That is, what are the determinants of under-five mortality in Khartoum state in general, and are the determinants of under-five mortality in the urban area different than its counterpart in rural area of Khartoum state?

1.3: Research Objectives

1.3.1: General Objective

The general objective of this research is to specify the main determinants of under-five mortality in Khartoum State in 2018.

1.3. 2: Specific Objectives

More specifically, this research intends to:

1. Investigate the effects of the socio- economic and demographic variables on under-five mortality.
2. Assess the effects of the maternal and behavioral factors on under-five mortality.
3. Explore the association between the personal illness control and under-five mortality.

1.4: The Research Hypotheses

1. Under-five mortality is likely to differ by mode of living.
2. The improvement of socio-economic status leads to a decline in under-five mortality.
3. Enhancing the maternal factors is likely to lead to a reduction in the under-five mortality.
4. The behavioral factors, when positively changed, is likely to cause a decline in under-five mortality.
5. Raising the awareness of the family about the preventive methods will decrease the under-five mortality

1.5: Rationale

The under-five mortality rate provides a robust measure of the health of children. It reflects the probability of a newborn baby dying before reaching age five. In addition to monitoring the number of deaths to childhood illness, the under-five mortality rate may also reflect other social conditions; in Sudan vital registration has a low coverage. Mortality estimates are mainly derived from the censuses and Demographic and Health Surveys (DHS). Each of these sources has limitations; estimates from census for example use models that work on assumptions such as fertility remaining constant for some time. Health and demographic surveillance is a response to the lack of a valid information base that can provide high quality longitudinal data on population dynamics, health and social change to inform policy and practice. Although information on birth outcomes are important to plan maternal and child health care services, accurate indices especially from developing countries are quite difficult to obtain.

Furthermore, community based information on Under-five mortality and birth order in Sudan is solely available from the DHS. Although progress towards achievement of the Millennium Development Goal for child mortality at national level can be assessed using the DHS data, district-level assessment needs community-based data from other sources. Such data can also contribute into understanding of maternal and other risk factors of under-five deaths that are important for proper planning and development of interventions.

1.6: The Methodology

Given the research problem and objectives stated above the appropriate study unit is household. Accordingly, all the households construct the study population. Moreover, this population tends to be made up of the households which are not widely scattered over the area covered by Khartoum state as well as being in terms of the main study variables to the affect that the rural households differ from their urban counterparts. Based on these facts, primary data of relevance to these objectives will collected by surveying households which selected from the study population by stratified multistage design using a specially designed questionnaire. The collected data will be analyzed by applying the binary logistic regression and factors analysis added by SPSS

1.7: Research Structure

This research consists of five chapters: the first chapter contains the research problem, rationale, objectives, and the methodology, while the second contains a critical review of the literature review of relevance. Logistic regression and factor analysis are presented in chapter three, while chapter four contain the data collection, analysis and results, and chapter five the conclusion and recommendations.