

**DETERMINANTS OF CHILD MORTALITY IN KOCHOGO
LOCATION IN NYANDO DISTRICT, KENYA.**

BY

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2013

DECLARATION

This research project is my original work and has not been presented in any university for any award.

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DEDICATION

This study is dedicated to all people working tirelessly to improve child survival in Kenya.

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ABSTRACT

The purpose of this study was to analyze factors that influence child mortality in Kochogo location of Nyando District in Nyanza Province. Kochogo is situated in next to Ahero toen and extends downwards touching the shores of Lake Victoria. The area has a well developed infrastructural system interms of good access roads and well equipped health facilities. The specific factors that were looked into were income levels of households, education levels, access to heath facilities and cultural beliefs and practices. Towards this accomplishment, the study targeted collecting data from household respondents in Kochogo location of Nyando District. For the first set of respondents 1311 households were identified as having children under 5 years of age but out of this only 20% were sampled for interviews which translates to 260 households. This was then distributed equally in Kochogo location. The study adopted purposive sampling technique to ensure that all the significant groups were represented and their views included in the study inferences. The research instruments adopted were semi structured questionnaires to allow easier analysis and detailed exposition of issues under investigation. The questionnaires were divided into 4 sections and each section gathered information based on the objectives of this study. The study revealed that high levels of child mortality was common among the caregivers who are totally illiterate with only primary school level of education and this constituted 57% of all child mortality cases in this location. It was also realized that 76% of child mortality cases were among those respondents in the informal sector which experience unsteady flow of income. This was further confirmed by the fact that in this area residents whose income is below Ksh. 3000 per month experience child mortality rates of 56%. Accessibility to health facilities did not seem to influence child mortality in this location. On cultural beliefs and practices, it came out clearly that those who hold on to these practices experience more mortality cases than their counterparts who are modern. It can therefore be concluded that child mortality is influenced directly by level of parental education, income, cultural beliefs and practices but not accessibility to health facilities. From this study it can be recommended that that the government and other stakeholders should ensure the all citizens access compulsory education up to secondary school level, secondly, there is need to initiate income generating activities that can create employment opportunities to caregivers so as to increase their income base and finally, treatment costs for children should be highly subsidized. There is need to conduct this study in other areas apart form Nyando District and the need to monitor and evaluate efforts performed by government and other stakeholders in the area of child health.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Child mortality rate is one of the most important sensitive indicators of the socio economic and health status of a community. This is because more than any other age group of a population, child survival depends on the socio economic conditions of their environment (Lewis, 2003). It is one of the components of United Nations human development index (UN, 2007). Hence its description is very vital for evaluation and planning of the public health strategies. One of the most important items in the Millennium Development Goals (MDG) is to reduce child mortality by two thirds between 1990 and 2015 (UNICEF, 2005)

Historical mortality patterns of today's highly developed nations suggests that through the seventeenth century under-5 mortality averaged between 20 and 40 percent and fluctuated substantially from year to year, occasionally hitting extremely high peaks when EPIDEMICS, famines, and war created mortality crises for the general population (Rodgers, 1979). Highly dependent on levels of maternal nutrition and general health as well as on the local sanitary and disease environments, child mortality also varied significantly from place to place. In isolated rural villages in seventeenth century England and New England, as few as 15 percent of all infants born may have perished in their first year. At the same time, their counterparts born in seaports, where sanitation was poor and where there was commerce in people, goods, and infectious diseases, probably died at over twice that rate. In the Americas and in southern Europe the presence of malaria could push infant mortality to over 50 percent. So too could the introduction of new diseases. Following the arrival of Europeans and then Africans in the New World, the aboriginal populations of the Americas were decimated by exposure to diseases to which they had no acquired or inherited immunities. In short, nothing so characterized levels of child mortality in the pre modern era as their variability across time and place. That variability continued into the early eighteenth century, when the yearly fluctuations began to decrease, the periodic peaks became less frequent, and the differences between localities diminished. In a few places, a slight secular

downward trend took place, but for the most part the period saw the stabilization rather than the lowering of child mortality. Contributing to the homogenization of child mortality rates were the concomitants of economic development. ((Hill, 2001 and Mutunga 2004).

The trend stabilization and conformity continued until the effects of early industrialization and urbanization began to be felt in the late eighteenth century. Industrialization brought increased wealth and higher living standards, but it also created industrial towns and massive cities which contained a significant underclass whose health was compromised by the social and biological pathologies and attendant grinding poverty and filthy, overcrowded, disease – infested urban slums. For children, it seems that initially the positive consequences of industrialization outweighed the negative ones. Although the evidence is not abundant, it is probable that child survival improved in England through the third quarter of the eighteenth century and in Western Europe and the United States during the forty years following 1790. It is also probable that by the middle of the nineteenth century, child mortality rates were rising again as urbanization, industrialization, and the migration of workers and their families worsened sanitation and environmental pollution, made child care more difficult, and increased the likelihood that pregnant women and children would be exposed to dangerous diseases or toxins (World Population Bureau Data Sheet 2001).

In the late nineteenth century cities and industrial towns were deadly locales for children, where 20 to 35 percent of all those born died within twelve months and where summer epidemics of gastroenteritis and diarrhea turned densely packed neighborhoods into child abattoirs. As the New York Times editorialized in 1876 after one particular deadly July week in which over a hundred children a day had died in Manhattan: “There is no more depressing feature about our American cities than the annual slaughter of little children of which they are the scene” (Madise,2003). Growing public concern throughout the industrialized West over this annual slaughter helped precipitate a public health movement to improve child health and survival. Along with a complex amalgam of socioeconomic, environmental, and medical developments at the end of the nineteenth century, that movement started infant and child death rates on the path of decline that they would follow through the twentieth century and into the twenty – first century.

Currently, the world's child mortality rate stands at 57 per 1000 live births; however, differences across the world are substantial. Africa's rate (88) is ten times higher than the average rate (8) for the developed countries. Within Africa the highest levels of child mortality in the world are experienced, with rates as high as 157 in Sierra Leone. On average the rate for Asia (56) is somewhat lower than for Africa, but some Asian countries such as Afghanistan have rates (150) as high as anywhere in the world. On the other hand, Hong Kong's rate (3.2) is very low, illustrating that the most variation in infant mortality level occurs in Asia. Both Europe and North America (the United States and Canada) have low levels of child mortality, with average rates well under 10. However, European variation is not inconsequential; rates in at least some parts of Eastern Europe are nearly 10 times higher than in northern European countries such as Iceland and Sweden. (World Population Bureau Data Sheet 2001)

In Kenya, approximately, eight out of each 100 live births die before their first birthday, representing huge wastage of potential manpower (CBS, 2004). So achieving the MDG means simply, reduction in the Kenyan IMR to about 22.0 per 1000 live births by 2015. The level of IMR per 1000 live births for Kenya had shown a fluctuating trend in the last 40 years. The trend has been 119 in 1969, 88 in 1979 and further declined to 66 per 1000 in 1989, although there was a sudden substantial increase in the year 1999 as it was

77.3 (CBS, 2004). However, the subsequent increase is a matter of debate, but most researchers suggested the impact of the HIV/AIDS epidemic especially in this region (Rutstein, 2000; Hill, 2001) and the “continuous economic crisis, the widespread political instability and civil strife” in the sub region of East and North Africa (Hobcraft, 1993).

Contributing significantly to this drop in under-5 mortality during the second half of the century has been an international movement to improve child health and survival that has been led primarily by two organizations created in the aftermath of World War II: the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO). Through the 1970s, this international effort involved both specific medical and public health interventions aimed at improving nutrition, controlling the incidence of malaria, increasing the availability of immunizations, and promoting in poorer countries the development of health care and public health systems emulating those of wealthier countries.

Overall, income and education, both at the societal and individual levels, are closely associated with child mortality. While the relationship between child mortality and level of socioeconomic development is not perfect, the infant and child mortality rate is commonly used more than any other measure as a general indicator of socioeconomic wellbeing and of general medical and public health conditions in a country. Richer countries can provide the basic ingredients for infant survival: clean water, sanitary surroundings, adequate food and shelter, and access to health care services. A large portion of child mortality is due to infectious and communicable diseases, which sanitary practices and an adequate diet do much to prevent.

At the individual level mothers (and fathers) with higher income and education are more likely to possess knowledge of sanitary behaviors and the money for adequate food, as well as to take their babies to a health service if needed. Especially important in the latter regard is oral dehydration therapy, which is effective in saving babies from dying from the dehydration that accompanies diarrhea.

1.2 Statement of the problem

According to District Civil Registrar of Births and Deaths currently under 5 mortality in this location stands at 14 per 1000 live births making it a glaring problem that should be looked into if good levels of development are to be attained in the area of child health. Other locations which neighbor Kochogo location have relatively low infant mortality levels for example Wawidhi 6, Kakola 5 Onjiko5 ,Awasi, and east Kano and this makes Kochogo to stand out warranting this type of study.

Most parts of Kochogo location get flooded during the rainy seasons and at times some of its inhabitants are forced to migrate to higher grounds for safety. During such seasons children in this area are exposed to mosquito bites and other dangers which come as a result of flooding. It has good infrastructural development in terms of good rural access roads, both primary and secondary schools, well built and staffed health facilities which are distributed all over the place. The location hosts Ahero sub-District Hospital, and two dispensaries namely, Bunde and Kadinda .There are also contributions from the NGO sector which offer health outreaches targeting children less than five years of age therefore boosting government efforts in this area health. These are Kano Plains Family Development Program and Nyando Orphans and Widows project. These organizations partner with Ministry of Health to conduct health campaigns targeting expectant mothers and children less than five years of age. The terrain of this district is relatively flat and therefore does not pose a problem to movement making almost all Health facilities accessible except during the rainy seasons when there could be minimal floods. It is paradoxical that with this level of development in Kochogo location, child mortality should still be high.

Existing studies on child health in Kenya have focused on medical causes of child mortality (McElroy *et al* 2001) and factors associated with under five mortality (Hill, 2001 and Mutunga 2004). Elsewhere, many other researchers using data from different regions of the world have reported of association between child mortality and socio economic and demographic factors. These studies are limited on the number of variables examined while there was no rank ordering of the factors that predict the under 5 mortality most. Hence program implications of these findings tend to involve interventions in various sectors of the

economy. In the face of dwindling economic resources and global economic meltdown, there is a need to identify only the most important factors that affect child mortality. This can be done by rank ordering of the important factors so that government interventions should focus on those key sectors that will have direct and immediate impact on child health instead of engaging in multifaceted approach with no visible impact.

1.3 Purpose of the study

This study aimed at investigating factors that influence child mortality in Kochogo Location in Nyando District.

Objectives of the study

The following were the objectives of the study;

1. To investigate the extent to which education levels of households influence child mortality in Kochogo Location of Nyando District.
2. To examine the level at which income of households influence child mortality in Kochogo Location in Nyando District.
3. To investigate how cultural beliefs of and practices of households influence child mortality in Kochogo location in Nyando District?
4. To establish the relationship between accessibility to health services by households and child mortality in Kochogo Location in Nyando District.

1.5 Research Question

The study was guided by the following questions.

1. To what extent does education level of households influence child mortality in Kochogo Location of Nyando District?
2. What is the influence of income level of households on child mortality in Kochogo Location of Nyando District?

3. To what extent do cultural beliefs and practices of households influence child mortality in Kochogo Location of Nyando District?
4. What is the relationship between accessibility of health services and child mortality in Kochogo Location in Nyando District?

1.6 Significance of the Study

The study would benefit locals, public policy makers (Ministry of Health/Public Health), NGOs, and other stakeholders who are interested in helping in reducing child mortality and researchers in similar field.

The study will benefit the locals and general public in understanding the factors that influence child mortality like education levels and therefore encourage communities to develop a positive thinking /attitude towards the same. The people involved in this study will also realize that improving living conditions also has a positive bearing on child survival. For example protecting children from cold environments, feeding children on balanced diet, standard sanitation and hygiene are keys to child survival.

It is also important that people learn that certain cultural practices and beliefs are only detrimental to child health. For example failing to seek medical attention for certain ailments and assuming that a child has been bewitched is adds no value to the child's health. From this proposed study, people will also learn that family's income has a role to play in determining child survival. As it will be revealed later in this study communities which have reliable sources of income can easily manage health issues of their children, proper diet and good hygiene and this should inform people on financial implications of bringing up a child. Finally people should make deliberate efforts to start thinking of creating employment from manipulating those resources which are within their reach.

1.7 Basic assumptions of the study

It is assumed that because nobody celebrates when a child passes on, hence the respondents selected will see the urgency to address the problems of child mortality and as a result cooperate in instrument completion.

1.8 Limitations of the study

Because certain cultures prohibit discussing about the dead, interviewing mothers whose children have passed on might not be very easy. This will be overcome by explaining to such mothers why the study has adopted that methodology and how this study will benefit the community as a whole by suggesting possible ways of reducing child mortality.

1.9 Delimitations of the study

The study will cover the entire Kochogo location in Nyando District. This area is made up of 3 sub locations namely Kochogo North, Kochogo Central and Kochogo South.

1.10 Definitions of significant terms as used in the study.

Child: A person under 5 years of age.

Cultural practices; Set of unwritten rules that prescribe how a group with common life traits live and interact with one another. The cultural practices set a given norm to which a given member has to follow in that society.

Infant Mortality Rate; The total number of deaths to children under the age of one year for every 1000 live births.

Immunization: Process of stimulating the immune system or the natural disease-fighting system in the body.

Health facility: Avenue where diagnosis and treatment for ailments is done.

Health stakeholders: All individuals or organizations with interest in boosting health programs in a given area.

Optimal fertility: Maximum fertility level.

Knowledge: Facts, principles, generalizations, awareness and sensitivities specific to real life situations.

Training: systematic development in a person of the knowledge, attitudes and skills necessary to be able to perform adequately in a job or task whose demand can be reasonably identified in advance.

1.11: Organization of the Study

The study was organized into three chapters, the first chapter covered the background of the study, the statement of the problem, justification of the study, purpose of the study, research objectives and questions, the significance of the study, the basic assumptions of the study, the limitations and delimitations of the study and finally the definition of the key terms as they have been used in this document. The second chapters reviewed literature which included literacy levels, income, cultural beliefs and practices and finally availability of health services. Chapter three dealt with research methodology which included the study design, study population, sampling techniques, pilot testing, validity and reliability of research instruments, ethical considerations, data collection instruments and techniques of data analysis.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter evaluates recent research studies that have been published on factors that influence child mortality. Specifically it looks at how parental level of education, income, cultural practices, and accessibility to health services affect child mortality..

2.2 Overview of child mortality in Kenya

Despite technological advances in modern sciences, 12 million children under the age of five die every year in developing countries from preventable diseases. Of these deaths, over 70% can be attributed to just five primary causes: pneumonia, diarrhea, malaria, measles and malnutrition. In many developing countries, 20 to 25% of the children die before reaching their fifth birthday, resulting in an estimated 15 million deaths annually (AMREF, 1996). Child death in developing countries constitutes the largest age category of mortality. This is because children under the age of five years are the group most vulnerable to diseases caused by health risks and poor environmental conditions (UNICEF/GOK, 1998). Children under five years make up 14% of the population in Africa, but account for up to 50% of all deaths annually (Kessel, 2000). In response to the above mentioned concerns, in the early 1990s WHO and UNICEF led the development and promotion of the integrated management of childhood illness (IMCI) strategy (UNICEF, 1999). This initiative aimed at significantly reducing mortality and morbidity associated with the five major causes of disease in children aged below 5 years, and to contribute to their healthy growth and development.

According to the Kenya Demographic and Health Survey of 2003, the child mortality rates steadily increased in Kenya during the period 1998 to 2003 (KDHS, 2003). The observed annual increase in the mortalities, though minimal, was predictive of other possible determinants of infant and child mortality within the child's holistic environment. Whether gauged from a psychological, social or economic perspective, the death of an infant or a child represents one of the most costly human experiences. Every human birth is a unique event and the cost of death of a child to the

family and friends in psychological terms is of course inestimable (Jelliffe, 1997). This brings out the urgency of improving our understanding of the determinants of child health particularly at household level.

2.3 Influence of Education levels of households on child mortality

Women's education has repeatedly been shown to influence the chances of infant and child survival, independently of their socioeconomic conditions. The educational level of the mother is closely linked to both her own and her household's socioeconomic conditions as well as to other complex factors relating to her self esteem, coping ability, and competence in mobilizing resources for herself and her offspring.

Education is widely held to be a key determinant of fertility and child health. From a theoretical perspective, several causal channels have been emphasized. First, education raises a woman's permanent income through earnings, tilting her optimal fertility choices toward fewer offspring of higher quality (Becker 1960, Mincer 1963, Becker and Lewis 1973, Willis 1973). Second, under positive assortative mating, a woman's education is causally connected to her mate's education (Behrman and Rosenzweig 2002), so that the effect of education on household permanent income is augmented through a multiplier effect. Third, education may improve an individual's knowledge of, and ability to process information regarding, fertility options and healthy pregnancy behaviors. (Grossman.1972). On the empirical side, an extensive literature documents associations between education and fertility and child health (Strauss and Thomas 1995). However, whether these associations represent causal relationships has been the subject of debate.

In broad terms, education may affect a woman's fertility and child-investment choices through either income or learning (Michael 1973). Education increases a woman's income stream through both the labor market and the mating market, the latter through assortative mating. In addition to the income channel, education may improve a woman's stock of knowledge regarding contraceptive technologies or healthy pregnancy behaviors, either because it augments her knowledge directly (i.e., educational curricula are important), or because it improves her ability to absorb and process information generally. The income channel operates through the well-documented effect of education on labor earnings.

The notion that an exogenous increase in a woman's income may lead to reduced fertility is present in the earliest treatments of the neoclassical model of fertility (Mincer 1963, Willis 1973). In these models, households do not value children per se, but what Willis terms "child services"—the product of the number of children and the average quality of those children. A key idea is that production of child services is time-intensive relative to other activities for the woman. As the value of a woman's time rises, she generally substitutes away from consumption that is highly time-intensive (Becker 1965) and hence desires fewer children. These predicted effects of education on

fertility map naturally into predicted effects on child quality. Assuming child services are a normal good, falling fertility in response to rising income requires that child quality be an increasing function of income. Cross price effects such as these were first emphasized by Becker and Lewis (1973) and Willis (1973).

While child mortality can be viewed as an important public health problem in our society, it should also be viewed as one that has strong socioeconomic determinants (Shell et al. al., 2004; Aly, 1990). Education levels has direct influence on child mortality in that in many cases learned couples have deeper understanding of child survival strategies and are in a position to identify disease danger signs in children and act accordingly by taking the sick children for further management if localized treatment does not work. Education also increases an individual's ability to understand the relationship between mothers' health during pregnancy and how it is likely to affect the health of the new born.

In a study conducted in 1999 in the Arab countries, the proportion child deaths to illiterate women was 0.109, which was significantly higher than for literate women which was 0.047. In a cross cultural study covering 11 countries, the mortality rate of children whose mothers had ten times or more years of schooling was only a third or one fifth the rate of children whose mothers are illiterate (Behm Hugo et al., 1978). Fathers education level plays a role in reducing child mortality .The proportion of children's death to the children born of women whose husbands were illiterate was 0.143 which is significantly higher than that of the other group whose husbands were illiterate (0.066). Individuals who are learned tend to marry late and start bringing up families late when they are mature enough and somehow this tends to minimize the number of children that they bring forth. This factor is crucial in reducing child mortality in these families.

It has been proved through research that child mortality rates tend to decrease with an increase in literacy levels (Shawky, 2000). Educated parents understand why it is important to have children immunized against infection so they ensure that vaccination schedules are complied with (Mc Cormik et., 1999).

2.4 Income of households and its influence on child mortality rate.

Arising from neo-classical economic contentions that scarce goods are most efficiently distributed through markets, economic modernization theory emphasizes internal or international financial factors in its analysis of development processes (Rostow 1990). Economic modernization theory views development as bridging the gap between developed nations and developing countries through an imitative process. From this perspective, economic growth is viewed as the driving force behind development within countries. Economic development fosters greater levels of industrialization and urbanization. Increases in industrialization and urbanization tend to generate a higher standard of living and greater access to advanced medical technology that should decrease child mortality (Rostow 1990). Several prior cross-national studies have modeled and found support for the inverse relationship between economic modernization predictors such as the level of development and child mortality (Shen and Williamson 2001; Frey and Field 2000; Firebaugh and Beck 1994; Lena and London 1993).

A number of cross-national studies have indicated that the degree of income inequality in a given society is strongly related to the society's level of child mortality. In one investigation of nine nations included in the Luxembourg Income Study, a correlation of .86 was reported between average life expectancy and proportion of income allotted to the 70% of the population at the lowest income levels. Two recent US studies independently demonstrated an association between income inequality and mortality. Kennedy *et al.*, examined the relationship between degree of household income inequality and state-level variation in all-cause and cause-specific mortality. The degree of income inequality in each state was estimated by the Robin Hood Index, which is equivalent to the proportion of aggregate income that must be redistributed from households above the mean and transferred to those below the mean in order to achieve perfect equality in the distribution of household incomes. The higher the Robin Hood Index, the more unequal the distribution of income. The overall correlation of the Robin Hood Index to all-cause mortality in 1990 was .54 ($P < .0001$). After adjustment for poverty, a 1% rise in the Robin Hood Index was associated with an increase in age-adjusted total mortality rate.

In broad terms annual household income possesses an inverse relationship with child mortality, in other words it can be understood that an increase in income which improves the housing and domestic amenities and the health care conditions hence reduces child mortality. Households which receive low incomes due to one reason or the other find it difficult to meet all the requirements of young children as in providing balanced diet for optimal growth, clean environment, proper sanitation and medical care (Johan, 2008; Schell *et al.*, 2007; Kiryskus, 1982).

Low incomes also lead to situations where people resort to using wood fuel as a source of energy for cooking thereby leading to Acute Lower Respiratory Infections. Acute lower respiratory infections (ALRI) remain the single most important cause of death globally in children under 5 years and account for around 2 million deaths annually in this age group. There are some sixteen studies in LDCs which have reported on the association between exposure and ALRI (Kossove, 1982; Pandey *et al.*, 1989; Campbell *et al.*, 1989; Cerquiere *et al.*, 1990; Collings *et al.*, 1990; Armstrong & Campbell, 1991, Mtango *et al.*, 1992, Johnson & Aderele, 1992; de Francisco *et al.*, 1993; Shah *et al.*, 1994; Victora *et al.*, 1994; Depmsey *et al.*, 1996, Wesley & Loening, 1996 (Armstrong & Campbell, 1991; Bruce *et al.*, 1998). The most recent report on this topic, by Ezzati and Kammen, describes a cohort study of 345 rural Kenyan people (of which 93 were aged less than 1 year), living in 55 homes on a rural cattle ranch (Ezzati and Kammen 2001a; Ezzati and Kammen 2001b). Households used mainly wood or charcoal, in open fires and improved (chimneyless) stoves. Detailed personal exposure assessment was combined with weekly (initially bi-weekly) health outcomes assessment for adults and children using WHO criteria for ALRI. This is the first study that has reported (and presented) exposure-response relationships for particulates and incidence of ALRI, in children (less than 1 year) and adults. The trend of increasing risk with higher levels of exposure was highly significant. Socio-economic status and birth weight were not adjusted for, but the authors reported that income, housing and nutrition varied little due to the social organization of the ranch community. The incidence of ALRI in young children in this study was considerably higher than previously reported in similar populations.

Income also defines the type of environment that an infant grows up in, for example in Kenyan urban set up the poor live in slums which have poor sanitation, inadequate waste disposal facilities and at times no access to clean water. All these factors combined tend to work against infant survival thereby leading to increased cases of infant deaths when compared to those living in clean estates in urban centres.

2.5 Cultural Practices of households and how they influence infant mortality rate.

Early marriages have significant association with child mortality. Parents choose to marry off their daughters early for a number of reasons. Poor families may see their daughters as an economic burden and her marriage as a necessary survival strategy for her family. They may also think that early marriage offers protection for their daughters from the dangers of sexual assault, but early marriages have harmful effects on girls including deepening psychosocial and emotional consequences and denial of education. Infant mortality tends to increase with a decrease in age at marriage. It has been observed that having children when a woman is below 19 years of age increases the likelihood of child mortality and in the same vain having children after the age of 35 increases instances of child mortality rates due to the complications which are likely to come up during delivery. This argument also asserts that child mortality rates are lower in children whose mothers are between ages of 20-29 (Galway *et al.*, 1987).

Young girls cannot cope with the responsibility of child rearing and other challenges that come with marriage hence interfering with their ability to respond to the medical needs of their children.(Shawky and Millat, 200; Bittles *et al.*, 1991). There are certain religious sects that don't believe in western medicine and they believe that God is the giver of life hence it is him who takes care of that life. In such arrangements parents don't take their children for immunization or even treatment when they are sick, instead they are prayed for- such communities have high infant mortality rates as compared to those communities that believe in conventional medicine.

The belief that certain illnesses are caused by breaking certain taboos in some communities in Luo Nyanza also has an influence on infant mortality rates. For instance the

belief in chira. Such beliefs tend to influence parents thinking in such a way that when a child exhibits certain symptoms he or she is subjected to traditional means of treatment even if the infection requires a modern approach to treatment and in many cases these lives end up being lost. Polygamy comes with many challenges one of them being creating large families and hence caring for these big families becomes very expensive in terms of their clothing, feeding and medical care among other expenses. In this kind of scenario adequate child care is compromised as the mother of the baby shoulders the responsibility of child care.

Ethno theories of infant feeding, the caretaker's response to the child's characteristics and a lack of differentiation between an adult's and a child's nutritional needs were important determinants of infant feeding practices. In a study done in South Africa in 2009 it was found that most babies were fed cereal mixed with formula within a few weeks of their birth and ethno theories of infant feeding appear to be important determinants of this feeding decision. Specific beliefs were articulated most clearly by grandmothers, while adolescent mothers were less clear about the reasons for certain feeding behaviors. For example, when asked why they gave the baby certain foods, most mothers would respond with "I don't know" or "My mother told me to do so"

Several mothers and grandmothers reported adding cereal in the bottle in the first weeks and months of an infant's life because the baby was crying too much or not sleeping through the night. This was reported by more than half of the households who admitted to adding cereal to the bottle. The child's small size or lack of expected growth was also reported by several of the mothers and grandmothers. The child's appetite and desire for 'real' food was also given as a reason for the early introduction of other non-milk foods, such as jarred baby food, mashed potatoes or macaroni. One mother of a 7-month-old baby said: She ate that baby food until she was like two months. She left that baby food. She wanted some real food . . . when my girl turned like one or two months I gave her a spoonful and she be like this. Like she didn't want it. But I used to have food and she used to come over to my food. Another grandmother says her grandchild started on 'baby food' at around two months of age "because he seemed like he was greedy. He was hungry." The baby started 'regular food' at about six months of age 'since we were wasting money on the baby food, we might

as well give him the regular food". He was eating the baby food, but "sometimes he probably eat the whole jar. Sometimes he probably eat the half jar. So we just tried him on mashed potatoes, macaroni, stu. like that". The importance placed upon the baby's eating 'real food' is shown by the existence of pre-mastication practices. Several mothers and grandmothers reported, without prompting, that they pre-chewed the baby's food: When asked what her baby was fed yesterday, the mother of a 7-month-old baby says she gave the baby some Kentucky Fried Chicken food. . . Yeah, she ate some of that, but I kind of like chewed it up. . ." Later, the mom says: "She eats like pancakes. I fed her that yesterday. I chop it up or chew it up myself because I'm afraid she might choke'

There is the element of forced feeding in the Luo community which is done to babies who have poor appetite or just done to ensure that the baby is fed to the maximum level. This practice has contributed to deaths of infants through choking and others collapsing and dying due to over feeding.

2.6 Accessibility to health services and how it influences child mortality.

Most health services are offered in health clinics and hospitals wards or outpatient facilities. These centres are not available in some remote areas or they are weak as in many parts of Sub – Sahara Africa (Cowgill 2006). In the USA, a study by Oxford University found that although transportation was an acknowledged problem for some, overall the respondents; said that parents who want to have their children's treated should not find transport to be a big barrier. Some parents expressed previous frustrations because of lack of immunization records. Many women mentioned that local neighborhood health camps (sites) such as grocery stores mobile vans might increase the medical uptake rate for the sick children. Also the attitude of health service providers at times can discourage mothers from seeking medical care for their children, especially if the nurses are unfriendly (McCormick et al; 1997).

In some remote areas health facilities are scattered making them almost unreachable. This makes it very difficult for care givers to access them especially when there is an emergency that requires immediate medical attention. Further to this children in such areas are mostly delivered at home in unhygienic conditions and this puts their lives at risk

especially in the first one month of life (WHO, 2003). In addition to this some health facilities are not well stocked with drugs making mothers with sick children avoid them or those who are forced to visit these facilities due to lack of alternatives are at times given painkillers.

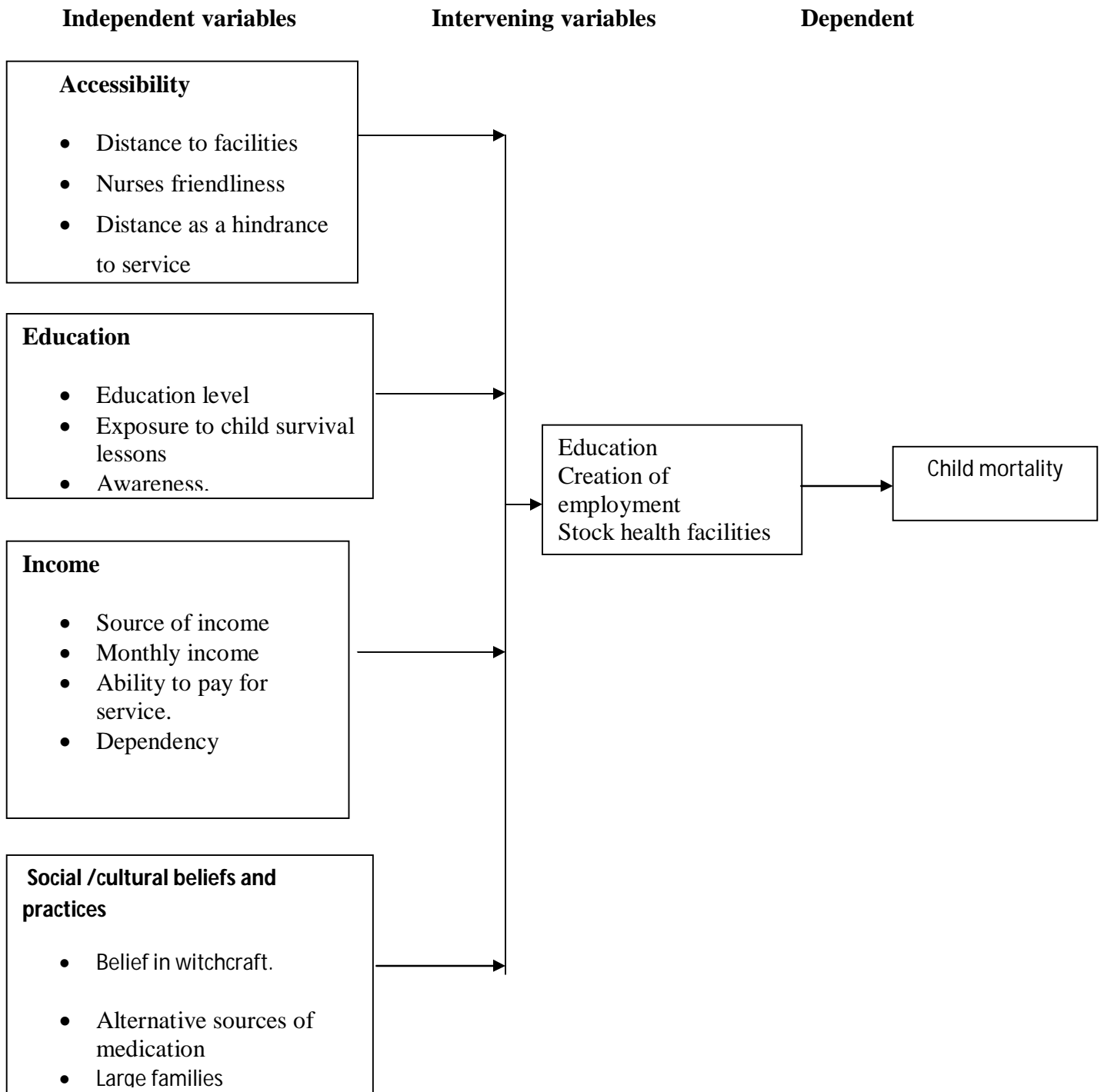
2.7 Theoretical Framework

The theoretical framework for this study is adapted from modified version of Andersons model for healthcare behavioral prediction. In the early 1970s, Ronald Anderson created a framework for the study of access to healthcare services. This framework has been used widely to explain the use of an array of health care services including child survival and immunization uptake. Although this model has been modified over time, three general principles embedded in the framework have remained constant over time. These include predisposing factors (such as education level, health beliefs, age), enabling factor s(such as income, insurance, regular sources of care), and individual determinants (such as geographical area and interrelationships). Each of these three principles helps describe the characteristics of the population at risk and the likelihood that they will seek care. (Bundt and Hsou-Mei, 2004).

2.8 Conceptual Framework

The study's focus based on a functional relationship between a set of four variables which include parents' literacy levels, income, availability of health services and cultural beliefs and practices against child mortality rates. For each of the independent variable, the researcher used a set of quantifiable indicators as a basis for answering the research question. The study instrument will be designed to focus on each of the identified indicators as shown on 2.1.

Fig 2.1 Conceptual Framework



In the conceptual framework in figure 2.1 it is shown that there are four independent variables that affect child mortality, these are accessibility to health services, parental level of education, family income and cultural beliefs and practices. In between there are the intervening variables which must come into play for the problem, which is child mortality rates are to be reduced. These are ensuring that all citizens access compulsory secondary education, creating employment opportunities to enhance living standards for all citizens and ensuring that health facilities are stocked with drugs.

2.9: Knowledge gaps

From the literature presented above it was realized that most of the studies done on child mortality had their data gathered from secondary sources or done in urban or peri-urban areas hence making it difficult to generalize the situation of child mortality for the whole country. The few available data on some Kenyan urban and semi urban areas are often of clinical nature. This study addresses each of these gaps. While using population based survey results from rural areas, an effort will be made to assess factors influencing child mortality-although not prevalent in more affluent countries-still plaque less developed countries like Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methodology that was be used in carrying out the study. It covered the research design, area of study, target population, sample solution, research instruments, validity and reliability of data collection instruments, data analysis techniques and ethical issues in research.

3.2 Research Design

The research adopted a descriptive research design. This allowed the researcher to make comprehensive references about the variables that were being investigated. Mugenda and Mugenda (1999) refer to a descriptive study as one that is used for explaining or exploring status of two or more variables at a given point in time. Kothai (2003) explains that the major purpose of the design is to describe the state of affairs as it exists at present. According to Orodho and Kombo (2002), a descriptive research design is a systematic method which involves collecting relevant data and subsequently describing the behavior of a subject without influencing it in any way. This research design is used in the study because it is expected to explain the relationship between the set of the variables including literacy levels, income of parents, and availability of health facilities, cultural practices and beliefs against child mortality rates in Kochogo location in Nyando District

3.3 Target Population

The study targeted information from Kochogo Location households. There are 13110 households in Kochogo location out of which 10% is estimated to have children below 5 years of age (Action Aid, 2010). Hence the household universe will constitute 1311 units.

3.4 Sampling techniques and Sample size

Kochogo location has a total of 1311 households with children who were born 5 years ago, this was irrespective of whether these children were a live or not. The researcher used purposive sampling method to reach the household. Mugenda (2008) points out that this method allowed the researcher to use cases that have the required information with respect to the objectives of his or her study. Cases of subjects are therefore handpicked because they are informative or they possess the required characteristics. Considering the household universe in this study, the researcher used a sample of 20% of the population which will translate to 260 households to be purposively selected from the location. Though this portion is relatively small, disparities are projected to be minimal due to high degree of homogeneity among households in the location.

3.5 Research Instruments

The study used primary data –qualitative approach. The data was collected through administration of questionnaires. This instrument gathers data of a large sample. This is according to Mugenda and Mugenda 1999. The questionnaires used captured the various variables of the study and had both open and closed ended questions covering issues on the factors influencing child mortality in Kochogo location of Nyando District.

The study had one set of questionnaires to be administered to the respondents by the researcher. It was divided into 4 sections 1, 2, 3 and 4. Section one will sought information regarding education level of mothers in the households for instance level of education attained, any exposure to child survival lessons and others. Section 2 dealt with issues of income of the households for example its source, ability to pay for health services, issues of dependency. The third section looked into the issues accessibility of health facilities for instance distance to the facilities, nurses friendliness, time spent to get service and means of transport and availability of drugs in the health centres. The fourth section captured issues to do with cultural beliefs and practices like the age at marriage, faith and use of alternative sources of treatment such as the use of herbal medicine.

Open ended questions permitted free responses from the respondents without providing or suggesting any structure for the replies. The closed ended questions enabled the respondents to concentrate on stated alternatives. The alternatives were simplified to enable ease of understanding and also facilitated accurate responses.

The questionnaires enabled the researcher to collect large amounts of information within a short period of time and also uphold confidentiality. The questionnaires were administered for household respondents to ensure completion.

3.5.1 Pilot Testing

Mugenda and Mugenda (2003) states that pilot testing of research instrument enhances their validity and reliability. 5 respondents from each category were used to pretest the research instruments before the actual research though this was not be done in the study area but in the neighboring locations which was proposed to be in Wawidhi and East Kano locations because they are bordering Kochogo location and have similar conditions like the area proposed for the study, further to this they were also accessible to the researcher. This enabled the researcher to identify any difficulty with the materials and to investigate the accuracy and appropriateness of any instrument to be developed.

According to Mugenda and Mugenda (1999), a pre test sample of a tenth of the sample respondents with homogeneous characteristics is appropriate for the pilot study. The findings of the pilot questionnaire will be used to improve on the restructuring of question items and setting of response expectations.

All these were done to ensure clarity, relevance and accuracy of the final questionnaire so as to obtain the richest possible data.

3.5.2 Validity of Research Instruments

Validity refers to the success of a method in probing and / or assessing what it sets out to probe or assess. Mugenda & Mugenda (2009), states that validity involves the degree to which obtained results from data analysis represents the phenomenon under study, that is

whether the research truly measures that which it was intended to measure or how truthful the research results are. It is tested by representativeness of the largest population and by consensual judgments by experts. The validity was ensured by adjusting the research instruments so that they focus on the objectives.

3.5.3 Reliability of instruments

Reliability – refers to the consistency of data stemming from the use of a particular research method. A measure is reliable to the extent that repeated application of it under the same conditions (by different researchers) gives the same result.

To ensure reliability of research instruments, the researcher adopted the test – retest method where instruments were administered twice to the same group of selected sample population but after an interval of two weeks. The results from the two tests were compared and correlated with each other to give a measure of reliability while taking into account the time differences. The results obtained enabled the researcher to make improvement on the final questionnaire to be sent to respondents.

3.6 Data collections procedure

Before setting out to collect data, an introductory letter from University of Nairobi and a permission to carry out research from the National Council for Science and Technology were obtained to enable the researcher administer questionnaires with much needed security. The study made use of research assistants who were trained on data collection procedures and ethical issues in research. The respondents were assured of confidentiality of their responses so that they were honest.

3.7 Data Analysis technique

The data collected was cleaned through editing to eliminate inconsistencies. The data was organized according to households. The refined and organized data was then coded and analyzed using descriptive statistics involving percentages and mean scores to determine

varying degrees of responses – concentration regarding factors influencing child mortality rate in Nyando District.

Ethical considerations

All potential respondents were given consent forms which were to describe the type of study to be done, purpose of the study and their rights as participants in the study including right to confidentiality and the right to withdraw from the study at any time. They were assured that their names were not be included in any of the findings.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS.

4.1 Introduction

This chapter analyses, presents interprets and discusses research under the following thematic areas: Response return rate, demographic characteristics of respondents, influence of education level on child mortality, how income of households influences child mortality, relationship between child mortality and availability of health services and finally how cultural beliefs and practices influence child mortality in Kochogo location in Nyando District.

4.2 Response Return Rate

During this study, a total of 230 respondents were reached out of the possible 260 which were earlier identified. The realized response rate was assessed and accepted as a close representation of the entire target population since feedback was ascertained from all strata that had been identified by the researcher. This response was considered and accepted to be representative of the target population since according to Cooper and Schinler (2000) a response rate of more than 75% of the targeted respondents is enough for the study. The resulting 11% non-response was not significant with respect to influencing both validity (internal and external) and reliability of ultimate findings. In addition the fact that this data was obtained from all the three sub locations of Kochogo locations helped enhance the findings dependability and generalizations.

4.3 Demographic Characteristics of Respondents

The study considered a number of significant preliminaries in the quest of understanding in detail the study respondents. Data obtained from these preliminaries covered respondents marital status, household sizes, main sources of income which were further discussed as follows:

4.3.1 Distribution of Respondents according to Marital Status

The researcher sought to determine the respondent's marital status with the view of determining response quality. The respondents were asked to state their marital status. Table 4.2 presents these findings using segments to show relative sizes of the caregivers' subgroups

Table 4.1: Marital Status of Respondents

Marital Status	Frequency (f)	Percent (%)
Complete couples	136	56
Single unmarried	33	14
Single widowed	61	27
Total	230	100

Table 4.1 shows that there were 136(56%) respondents who were complete couples, 33(14%) were single unmarried, and 61(27%) were widows. Cumulatively 94(41%) of these respondents were single. This type of situation is normally a problem when it comes to child medical care as too much pressure is exerted one person. This is in terms of financial constraints especially for mothers who in many instances are vulnerable and have limited access to income that can be channeled to medical care (McCauley and Schefer, 2003).

4.3.2 Household Sizes of Respondents.

The study sought to find out the respondents household sizes to establish the demand of the respondents resources especially when it comes to the medical care for children. The respondents were asked about their size of family in numbers with ranges being indicated in table 4.2.

Table 4.2: Household Sizes.

Size of family in number	Frequency	Percent
	f	%
1-3	47	20
4-7	85	37
8-11	51	22
9-12	33	14
12 and above	14	6
Total	230	100

Out of the 230 respondents who participated in this study 47 (20%) have 1-3 children, 85 (37%) have between 4 to 7 children, 51(22%) respondents have between 8 to 11 children and 33 ((14%) have between 9-12 children. On the extreme end only 14 (6%) have 12 children and above. In this distribution, the modal class was 4-7 which had a frequency of 85 (37%). This implies that the residents of this location have large families and this according to Lantz and Freed (2004) in a study done in Bangladesh to establish the relationship between household sizes and child mortality found out those families with large numbers of children experienced more cases child mortality as compared to their counterparts who had less. These findings are also in line with a study conducted by Fisher and Baron (1995) which found out that competing priority that take precedence over health care for children also act as barriers to child survival. The large family sizes are a potential source of pressure on parents especially when the income source is not stable. Normally under such circumstances, formal medication and routine check ups are given secondary preferences and this is detrimental to child health.

4.4 Influence of education on Child Mortality

Women's education has repeatedly been shown to influence the chances of child survival, independently of their socioeconomic conditions. The educational level of the mother is closely linked to both her own and her household's socioeconomic conditions as well as to other complex factors relating to her self esteem, coping ability, and competence in mobilizing resources for herself and her offspring.

Education is widely held to be a key determinant of fertility and child health. From a theoretical perspective, several causal channels have been emphasized. First, education raises a woman's permanent income through earnings, tilting her optimal fertility choices toward fewer offspring of higher quality (Becker 1960, Mincer 1963, Becker and Lewis 1973, Willis 1973). Second, under positive assortative mating, a woman's education is causally connected to her mate's education (Behrman and Rosenzweig 2002), so that the effect of education on household permanent income is augmented through a multiplier effect. Third, education may improve an individual's knowledge of, and ability to process information regarding, fertility options and healthy pregnancy behaviors. To this extent education level is believed to have an influence^{4.2} on child mortality. To achieve this objective the study measured the following parameters: Level of education attained by the caregiver, exposure to child survival lessons, and awareness of government initiatives in reducing child mortality.

4.4.1 Level of Education and child mortality.

The study sought to find out the relationship between child mortality in this area and parental level of education. Based on this respondents were asked about their highest level of education attainment which was indicated as no education, primary, secondary, University, tertiary college as shown in table 4.3.

Table 4.3 Level of Education and Incidences of Child Mortality

	Level of Education		child mortality	
	(f)	%	(f)	%
No education	6	3	2	33
Primary Level	145	63	35	24
Secondary Level	64	27	11	17
University level	7	3	1	14
Others	8	3	1	12
Total	230	100	50	100

. Out of the 230 respondents reached it came out clearly that 6(3%) caregivers had no education at all, 145(63%) had primary level of education, 64(24%) having attained secondary level of education, 7(3%) had university level of education while 8(3%) belonged to the category of others which constitute those with tertiary level of education. Asked about whether they have experienced death of a child under the age of 5 years, it came out that the caregivers with no education which forms 6 (3%) of this universe population had child mortality frequency of 2 which translates to 33% of total child mortality cases experienced in this location. Those respondents who have attained primary level of education make up 145 (63%) of the total population and recorded mortality frequency of 11 which translates to 24% of total child mortality experienced in this location. Those respondents who have attained secondary level of education constitute 27% of the entire population and have recorded mortality frequency of 11 that translates to 17% of the total child mortality experienced in this location. Respondents who have attained university level of education constitute 3% of the target population and recorded mortality frequency of 1 and this translated to 14% of all cases reported in this area.

From this analysis it is realized that education level attained by the caregiver has a lot of bearing on the general health of the child. The more educated a person is, the less incidences of child mortality that person is likely to experience. These results are in line with a study conducted in 1999 in the Arab countries, that realized that the proportion child deaths to illiterate women which was 0.109, this was significantly higher than for literate women which was 0.047. In a cross cultural study covering 11 countries, the mortality rate of children whose mothers had ten times or more years of schooling was only a third or one fifth the rate of children whose mothers are illiterate (Behm Hugo et al., 1978).

4.4.2 Exposure to Child Survival Lessons.

The caregivers' access to Child survival lessons was also essential in determining their knowledge on general child health, care and development. Respondents were asked if they had undergone any formalized training on Integrated Management of Childhood Illnesses. Indeed many of the mothers in the location had once or more been inducted to understanding IMCI practices and principles thereby equipping them with the knowledge needed in managing early childhood illnesses. The results were table 4.2.

Table 4.4 Status of Access to IMCI Training and Child Mortality Frequency.

Status of Access	Frequency	Percent
	(f)	%
Trained	21	42
Untrained	29	58
Totals	50	100

The information in table 4.4 indicates that the participants were had been trained on IMCI principles and practices experienced child mortality frequency of 21 (42%) where as

their counterparts who were not trained experienced child mortality frequency 29(58%) of all these deaths. From this analysis it was realized that mothers who have been exposed to IMCI lessons tend to experience less child mortality rates as compared to those mothers who have never been exposed to these trainings at all.

4.4.3 Awareness about Government Initiatives to Improve Child Survival.

The researcher sought to establish if respondents were aware of any government initiatives to improve child survival in the location .Based on this, participants were asked to state their level of awareness as being low or high as indicated in table 4.5 below.

Table 4.5; Awareness of Government Initiatives to Improve Child Survival.

Level of awareness	Frequency	Percent
	(f)	%
High	140	63
Low	90	37
	230	100

Out of the 230 respondents interviewed, 140 (63%) of them admitted that they were aware of government initiatives that are being implemented to reduce child morbidity and mortality cases in the District. On the other hand 90 (37%) admitted that they have very low awareness on this issue. Even though there is this level of awareness, only 121 respondents accepted that a part from the routine immunization they do benefit from programmes like free malaria treatment for the children below 5 years of age.

There is also a high degree of awareness in Kochogo location that there are other bodies apart from the government contributes significantly to child survival- the highest contribution coming from ChildFund, World Vision and other Community Based Organizations operating in the area.

4.5 Income and Child Mortality

The study had predicted earlier that economic development fosters greater levels of industrialization and urbanization. Increases in industrialization and urbanization tend to generate a higher standard of living and greater access to advanced medical technology that should decrease child mortality (Rostow, 1990). Several prior cross-national studies have modeled and found support for the inverse relationship between economic modernization predictors such as the level of development and child mortality (Shen and Williamson 2001; Frey and Field 2000; Firebaugh and Beck 1994; Lena and London 1993).

4.5.1 Key Sources of Income and Child Mortality

Based on this, the researcher sought to establish the relationship between parental income and child mortality. Respondents were asked to state their sources of income in two broad categories as being formal or informal. This was then correlated with incidences of child mortality as they are experienced by the participants in the two income categories. The results are shown in table 4.6.

Table 4.6 Key Sources of Income and Child Mortality Frequencies.

Key Sources of Income	Employment Status		Child mortality	
	(f)	(%)	(f)	(%)
Formal employment	72	31	12	24
Informal jobs	158	69	38	76
Totals	230	100	50	100

It was realized that the respondents from the formal sector were represented by a frequency of 72 which translates to 31% of the entire population. On the other hand, their counterparts from the informal sector were represented by a frequency of 168 that translates to 69% of this population. Comparing child mortality rates for the 2 categories it is realized that the respondents from the informal sector registered 38(76%) mortality cases while their counterparts in the formal sector recorded 12(24%). This can be explained by the fact that since this study was conducted in a rural set-up most people who derive their income from the informal employment are mainly casual laborers who are employed in farms seasonally during cropping seasons which are periodic after which they remain unemployed for along time.

Secondly the people found in this sector are remunerated poorly compared to their colleagues in the formal sector. For example a mother working in a rice field is paid a maximum of Ksh 230 for working for 8 hours a day and is contracted by a middle man who gains through her labor. Other people in this category are the boda boda operators who at the end of the day can only afford to feed their families and paying little attention to child health.

4.5.2 Monthly Income

Monthly income determines the standard of life a person lives and hence their ability to seek for medical attention whenever there is need. It is against this background that the researcher wanted to know the relationship between monthly income and child mortality rate among residents of this area. Residents were asked to state their income per month in the range of Ksh. 3000 and below, Ksh. 3100-6100, Ksh.6200-9200, Ksh.12200-15200 and 15300 and above. The results were then correlated with Child mortality rates as shown in table 4.7.

Table 4.7 Income per Month and Child Mortality Frequency

Income per month	Frequency (f)	Percent %	Mortality (f)	Percent %
Below Ksh 3000	108	47	28	56
Ksh. 3100-6100	80	34	14	28
Ksh 6200-9200	27	11	5	10
Ksh. 12200-15200	10	4	2	4
Above 15300	5	2	1	2
Totals	230	100	50	100

From table 4.7, it is realized those respondents who earn below Ksh.3000 per month were 108 (47%) and recorded mortality frequency of 28(56%). Those respondents who had monthly income of between Ksh.3100-6100 were 80(34%), and they reported mortality frequency of 14(28%), while those respondents whose income was between Ksh 6200-9200 were 27(11%) and recorded mortality frequency of 5(10%). Those who earned a monthly income of Ksh. 12000 and above were 15 (6%) and recorded mortality rates of 3 (6%).

In broad terms households monthly income possess an inverse relationship with child mortality, in other words it can be understood that an increase in income improves the housing and domestic amenities and the health care conditions hence reduces child mortality. Households which receive low incomes due to one reason or the other find it difficult to meet all the requirements of young children as in providing balanced diet for optimal growth, clean environment, proper sanitation and medical care (Johan, 2008; Schell 2008).

4.5.3 Financial ability to pay for health services

Inflow of income to the households can determine their ability to pay for health services and thus influence whether a care giver seeks medical attention when a child is sick or not. Based on this, the researcher sought to find out the respondents ability to pay for health services offered to them. The table below illustrates respondents' financial ability to pay for health services.

Table 4.8 Financial ability of respondents to pay for health services.

Ability to pay	Frequency	%
Very High		
High	4	2
Fair	15	7
Low	124	53
Very low	87	37
Total	230	100

From the table above none of the participants admitted that they had very high ability to pay for health services. 4 (2%) stated that they had high ability to pay for the health services offered to them, 15(7%) stated that they had fair ability to pay for these services, 124(53%) respondents stated that they had low ability to pay for these services, and finally 87(37%) had very low ability to pay for these services. Cumulatively 211(90%) of residents this population can hardly afford to pay for medical services offered to them. This therefore implies that high child mortality levels experienced in this area is as a result of the low income that members of this community can access at a given time. Many households confirmed that they don't have assets to dispose of when they are in dire need to pay for health services and this compels them to beg from relatives or to seek help from the Community Based Organizations operating in the area.

4.6 Accessibility to Health Services and Child Mortality

It is predicted that in some remote areas health facilities are scattered making them almost unreachable. This makes it very difficult for care givers to access them especially

when there is an emergency that requires immediate medical attention. Further to this children in such areas are mostly delivered at home in unhygienic conditions and this puts their lives at risk especially in the first one month of life (WHO, 2003). The sub themes discussed under this are distance to health facility, distance as a hindrance to seeking health services, nurses friendliness and means of transport to health facilities.

4.6.1 Distance to health facility.

Distance to health facility can influence accessibility to health services depending on how far away the health facilities are located from the public. Based on this the, researcher sought to establish the relationship between distance to health facility and child mortality. The respondents were asked to state the distance between their residential places and the nearest health centres. The results were then checked against the information given on mortality frequencies and correlated as tabled below.

Table 4.9 Distance to health facilities and child mortality frequencies.

Distance covered to health facility	Frequency	%	Child Mortality f	%
Less than 1 kilometer	87	44	17	34
1 to 2 kilometers	98	43	17	34
More than 2 kilometers	35	15	16	32
Total	230	100	50	100

From the analysis above, distance to health facility does not seem to influence child mortality in this area. Under normal circumstances it would be expected that respondents staying far away from the health centres should experience more frequencies of mortality than those staying around them.

4.6.2 Distance as a hindrance to seeking health services.

Respondents were asked if distance to the health facilities has ever hindered them from seeking health services.

Table 4.10 Distance as a hindrance to seeking health services

Response	Frequency (f)	Percent (%)
Yes	12	8
No	218	92
Total	230	100

From the table above there is a likelihood that distance to health facilities does not affect the respondents' ability to seek medical attention when there is need. People would try to seek medical help however far their homes are from the medical centres.

Table 4.11 Nurses' friendliness

Responses	Frequency	Percent
	(f)	%
Excellent	12	5
Good	23	10
Fair	125	54
Poor	70	30
Totals	230	100

The friendliness of nurses to caregivers of children was rated as fair by 125 (54%) majority. This notwithstanding, two extreme opposing views emerged; on one extreme of opposing 12 (5%) there was a feeling of excellent rapport which contrasted the other extreme of 70(30%) who rated it as very poor. This data points out that a majority of the respondents are being satisfied with the nurses' friendliness. Cumulatively, 160 (69%) rated nurses friendliness as positive. According to WHO, 2003 some people fail to adhere to treatment schedules due to cruelty of nurses, for example too long waits, rudeness or insensitivity on the part of health workers, unauthorized fee, unscheduled facility closures among other reasons.

4.6.3 Means of Transport to Health Facility.

Means of transport can determine the level of accessibility to health facilities. Modern and more efficient means of transport can ease accessibility to health facilities and enhance child survival. The respondents were asked to indicate what common means of transport is available to them for accessing the health facility. The responses are presented in table below.

Table 4.12 Means of transport to health facilities.

Means of transport	Frequencies (f)	Percent (%)
Bicycles	102	44
Motorcycles	69	31
Public transport	54	23
Private Means	5	2
Totals	230	100

From the information above it is realized that the most common means of transport to health facilities in this area are bicycles 102 (44%). Other than this, 69(31%) opted for public transport and motorcycles respectively. Only 5 (2%) accessed private means when seeking health services from health facilities for their children.

4.6.4 Issues to be addressed to enhance Child Survival.

The study sought to establish what the residents would want to be addressed within the health facilities to improve child survival in this location. All respondents confirmed that there is need to reduce treatment costs, stock health facilities with drugs and initiate mobile clinics so that as many clients as possible are reached.

It came out clearly that 100% of the respondents stated that for child survival to be improved in this location then all the above factors must be worked on

4.7 The Relationship between Cultural beliefs and practices and Child Mortality.

4.7.1 Belief in witchcraft

The study sought to establish if cultural beliefs and practices do influence child mortality. Given this, respondents were asked if they believe in witchcraft or not and the information given was compared with the response on whether a child has ever died in this family or not.

Table 4.14 Belief in Witchcraft and child mortality

Belief in witchcraft	F	Percent	Child Mortality	Percentage
		%	f	%
Yes	85	37	26	52
No	145	63	24	48
Total	230	100	50	100

From the table above, it was realized that 85 (37%) believes in witchcraft and 145 (63%) don't believe in this practice. Surprisingly, those who hold to this practice reported the highest level of infant mortality 26 (52%). Cultural beliefs and practices can be a hindrance to child survival since it tends to influence caregivers to seek treatment in similar set ups when their children get sick and in many cases these types of remedies fail.

4.7.2 Steps taken by the caregiver before a sick child is taken for further management.

The researcher sought to know the steps that caregivers take before taking a sick child to health facilities for further management. Based on this they were asked to state the steps that they normally take before taking their children for further management under the options of buying drugs, taking the sick child for prayers and giving herbs.

Table 4.7.3

Intervention	F	%
Buy drugs	101	43
Take child for prayer	77	33
Give herbs	52	22
Totals	230	100

From the table above it is realized 101(43%) resort to buying the relevant drugs before taking the children for further management. On the other hand 77 (33%) prefer taking the children for prayers, while 52 (22%) give herbs as the first intervention.

Cumulatively, 129 (55%) resort to those practices which are regarded to be cultural or traditional for that matter which are in this case giving herbs and holding prayers for these children.

4.7.3 Extended families

The researcher sought to establish if the residents of this area have dependants other than their own children.

Table 4.7.4 Large Families.

Dependants present	F	%
Yes	148	64
No	82	36
Total	230	100

Because of poverty and deaths resulting from HIV and AIDs, many families in Kenya today are forced to live with children who are not their own. This has been viewed as a cultural practice even though it puts a lot of economic strain on the affected families. Based on this, the researcher wanted to find out how caregivers in such situations behave when in dire need to cater for medical care for these extra children.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the study's findings, summary, conclusions, recommendations, contribution to the body of knowledge and suggestions for further research.

5.2 Summary of Findings.

The demographic characteristics of respondents show that the majority of caregivers for children in Kochogo location of Nyando District were either unmarried or widowed. As a result they hardly had enough support to collectively seek high standard medical attention whenever their children got sick. Cumulatively over three-quarters had more than 5 children which was a potential source of pressure on parents especially those with unstable income flow.

Concerning influence of education on child mortality, the research findings showed that parental education levels have direct influence on child mortality. It was realized that caregivers who have attained primary school level of education and below experienced more cases of mortality 66 (57%) than those who have secondary level of education and above who recorded 43% of these mortality cases. As one climbs the education ladder child mortality cases also tend to reduce. Further to this those caregivers who had been exposed to child survival trainings recorded only 21 (42%) mortality cases whereas their counterparts who were never exposed to the same trainings reported 29 (58%) child mortality cases. Lastly the study confirmed that there is high level of awareness, 60% on the efforts being made by the government and other organizations working in this district to enhance child survival by reducing morbidity and mortality cases.

On the relationship between income and child mortality, it was realized that those caregivers who were employed in the formal sector experienced only 12

(24%) cases of child mortality in this location whereas their counterparts in the informal sector had 38 cases translating to 76% of all the mortality cases. The respondents in the informal sector were mainly peasant farmers, casual laborers, boda-boda and small scale business operators. This implies that formal sector offers stable employment and therefore ensures that there is steady monthly cash flow that can be used for medical care for the children whenever they get sick. As regards the amount of income received per month, it was also realized that those caregivers who earn less than 3000 shillings per month recorded the highest cases 28 (56%) of child mortality in this area. In broad terms with this level of income childcare becomes very difficult more so if this small amount of money is put on other household demands. On financial ability to pay for medical services, it was discovered that on average, the residents of this area have low financial ability to pay for the medical services offered them. 124 respondents which translate to 53% confirmed this to the study.

On the relationship between child mortality and availability of health services, it was realized that care givers use every possible means to reach the health facilities whenever their children need medical attention. Hence the findings revealed that accessibility to health facilities does not influence child mortality. On nurses' friendliness, the study realized that majority of the respondents stated that the rapport between the caregivers and the nurses was fair 124 (54%). This actually acted as an encouragement for these respondents to turn up to the facilities whenever their children had medical complications. On means of transport to the health facilities it was realized that majority of the respondents 102 (44%) use bicycles as a means of transport to reach the health delivery points. Asked if the distance to the health facilities has ever hindered them from seeking healthcare for their children, the majority of the residents 218 (92%) stated this has not been the case. This therefore implies that the distance to the health facilities does not pose a problem to the residents of this location in relation to healthcare. This was further confirmed by the length of time that the majority of the respondents 60% spent to access the nearest health facility. Asked to name the areas that they would wish to be improved within the health facilities to enhance child survival the majority mentioned reducing treatment costs and stocking more drugs in these facilities.

The relationship between child mortality and cultural practices was evident from the responses given by those residents who believe in witchcraft and then correlated with whether they had experienced any child death or not. It came out clearly that those hold to the belief of this practice experienced more mortality cases 52% than their counterparts. People who believe in witchcraft rarely seek medical attention when their children get sick; instead they seek alternative sources of medication. Cumulatively 129 (59%) resort to those practices regarded as cultural as the first step to treatment before thinking of seeking help from the health facilities. On the issue of having dependants who also need medical support through their effort, the study confirmed that 64% of these respondents have to cope with extra financial pressure to cater for the medical needs of the large families.

5.3 Conclusions

During this study, it was found out that parental level of education has a lot of influence on child mortality as the results indicate clearly other factors held constant, child mortality decreases as one climbs the education ladder. Populations which have low literacy levels tend to experience more frequencies of child mortality than those with higher levels of education. Caregivers who have been exposed to child survival lessons (IMCI) have a better understanding of child health and therefore they record fewer frequencies of child mortality as compared to their counterparts who don't have this knowledge due to lack of exposure.

Secondly, a household's monthly income has a direct influence on the decisions it makes regarding the type of healthcare that its children get whenever they fall ill. Income will determine whether a family can afford the cost of treatment or not. This implies that families with extremely low income are likely to experience more child mortality cases as opposed to their counterparts with adequate income levels.

Thirdly, the research found out that there is no relationship between child mortality and accessibility of health services. Child mortality rate for the population under this study

was fairly distributed across the participants irrespective of the distance between areas of residence and the health facilities. Moreover, it was learnt that there was good rapport between health facility staff and the respondents and this was to act as an encouragement for these participants to seek medical attention for their children whenever there was need.

Fourthly and last, culture acted as an impediment to child survival in this area. Belief in witchcraft, alternative sources of medication and too much dependency that existed due to large families were some of the factors that contributed to high child mortality rates among the residents of this area.

5.4 Recommendations

The government together with NGOs should start serious campaigns aimed at ensuring that formal education is embraced by all citizens of this country. Education is the backbone of the country's development and without it; problem of ignorance, death and disease cannot be defeated. Training programmes targeting mothers of child bearing age should be initiated so that more women can access Intergraded Management of Childhood Training lessons to help them identify disease danger signs in children hence better management of these conditions. Awareness should be created to the general public on the availability of free services offered by the government and the NGO bodies in enhancing child survival so that as many caregivers as possible benefit from these activities.

Due to low income, treatment costs should be highly subsidized so that it is affordable to a majority of the people. Free treatment should be accorded to the very poor people in the society so that people don't die just because they cannot meet treatment costs. There is need to help mothers initiate income generating activities to strengthen their economic base.

Establishment of Integrated mobile clinics to reach remote parts of the country would bring these services closer to the people for easy access. Further to this, district and constituency leadership should work towards improving road networks.

There should be an effort by the government and NGOs concerned to roll out campaigns aimed at reducing cultural practices that are detrimental to child health.

5.5. Recommendations for Policy Issues and Practice

The government should use every possible channel to ensure that all Kenyans access secondary school education. This can be done by supporting the needy with bursaries.

Organizations should develop training programmes which are attractive to caregivers by giving transport reimbursements to the participants.

Communities should be helped to come up with development programmes which are sustainable.

5.6 Contribution to the body of knowledge

This study adds value to existing literature on factors influencing child mortality.

Objectives	Contribution to the body of knowledge
Influence of education levels on child mortality.	Low education levels are related to high child mortality rates.
Relationship between income and child mortality:	High levels of child mortality is common among the low income group.
Link between availability o health facilities and child mortality.	There is no clear relationship between Child mortality and availability of health
Influence of cultural beliefs and practices on child mortality	Facilities.

5.7 Suggestions for Further Research

1. The study was limited to Kochogo location of Nyando District but it can also be extended to other parts of the country.
2. Broader involvement of caregivers on issues dealing with child survival and child health.
3. Monitoring and evaluation of divergent efforts performed by government and other stakeholders on child health.

REFERENCES

- Alderman, H., and M. Garcia. 1993. *Poverty, Household Food Security, and Nutrition in Rural Pakistan. Research Report 96. Washington: IFPRI*
- Albalak R (1997) Cultural Practices and Exposure to Particulate Pollution from Indoor Biomass Cooking: Effects on Respiratory Health and Nutritional Status among the Aymara Indians of the Bolivian Highlands, Doctoral Dissertation, University of Michigan
- AMREF (1996). A Report of the Situation of Women and Children in Four Arid and Semi-Arid Districts in Kenya. Available on <http://www.amref.org>.
- Anderson HR (1976) Respiratory abnormalities and ventilatory capacity in a Papua New Guinea Island community. *Am Rev Respir Dis*, Sep; 114(3):537-48
- Ansley J. "Excess Female Mortality and the Balance of the Sexes." *Population and Development Review* 17 (1991):517-523.
- Azizi BH, Zulfkifli HI & Kasim S (1995) Indoor air pollution and asthma in hospitalized children in a tropical environment. *J Asthma*; 32: 413-418.
- Behrman, J., & B. Wolfe. 1984. "More Evidence on Nutrition Demand." *Journal of Development Economics*. 14:105-128.

- Behera D, Jindal SK & Malhotra HS (1994) Ventilatory function in nonsmoking rural Indian women using different cooking fuels. *Respiration*; 61(2):89-92
- Birdsall, N. (1988) Economic approaches to population growth, *Handbook of Development Economics*, 1, Elsevier Science Publishers B.V., The Netherlands, pp. 478–542.
- Bjorksten B (1999) The environmental influence on childhood illness. *Allergy*; 54 (Supp 49): 17-23.
- Bobak M & Leon D (1999) Pregnancy outcomes and outdoor air pollution: an ecological study in districts of the Czech Republic 1986-8. *Occup Environ Med*; 56: 539-543.
- Brockerhoff, M and P. Hewett. (2000); Inequality of child mortality ethnic groups in sub-Saharan Africa
- Caldwell, J.C.(1979), Education as a Factor in Mortality Decline; *An Examination of Nigerian Data. Population Studies*.
- Campbell H, Armstrong JR & Byass P (1989) Indoor air pollution in developing countries and acute respiratory infection in children [letter]. *Lancet*; 1(8645):1012.
- sCentral Bureau of Statistics (CBS) {Kenya}, Ministry of Health (MOH} and ORC Macro. (2004); Kenya Demographic and Health Survey 2003

- Chowdhury, A.R. (1988) The infant mortality–fertility debate: some international evidence, *Southern Economic Journal*, **54**, 666–74
- Collings DA, Sithole SD & Martin KS (1990) Indoor wood smoke pollution causing lower respiratory disease in children. *Tropical Doctor*; 20:151-155.
- Dary O, Pineda O & Belizan J (1981) Carbon Monoxide in dwellings in poor rural areas of Guatemala. *Bull Environ Contam Toxicol*; 26: 24-30. de Francisco A, Morris J, Hall AJ
- Armstrong Schellenberg JR & Greenwood BM (1993) Risk factors for mortality from acute lower respiratory tract infections in young Gambian children [see comments]. *Int J Epidemiol*; 22(6):1174-82.
- Dennis RJ, et al (1996) Woodsmoke exposure and risk for obstructive airways disease among women. *Chest*, Jan; 109(1):115-9.
- Ellegard A (1996) Cooking fuel smoke and respiratory symptoms among women in low-income areas of Maputo. *Environmental Healths Perspectives*; 104:980-85..
- Engel P, Hurtado E & Ruel M (1998) Smoke exposure of women and young children in highland Guatemala: predictions and recall accuracy. *Human Organisation*; 54: 522-542
- Ezzati M, Kammen D M (2001b). Indoor air pollution from biomass combustion and acute respiratory infections in Kenya: an exposure response study. *Lancet*;358:619-624.

- Franco EL, Kowalski LP, Oliveira BV, Curado MP, Pereira RN, Silva ME, Fava AS & Torloni H (1989) Risk factors for oral cancer in Brazil: a case-control study. *Int J Cancer*, Jun 15; 43(6):992-1000
- Gao YT (1996) Risk factors for lung cancer among nonsmokers with emphasis on lifestyle factors. *Lung Cancer*, Mar; 14 Suppl 1:S39-45
- Gedlu E (1994) Accidental injuries among children in north-west Ethiopia. *East African Med J.*; 71: 807-810
- Gharaibeh NS (1996) Effects of indoor air pollution on lung function of primary school children in Jordan. *Ann Trop Paed*; 16: 97-102.
- Gottlieb, DJ, Sparrow, D, O'Connor, GT, Weiss, ST (1996) Skin test reactivity to common aeroallergens and decline of lung function. *Am J Respir Crit Care Med*; 153:561.
- Grobbelaar JP, Bateman ED (1991) Hut lung: a domestically acquired pneumoconiosis of mixed etiology in rural women. *Thorax*; 46:334-340.
- Gubhaju, B.B. (1986) Health problems in Nepal: with special reference to infant and child health, *Asian Pro. le*, **14**, 165–74

- Guneser S, Stici A, Alparslan N & Cinaz P (1994) Effects of indoor environmental factors on respiratory systems of children. *J Trop Pediatrics*; 40: 114-116.
- Gupta BN & Mathur N (1997) A study of the household environmental risk factors pertaining to respiratory disease. *Energy Environ Rev*; 13:61-67.
- Gupta S, Govil YC, Misra PK, Nath R, Srivastava KL (1998) Trends in poisoning in children: experience at a large referral teaching hospital. *Nat Med J India*; 11: 166-168.
- Guyer, Bernard, Mary Anne Freedman, Donna Strobino, and Edward J. Sondik. "Annual Summary of Vital Statistics: Trends in the Health of Americans During the 20th Century." *Pediatrics* 106 (2000):1307–1317.
- Haddad, L., and J. Hoddinott. 1994. "Women's Income and Boy-Girl Anthropometric Status in the Cote d'Ivoire." *World Development* 22: 543-553.
- Hausman, J. (1978) Specification tests in econometrics, *Econometrica*, **46**, 1251–71.
- He J, Vupputuri S, Allen K, Prerost MR, Hughes J & Whelton PK (1999) Passive smoking and the risk of coronary heart disease - a meta-analysis of epidemiologic studies. *N Eng J Med*; 340:920-926
- Houtmeyers E, Gosselink R, Gayan-Ramirez G & Decramer M (1999) Regulation of mucociliary clearance in health and disease. *Eur Respir J May*; 13(5):1177-88

Hill, K., G. Bicego and M.Mahy. (2001):"childhood mortality in Kenya: An Examination of trends and Determinants In the Late 1980s to Mid 1990s"

<http://www.jhsh.ed/popcenter/publication/pdf/WP01-01.pdf>(accessed (.19/07/2006)

Hsu TH, Lai YL & Kou YR (1998) Smoke-induced airway hyper - responsiveness to inhaled wood smoke in guinea pigs: tachykininergic and cholinergic mechanisms. *Life Sci*; 63(17):1513-24

Hummer, Robert A., Monique Biegler, Peter B. DeTurk, Douglas Forbes, W. Parker Frisbie, Ying Hong, and Starling G. Pullum. "Race/Ethnicity, Nativity, and Infant Mortality in the United States." *Social Forces* 77 (1999):1083–1118.

ISAAC (1998) The International Study of Asthma and Allergies in Childhood Steering Committee. Worldwide variation in prevalence of symptoms of asthma, allergic rhinoconjunctivitis, and atopic eczema: ISAAC *Lancet*; 351:1225-1232.

Jejeebhoy, Shireen J. "Associations between Wife-Beating and Fetal and Infant Death: Impressions from a Survey in Rural India." *Studies in Family Planning* 29 (1998):300–308.

Jekel JF, Elmore JG, Katz DL (1996). *Epidemiology, Biostatistics and Preventive Medicine* .W.B Saunders company Philadelphia.

Jelliffe DB (1997). *Advances in Maternal and Child Health*". Clarendon Press, Oxford.
<http://www.clarendonpress.com>.

Johnson AW & Aderele WI (1992) The association of household pollutants and socio-economic risk factors with the short-term outcome of acute lower respiratory infections in hospitalized pre-school Nigerian children. *Ann Trop Paediatr*; 12(4):421-32.

KDHS (2003). Kenya National Council for Population and development. Ministry of Planning and Development. <http://www.measuredhs.com/pubs/pdf/SR104/SR104KE03.pdf>.

Kennedy, E., and B. Cogill 1987. *Income and Nutritional Effects of the Commercialization of Agriculture in Southwestern Kenya*. Research Report 63. Washington: IFPRI.

Kessel E (2000). Maternal and child care in developing countries Ottoo. Publishers Thum/Switzerland
<https://www.healthright.org/annualreport06.pdf>.

Kothari C.R.(2003). Research Methodology: Methods and Techniques. New Age International (P) Limited Publishers, New Delhi.

Kramer, Michael S., Kitaw Demissie, Hong Yang, Robert W. Platt, and Reg Sauvé. "The Contribution of Mild and Moderate Preterm Birth to Infant Mortality." *Journal of the American Medical Association* 284 (2000):843–849.

Krug A, Ellis JB, Hay IT, Mokgabudi NF & Robertson J (1994) The impact of child-resistant containers on the incidence of paraffin (kerosene) ingestion in children. *S African Med J*; 84: 730-734. 28

Kposowa, Augustine J., and Pamela J. Preston. "Linking Racism to Birth Weight Disparities in the United States." *Research in Social Stratification and Mobility* 16 1998):181–224.

Lal K, Dutta KK, Vachhrajani KD, Gupta GS & Srivastava AK. (1993) Histomorphological changes in lung of rats following exposure to wood smoke. *Indian J Exp Biol*. Sep; 31(9):761-4.

Lewis, Michael. "A Path Analysis of the Effect of Welfare on Infant Mortality." *Journal of Sociology and Social Welfare* 26 (1999):125–136.

Liston, Robert. "The Contribution of Mild and Moderate Preterm Birth to Infant Mortality." *Journal of the American Medical Association* 284 (2000):843–849.

Lioy PJ (1990) Assessing total human exposure to contaminants: A multi disciplinary Approach. *Environmental Science and Technology* 24:7: 938-945

Mavlankar DV, Trivedi CR & Gray RH (1991) Levels and risk factors for peri natal mortality in Ahmedabad, India. *Bull WHO*; 69: 435-442.

739-47.

Medina FM, Barrera RR, Morales JF, Echegoyen RC, Chavarria JG & Reborá FT (1996) Primary lung cancer in Mexico city: a report of 1019 cases. *Lung Cancer*, Jun; 14(2-3):185-93

Melsom T, Brinch J, Hessen JO, Schei M et al. Asthma and indoor environment in Nepal. *Thorax* 2001; 56:477- 481.

Mbulu T, Smith M, Sharfe J (1994). The determinants of health service utilization in a rural community in Kenya. *Soc. Sci. Med.* 12: 211-217.

Michael, Robert T., "Education and the Derived Demand for Children," *Journal of Political Economy*, Part 2: New Economic Approaches to Fertility 1973, 81 (2), S128–S164.

Mugenda OM, Mugenda AG (1999). Research Methods: Quantitative and Qualitative Approaches. African Centre for Technology Studies (ACTS) Press-Nairobi – Kenya. <http://www.msra.or.ke/resources.asp>.

Malik SK (1985) Exposure to domestic cooking fuels and chronic bronchitis. Indian J Chest Dis Allied Sci., Jul- Sep; 27(3):171-4.

Mohammed N, Nganga L, Odhiambo J, Niamwaya J & Menzies R (1995) Home Environment and Asthma in Kenyan School Children: A Case-control Study. Thorax; Jan 50(1); 74-8.

Mosley WH, Chen L 1984. An Analytical Framework for the study of Child Survival in Developing Countries.

Mtango FD, Neuvians D, Broome CV, Hightower AW & Pio A (1992) Risk factors for deaths in children under 5 years old in Bagamoyo district, Tanzania. Trop Med Parasitol; 43(4):229-33

Howard, A.J. Oloo, A.A. Lal, and B.L. Nahle. (2001): All cause mortality among young children in western Kenya. American journal of Tropical Medicine and Hygiene. 64:18-27.

Madise, N.J (2003): Infant mortality in Zambia: Socioeconomic and demographic correlates. Social biology. Accessed from www.findarticles.com/p/articles/mi_qa3998, on 04/01/2008

Madise,N.J.,Z.Matthews and Margetts (1999):Heterogeneity in child nutritional status between households: a comparison of six sub-saharan African countries.population studies 53:331-343

Newell, Marie-Louise. "Does Breastfeeding Really Affect Mortality among HIV-1 Infected Women?" *Lancet* 357 (2001):1634–1636.

Noorhassim I, Rampal KG & Hashim JH (1995) The relationship between prevalence of asthma and environmental factors in rural households. *Med J Malaysia*, Sep; 50(3):263-7

Omotundo JT (2005). Infant/child mortality and fertility differentials in Western province of Kenya. Msc. Thesis, University of Nairobi. Ouma DS (2006). Environmental risks and socio-economic factors influencing infant and child mortality in Suba District: M.sc. Thesis, University of Nairobi.

Orodho, A.J. (2004) Technologies of writing Research Proposal in Education and Social Sciences.. Masola Publishers, Reater Printers Nairobi.

Pintos J, Franco EL, Kowalski LP, Oliveira BV & Curado MP (1998) Use of wood stoves and risk of cancers of the upper aero-digestive tract: a case-control study. *Int J Epidemiol*, Dec; 27(6):936-40

Population Reference Bureau. *2001 World Population Data Sheet*. Washington, DC: Author, 2001.

Reed RP & Conradie FM (1997) the epidemiology and clinical features of paraffin (kerosene) poisoning in rural African children. *Ann Trop Paediatr*; 17: 49-55.

Regalado J, Perez- Padilla R, Sansores R, Vedal S, Brauer M & Pare P (1996) The effect of biomass burning on respiratory symptoms and lung function in rural Mexican women. *Am J Respir Crit Car Med* 153: A701

Rogers IS, Emmett PM, Golding J (1997). The growth and nutritional status of the breastfed infant. *Early Human Development* October 26 (49 suppl): 157-174.

Rutstein SO (1983). Infant and child mortality: levels, trends and demographic differentials. *World Fertility Survey comparative studies International Statistical Institute, Voorburg NL* 24: 124.

Sahn, D. 1994. "The Contribution of Income to Improved Nutrition in Cote d'Ivoire." *Journal of African Economies* 3:29-61.

Sen, Amartya "Missing Women." *British Medical Journal* 304 (1992):587–588.

Schwartz J (1999) Air pollution and hospital admissions for heart disease in eight U.S. counties. *Epidemiology*; 10:17-22.

Shah N, Ramankutty V, Premila PG & Sathy N (1994) Risk factors for severe pneumonia in children in south Kerala: a hospital-based case-control study. *J Trop Pediatr*; 40(4):201-6.

Smith K, Samet J, Romieu I & Bruce N (2000) Indoor air pollution in developing countries and acute respiratory infections in children. *Thorax*; 55:518-532.

Turker K (1996). Maternal employment and child nutrition in Panama. *Social Science and Medicine* 26(6): 605-612.

Taylor B. et al, (2008). *Research Methodology; a guide for research in management and social sciences*: New Delhi; Prentice Hall India.

UNICEF/GOK (1998). *Situation Analysis of Women and Children*. Nairobi: Regal Press Ltd [http://books.google.co.ke/books?id=nXY3XNnS6qMC&pg=PA284&lpg=284&dq=UNICEF/GOK+\(1998\). ++Situation + Analysis + of + Women](http://books.google.co.ke/books?id=nXY3XNnS6qMC&pg=PA284&lpg=284&dq=UNICEF/GOK+(1998).++Situation+Analysis+of+Women).

UNICEF (1999). *The state of the world's children: Education*. Oxford: oxford university press.

UNICEF (2005) *Multiple Indicators Cluster Survey; Monitoring the Situation of Children and Women*. Division of Policy and Planning Manual.

Ware, H (1995). "Effects of maternal education, women's role and child care on child mortality", in W. H Mosley and Lincoln Chen (Eds). *Child Survival: Strategies Res. Dev. Rev. Suppl.* 10: 1994-214.

Winegarden C.R. and Bracy, P.M. (1995) *Demographic consequences of maternal-leave programs in industrial countries*.

WHO (2003), *The Malaria Report 2003*, World Health Organization Publication WHO/CDC/MAL/2003.1093.

WHO (2008). Handbook of Resolutions. World Health Assembly Fourteenth Plenary Meeting Vol, 23 May 2008 Geneva.

Kenneth I., “Determinants and Consequences of the Mortality and Health of Infants and in Mark R. Rosenzweig and Oded Stark, eds., The Handbook of Population and Family Economics, Vol. 1A, Amsterdam: Elsevier, 1997, pp. 483–556.38

Xie, P, J (2005). Unacceptable High Mortality Related to Measles Epidemics, PLOS Medicine, and Vol.

APPENDIX 1

QUESTIONNAIRE FOR HOUSEHOLDS

This questionnaire is to assist in collecting data on factors influencing child mortality in Kochogo location Nyando District. It is meant gathering data for academic purposes only. Please complete it by giving the correct information.

Demographic information

Location of residence

.....

Section A

Title; Relationship between child mortality and education in Kochogo location in Nyando District..

1.. Your level of education	Primary level () Secondary level () College level () University level () Other.....
-----------------------------	---

2. Have you undergone any formal training on integrated Management of childhood illnesses	Yes () No. ()
---	------------------------

Marital status	Married () Single () Other.....
----------------	---

3. Are you aware of any government initiative in ensuring that infant morbidity and mortality rates are reduced?

Yes ()

No ()

If yes, have you benefited from these initiatives?

Yes ()

No ()

4. What variety of Government initiatives are within your reach?

Free malaria treatment for children under 5 years of age ()

Free immunization ()

Subsidized treatment for the under 5 ()

5. Which other stakeholders contribute significantly to child survival in your District?

NGOs ()

Individual organization ()

Philanthropists ()

SECTION B

Relationship between child mortality and income in Kochogo location in Nyando District.

1. What are your key sources of income?

Formal employment ()

Peasant farming ()

Friends and relatives ()

Casual jobs ()

2. Approximately, what is your income (inclusive) per month?

Below 3,000 shillings. ()

3100-6100 ()

6200-9200 ()

Above 9300 ()

Above Ksh 10,000 ()

Other

3. How many children

do you have that are your own?

1-3 ()

4-6 ()

7-9 ()

9-11 ()

12 and above ()

4. Apart from the ones mentioned above, do you have other dependants who are under one year who may require medical attention through your effort?

Yes ()

No ()

If yes, how do you manage if the medical demand is more than your financial ability?

Concentrate on my children alone ()

Try to balance among all dependants ()

Seek help from government ()

Resort to prayers ()

Seek help from relatives ()

5. How do you describe your ability to pay for medical services offered to you?

Very high ()

High ()

Fair ()

Low ()

Very low ()

6. When in dire need to pay for medical services for a family member, what options do you have?

Fundraising ()

Borrowing ()

Taking a bank loan ()

Personal savings ()

Other

7. When you are not able to raise the money needed for treatment in the health facility then what options do you have

Beg from relatives ()

Personal saving ()

Sell family assets ()

SECTION 3

Relationship between child mortality and availability of health facilities in Kochogo location in Nyando District.

1. How far is your place of residence from the nearest health facility?

Less than a kilometer ()

One to two kilometers ()

More than two kilometers ()

2. Has the distance ever hindered you from seeking medical attention whenever your child is sick?

Yes ()

No ()

3. What is the most common means of transport available to you to the health facility?

Walking ()

Bicycles ()

Motor cycles ()

Public transport ()

Private means ()

4. Averagely, how long do you take to access the nearest health facility?

Less than 20 minutes ()

- 20- 40 minutes ()
- One hour to 2 hours ()
- More than 2 hours ()

5. At the health facility, how would you describe the nurses' friendliness when attending to your infant?

- Excellent ()
- Good ()
- Fair ()
- Poor ()
- Very poor ()

6. In your own opinion, what areas in the health facilities would you like to be improved so that you get maximum satisfaction from these facilities?

- Reducing treatment costs ()
- Stock more drugs ()
- Provide transport means ()
- Initiate mobile clinics ()

Have you ever lost a child below 5 years of age ?

Yes ()

No ()

.....
.....

SECTION 4

Relationship between child mortality and cultural beliefs and practices in Kochogo location of Nyando District.

1. What is your religion?

Christian ()

Muslim ()

Traditional African Religion ()

Other.....

.....

2. Do you believe in witchcraft?

Yes ()

No ()

Other

.....

.....

3. When your child gets sick what step do you normally take before taking the baby for further management in the health facility?

Buy drugs from the shops ()

Take the child for prayer ()

Give herbs ()

Other.....
.....

4. What is the nature of your family?

Polygamous ()

Monogamous ()

Polyandrous

Other

.....
.....

6. Are your children immunized?

Yes ()

No ()

If no, kindly give reasons

why.....
.....

7. Do you have other dependants other than your children who medical attention through your efforts?

Yes ()

No ()

If yes then how do you manage to cater for these other children when they are in need of medical attention?

Seek help from relatives ()

Seek help from government ()

Just pray ()

Offer traditional medicine ()

Other

Other

.....
.....

APPENDIX 2

BUDGET

Activity	No. of items	Unit cost	Total Cost
Internet and Library			20,000.00
Proposal setting			2,700.00
Bindings			3000.00
Photocopies	5	1000	5000.00
Data collection, materials, coordination expenses, travels and telephone			24,000.00
Preparation of data collection tools			39,000.00
Car Hire			7,000.00
Allowance for research assistants	3	5000	15,000.00
Data Analysis	2	9,000	18,000.00
Type setting and printing of draft reports			1,000.00
Editing Report		3,000	3,000.00
Type setting and printing of final report			4,000.00

Photocopy of final report			5000.00
Binding of final Report			3,000.00
Total			149,000.00