

**MATERNAL DETERMINANTS OF NEONATAL MORTALITY AMONG MOTHERS
DELIVERING IN NAKURU COUNTY LEVEL 5 HOSPITAL.**

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DECLARATION

I, Stella Jepkoech Kulei, hereby declare that this research Project is my original work and has never been submitted for any academic award in any institution of higher learning.

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DEDICATION

This Research proposal is dedicated to my beloved late husband, Stephen Chumo, a very special man in my life who gave me support and encouraged me to undertake my studies from the word go. It is also dedicated to my lovely daughters, Marion and Laura, for their tolerance, perseverance, encouragement and inspiration while continuing with the development of this dissertation

CERTIFICATE OF APPROVAL

We hereby do confirm that this proposal was submitted with our approval and consent as university internal supervisors.

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ABBREVIATIONS

AAP-American Academy of pediatrics

AHA- American Heart Association

AIDS-Acquired immunodeficiency syndrome

ANC-Antenatal clinic

BMC- Biomed central

FGD-Focused group discussion

FP- Family planning

FSB-Fresh still birth

HIV-Human Immunodeficiency Virus

HPV-Human Papilloma virus

ICD- International Classification of Diseases

ICF-International children fund

KDHS –Kenya demographic health survey

KII- Key informative interview

KNH-Kenyatta National Hospital

LBWB-Low Birth weight babies

MCH-Maternal Child Health

MDGs- Millennium Development Goals

MMR-Maternal mortality Rate

NGO-Non Governmental Organization

NM-Neonatal mortality

NMR – Neonatal mortality rate

PEARL-Perinatal Neonatal Outcomes Research Study in the Arabian Gulf

PGH-Provincial General Hospital

SA-Southern Asia

SPSS-Statistical package for the social science

SSA-Sub-Saharan Africa

STDs- Sexually Transmitted Diseases

SVD-Spontaneous vertex delivery

U5MR –Under fives mortality rate

U5s- Children under five years of age

UNICEF –United Nations international Children Fund

USAID –United States Agency for International Development

WHO-World Health Organization

OPERATIONAL DEFINITIONS

Parity: It's the number of children an individual has given birth to.

Age: It's the period in complete years since birth.

Determinants: These are Influencing elements or factors which have power to determine the outcome.

Religion: It is the spiritual inclination of a person including traditional faiths.

Norms: Acceptable practices in a given social group.

Taboos: Unacceptable behaviour and practices in a given social group.

Values: Closely harboured concepts touching on people's lives.

Health service providers: Trained persons offering health care services to mothers in pregnancy.

Management: Skills ensuring performance of specific persons in a given set up where performance index is evaluative.

Organization: A structure in which performance is established under a specified set up.

Morbidity: The state of ill health, suffering or damage due to an unpleasant and unacceptable circumstance.

Unskilled delivery: Delivery performed by an unskilled or untrained person.

Mortality: Death due to a defined circumstance or experience.

Susceptibility: A state of vulnerability to a situation/ circumstance or illness.

Danger signs: observable or perceived indicators of unwanted state of health.

Risk factors: circumstances/situations which put an individual/people in danger of illness or dangerous eventualities.

Neonatal death: death of a newborn from the time of birth up to 28 days of life.

Governance: stipulated rules and guidelines that determine the leadership structure of a system or organization.

Knowledge: The level of conceptualization and understanding of an individual.

Educational level: The formal literacy acquisition standard of an individual.

Cultural Barriers: ethical Practices/behaviors in a given community that hinder acquisition of a desired health status or outcome.

Cultural Beliefs: concepts defining the mental state of a given community.

Stress: A state of emotional difficulties due to illness/situation/circumstances in life.

Gender: sex identity of an individual.

Social class: a state of group definition and belonging in a given community.

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ABSTRACT

Background: Neonatal mortality is a major global health concern especially in the African continent and accounts for 40% of all child mortality globally and 60% in middle and low income countries. Available statistics have shown that many children die before 28 days of life.

Study Objective: This study sought to establish the maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 Hospital. It describes the extent of maternal role and contribution to the causes of neonatal mortality through their knowledge, attitudes, practice and behavior.

Methods: This was an institutional based descriptive cross-sectional qualitative and quantitative study in which 278 consenting mothers who delivered in Nakuru county level 5 referral hospital were interviewed. Data was collected through researcher administered Pre-tested Semi-structured questionnaires, focussed group discussion and key informants interview guides. Sample size was calculated using Fishers et al 1998 method. Study participants were recruited by simple random sampling. All collected data was cleaned and analyzed using SPSS computer package version 20. Clear operational framework was presented to guide the study and the findings were presented using both descriptive and inferential statistics. The study was approved by the University of Nairobi-Kenyatta National Hospital Ethics and Research Committee. Ethical Considerations were addressed. Descriptive statistics has been presented using pie charts frequency distribution table among others. Inferential statistics results have also been presented.

RESULTS: The mean age of the participants was 27.2 years (+_ SD 6.6). The majority of mothers interviewed were married (29.3%). 20% (n=56) of the respondents reported having had a neonatal death in their present and past pregnancies. This gave a prevalence rate of 21 % (95% CI). Neonatal mortality was significantly associated with the mother's demographic factors; marital status ($p < 0.001$) and neonatal death in family/relatives ($p < 0.001$), social factors (social group with $p = 0.02$), maternal awareness ($p < 0.001$), disposition ($p = 0.001$), habits ($p = 0.009$) all had significant relationships. There was no significance association between neonatal mortality, health institutional factors, cultural factors and economic factors. However, from qualitative data, there was a linkage between neonatal deaths and these factors. Cultural factors such as traditional practices and home delivery, maternal economic factors like poverty and inadequate health care providers' services, like lack of counseling to mothers on prevention of neonatal deaths, were strongly stated by the participants as being associated with neonatal deaths.

CONCLUSION: Neonatal mortality rates remain high in Nakuru county with one in every five mothers in this study reporting that they had ever experienced a newborn death. The study has therefore accepted the directional hypothesis by demonstrating that maternal determinants are associated with neonatal mortality. The maternal demographic, social, knowledge, disposition and habits factors were all associated with neonatal mortality. Health care providers should therefore ensure that mothers are empowered with knowledge on how to prevent neonatal mortality including counseling on risk factors during and after pregnancy. The mothers should also be discouraged from habits that predispose newborns to death during the neonatal period. Moreover, more studies in other establishments should also be done to support and validate the findings of this study.

CHAPTER 1: INTRODUCTION AND BACKGROUND INFORMATION

1.1 Introduction

Neonatal mortality is defined as the death of a live born infant occurring from the time of birth upto 28 days old after birth (WHO). Neonatal mortality is a major global health concern especially in the developing countries like the African continent. It accounts for approximately 40% of all child mortality for those less than 5 years of age worldwide.

Approximately 4.0 million neonatal deaths in the world occur annually in the 1st 4 weeks after birth. This represents more than half of total 7.7 million annual childhood deaths. 98% occur in developing regions. 28% occur in least developed countries. This gives an overall of 30 neonatal deaths per 1000 live births globally (5/1000 in developed regions, 33/1000 in developing regions and 42/1000 in least developing regions). The risk of death from neonatal period is therefore greater than 6 times in developing regions and 8 times in least developed regions compared to developed regions. The most affected area is sub-Saharan Africa (WHO, 2000).

In 2015, approximately 45% of the under five year old deaths occurred during the first month of life (neonatal period) (WHO, 2015).

Global trend

Since 1990, the global under five mortality rate has dropped from 91 deaths per 1000 live births to 43 in 2015. The rate of this reduction was however insufficient to reach the MDG target of a 2/3rd reduction by the year 2015. (Rajaratnam et al, 2010).

Globally, 2.7 million babies die every year in 1st month of life. Upto a half of these deaths occur within the 1st 24 hours of life. 75% occur in the first week.

Globally, the number of neonatal death declined from 5.1 million in 1990 to 2.7 million in 2015. However, the decline in neonatal mortality from 1990-2015 has been slower than that of post neonatal under 5 mortality (47% compared with 58%). If this trend continues, around ½ of the 69 million under five child deaths between 2016 and 2030 will occur during the neonatal period. Neonatal death is therefore projected to increase from 45% of under five deaths in 2015 to 52% in 2030.

African region

Africa registered neonatal mortality as causing 42% for all the under five year old children deaths globally and East Africa registering 41%. In the middle and low income countries this may be as high as 60% (UNICEF, 2011).

The current neonatal mortality rate in Africa region is 45 deaths/1000 live births. This is the highest in the world. Deaths occurring here within 7 days of life is 76/1000 live births.(World Bank report, 2016)

Newborn deaths occurring in less than one month account for about 40% of all deaths in children less than five years of age globally. The 4th millennium development goal aimed at reducing the mortality rate in children under five years of age (U5MR) by 2/3rds between 1990-2015 (WHO; 2004). Sub-Sahara Africa with the highest under five year mortality rate in the world has however registered a substantive increase in the rates instead. Its annual rate increased from 1.6% in 1990 to 4.1% in 2000-2015.

Currently, seventy nine (79) countries have an under five mortality rate (U5MR) above 25%. Forty seven(47) of them will not meet the proposed Sustainable development goals (SDG) target of 25 deaths/1000 live births by 2030 if the current trends continue. Thirty four (34) of these countries are in SSA (World Bank report, 2016).

The SDGs was adopted by United Nations in 2015. It aims at ensuring healthy lives of children and promoting their well being. SDG goal 3, target 3.2, aims at preventing deaths of Newborns and U5 children mortality to 25 or less/1000 live births by 2030. It also linked closely with target 3.1 which aims at reducing the global maternal mortality to less than 78/100,000 live births.

Globally, neonatal mortality rate (NMR) has had a downward trend from 89/1000 live births in 1990 to 60 in 2009 accounting for 28% reduction. (Hill et al, 2012). This change has not been reflected in sub Saharan Africa (SSA) and south East Asia (SEA). These regions have continued to record high levels of neonatal deaths (UN 2011). SSA records the lowest levels of neonatal mortality rate reduction globally at 1.5% annually (2000 to 2010). (Hill et al, 2012).

It is estimated that up to 4 million neonates die annually with a neonatal mortality rate of 30/1000 live births. Seventy five percent (75%) of the neonatal deaths are early neonatal deaths occurring within the first week of life (Hill et al, 2012). Ninety eight (98%) percent of the global neonatal deaths occur in the least developed countries especially in SSA and SEA.

Kenyan situation

Kenya being in the Sub Saharan Africa (SSA) region has experienced a remarkable decline in all levels of childhood mortality rates as observed in the 2008 KDHS. However the same cannot be said of the neonatal mortality rates in the country. Between 2003 and 2008 NMR has reduced slightly to 31/1000 live births. Neonatal mortality rate(NMR) contributes to 60% of the overall infant deaths in Kenya bringing to fore the pertinent question on Kenya's ability to meets its targets on reduction of childhood mortality (ICF Macro, 2008). However, as stated above, the trend of NMR in Kenya has not declined substantially between 2003 and 2008 (ICF macro, 2008), it is therefore evident that there is a significant problem of high Neonatal Mortality in Kenya.

In Kenya neonatal mortality rates is still high and remains a major problem even in well-equipped hospitals. It has not declined significantly between 2003 and 2008 with only a slightly reduction to 31/1000 live births (ICF macro, 2008). Its causes, contributing factors and trends have been well documented. However maternal awareness of their own contribution to it has not been explored.

The Neonatal mortality rate in Kenya in a recent study has shown that the neonatal mortality rate between 2011 and 2015 was 27% on average (UNICEF, WHO, World Bank, UNDESA population, 2015). This is indicative of a worsening situation. It is therefore evident that there is a significant problem of high Neonatal Mortality Rate in Kenya.

The link between neonatal mortality and maternal health is intricate and cannot be underestimated. Kenya has an estimated maternal mortality rate of 488/100,000 live births (ICF Macro, 2008). The trend of maternal mortality rate in Kenya has therefore not declined significantly either between 2003 and 2008 (ICF macro, 2008).

Before birth, a mother can increase her child's chance of survival by attending ANC clinic, getting immunization against tetanus and avoiding alcohol and smoking (WHO fact sheet Jan, 2016). Therefore the mother can greatly contribute in prevention of the newborn death.

The Rift Valley province in Kenya, where Nakuru County is situated, had an under five mortality rate of 59/1000 while Central province was 51 deaths/1000 live births and Nyanza province recorded the highest with 149 deaths/1000 live births (KDHS 2008-2009).

1.2 Background information

Neonatal mortality is one of the most traumatic outcomes of pregnancy. The link between neonatal mortality and maternal empowerment is intricate and cannot be underestimated.

Neonatal deaths account for about 41% of under 5 years overall child death. Per day, a newborn is 45 times more likely to die within the first 28 days of life compared to all under 5 years old children (Engman C.; 2011). Neonatal mortality is one of the most traumatic outcomes of pregnancy. Expectant mothers are the most affected (lawn et al 2011).

Newborn death came to global attention only recently. Some key high impact interventions are still not in routine programs. Issues like kangaroo mother care which increase illness recognition, increase feeding practice and reduce infection has yet to be completely embraced (Kimney M.V. et al; 2010).

Statistics have raised an alarm for attention to improve newborn health in developing countries especially in sub-Saharan Africa (UNICEF report 2012). Current newborn situation has been a major obstacle which partly made the 4th millennium development (MDG) goal unattainable. The objective of this goal was to reduce children mortality by 2/3 by the year 2015. This was not achieved (Rajaratnam et al, 2010).

In 2010, 7.7 million children died worldwide and 3.1million of these were neonatal deaths (Rajaratnam et al, 2010). This shows that neonatal mortality contribute significantly to overall child deaths. Proportion of child deaths occurring in neonatal period (38%) is increasing. This is because the problem of neonatal death has not been adequately addressed.

The highest number of neonatal deaths is in south–central Asian countries. The highest death rate is however in sub-Sahara Africa. Little progress has been made in reducing these neonatal deaths in the past 10-15 years despite slight improvement in overall child health

Of the 4 million neonatal deaths, about 4 million more are still births. Three quarter ($\frac{3}{4}$) of the neonatal deaths occur in the 1st week. The highest risk of death is in the first day of life and 0.5 million mothers also die from pregnancy related causes annually. The causes of

these maternal deaths are indirectly related to causes of neonatal deaths too (Lawn E.J. et al, 2005; UNICEF, World Bank, 2012).

Preventing death in newborn babies has not been a focus on child survival and safe motherhood programs for quite a time. Newborn children die mainly from preventable causes ((Lawn E.J. et al; 2005).

In Nakuru County level 5 Hospital where the study was undertaken, there was an average of 30 neonatal deaths per month which made neonatal mortality one of the major problems in the hospital (Hospital statistics; March 2016).

The hospital had 12,232 deliveries between February 2015 and February 2016 with 360 neonatal deaths in the same period (Hospital statistics, March 2016). This gave a neonatal mortality rate of 29.4/1000 live births.

1.3 Problem statement

Many studies have determined causes of neonatal death. However, maternal direct contributions to this have not been fully established. The realization of their awareness, disposition, habits and behaviour towards this is still largely unknown. No similar research of this nature has ever been done in Nakuru area either. This study has therefore attempted to establish this in Nakuru county level 5 Hospital.

1.4 Study justification

Knowledge on direct maternal contributions of neonatal death is important as a major factor in determining neonatal outcome. This is due mothers' central role in neonatal care. This is what made this study to be justified since there was knowledge gap. This research was therefore undertaken to establish this. Hopefully it will increase awareness in maternal need to reduce these unnecessary neonatal deaths by their own effort through maternal responsibility and participation.

1.5 Research question

What are the maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital?

1.6 The Objectives

Broad objective:

To determine maternal determinants on neonatal mortality among mothers delivering in Nakuru County level 5 Hospital

Specific objectives:

1. To identify demographic factors that influence maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 hospital.
2. To establish social factors that influence maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 hospital.
3. To identify cultural factors that influence maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 hospital.
4. To determine Economic factors that influence maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 hospital.
5. To assess the health institutional factors that influence maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 hospital.
6. To establish maternal awareness, disposition and habit factors that have influence on neonatal mortality among mothers delivering in Nakuru County level 5 Hospital.

1.7 Hypothesis

Maternal determinants are associated with neonatal mortality.

1.8 Purpose of the study

The finding of this research will help direct policy, define care needs, improve staff training, establish better knowledge, enhance clinical service, stimulate more research and increase greater maternal involvement in reducing causes of neonatal mortality.

CHAPTER 2 –LITERATURE REVIEW

2.1 Introduction

Neonatal mortality is the death of a newborn baby from birth up to twenty eight days of life. Neonatal period is divided into two; i.e. early neonatal period (1st seven days of life) and Late neonatal period (7-28 days of life) (WHO 2011b).

Globally about 4 million neonatal deaths occur annually in the first month of life. About 1.16 million of these are in southern Asia (SA) and sub-Sahara Africa alone. It's estimated that every minute there are 7 neonatal deaths globally. About 415 of the deaths occur hourly. Kenya is in the sub-Saharan region and therefore shares part of the problems (Black et al;

WHO, 2011b). 98 % of the deaths are in developing countries in low income and middle income areas. Many more are also still born (Lawn et al 2011).Most of the neonatal deaths occur at home. Causes remain largely unknown. Important but commonly missed concepts include information on care seeking before death. Also lacking is information on inadequacy modifiable factors in the homes, communities, health facilities and referral mechanisms. These guides future programs and policies in effective care of the newborn (Ravi U. et al; 2012).

Mortality is lower in urban areas. Remote communities have poor access to health care. There is also need for specific health education to mothers and families ((Kimney M.V. et al; 2010). Delays in decision making to seek health care, to reach an adequately equipped health care facility or receive adequate care at the health facility is causing some of the greatest problems. Delays, which include caretaker delays (44%), delays in reaching health care facility (34%) and household and transport delay must be effectively overcome (Ravi U. et al; 2012)

Gender discrimination, low level of female education, lack of women empowerment to seek health care, autonomy towards male decisions and poor access of women to health care cause critical delays and unnecessary deaths (Kimney M.V. et al; 2010).Conflict areas and natural disasters also cause complex emergencies. This increases mortality. It promotes corruption, authoritarian regimes, deteriorating transport network, bad and worsening conditions of health and loss of health human resource. This creates unstable institutions, weak health systems, lack of equipments and supplies and poor referral systems. The conflicts and natural disasters are more prevalent in developing countries with worse outcome (Kimney M.V. et al; 2010).

.Causes of neonatal deaths are mainly preterm births, severe infections, asphyxia and neonatal tetanus. Indirect causes of death are low birth weights and maternal complications in labor. Poverty is strongly associated with increased risks (Lawn E.J. et al; 2005).The deaths are usually related to gestational age, place of birth, personnel conducting delivery and birth weight among others. In Sierra Leone, for instance, the high maternal and child mortality is due to high poverty, illiteracy, teenage pregnancy and reduced family planning (reproductive, newborn and child health strategy, 2011-2015).Strengthening different levels of health care systems gives provision for quality neonatal care to address some of these problems (Ravi U. et al; 2012).

2.2 Demographic factors that influence maternal determinants on neonatal mortality

These are factors that relate to personal characteristics such as age, gender, family background, parity, marital status, Education level, Occupation, Area of residence, multiple partners that may influence the maternal determinants of neonatal mortality.

In a recent study done in community based cross sectional study conducted in Russia village of north Nigeria, it was discovered that mothers with formal education delivered in hospitals and the neonatal outcome was good. Those without formal education preferred home delivery and thus putting their newborn babies into risk. They were in danger of dying from birth complications due to lack of trained midwives and non availability of resuscitation equipments. In the study, 40% of expectant mothers had home delivery (Joshua et al 2015). Educational level therefore plays a role in reducing neonatal deaths.

In the same study by Akinyemi above, neonatal mortality was consistently about 41/1000 live births for thirteen years between 1990 and 2013. There was thus no improvement in neonatal mortality over the period. Bio-demographic factors were found to be the main determinant of Neonatal survival. Lack of improvement in neonatal mortality rates have been noted in many other African countries (Akinyemiet al 2015). Knowledge of causes of neonatal deaths increases with age and education interventions before discharge. Risk of neonatal death also reduces with increased birth interval length up to 36 months. Chronic malnutrition is also related to birth spacing. Increased chronic and general malnutrition is associated with reduced birth spacing (Oommen A., Vatsa M.; 2013).

In a study done in India, teenagers less than 20 years had a high incidence of neonatal mortality due to psychosocial immaturity. They had a higher incidence of low birth weight babies (LBWB) with increases of neonatal mortality. Mothers older than 30years old were also having high neonatal mortality rates due to increased risk of congenital malformations (Amu pateletal). In a study done in Kenya women, especially single mothers, engage in sexual relations in order to survive poverty. This can lead to STDs and HIV. If the mothers' health is compromised, it leads to poor neonatal outcome (Wintz et al; 2013)

2.3 Social factors that influence maternal determinants on neonatal mortality

These factors relate to social characteristics such as social class, Religion, Women groups, Social groups, Community involvement and community ownership. Community based strategies improve newborn health. This is based on prevention and treatment, better referral system and health education promotion for the entire community. Other important issues are recognition of danger signs and health gaps, effective use of antenatal clinics, management of infants at risk (like those with neonatal sepsis), management of birth asphyxia and avoiding low birth weights. The community must also encompass the concepts of ownership, involvement and active participation (Engman C.; 2011).

In a study done in Gujarat in India, babies delivered in families with low socioeconomic class had a higher risk of neonatal deaths because of minimal or poor child care (Amu Patel et al (2011.)). Jehovah's Witness religion restricts medications like iron and vitamins supplements which lead to prenatal maternal anemia. This results in poor neonatal outcome and can cause neonatal death. The Roman Catholics also don't accept family planning methods other than natural ones. This may cause poor maternal health because of ineffective birth spacing (Walter J.S et al 2013). Every time the mother's health is compromised neonatal health is at stake and may end in neonatal death.

2.4 Cultural factors that influence maternal determinants on neonatal mortality

There are very many cultural differences globally. Strong cultural beliefs are especially experienced in rural settings. Postponement of medical consultations and employment of traditional approaches based on wrongly held traditional beliefs is often practiced.

In some cultures, when there is neonatal death, burial is done quickly without ceremonies. There is no formal expression of grief. There is fear that the family may be recipients of supernatural malevolent harm. No discussions are held on account of the deceased newborns. The dead child is regarded as a spirit child. Often the child is not named before death and is not culturally or socially born. The African/American/Black cultures have restrictions on pregnant mothers against consuming certain foods and drinks. This may compromise the health of the mothers and indirectly affect fetal and neonatal health. In some cultures the sick

newborn is viewed as belonging to the Gods. This makes neonatal deaths complaisant (Walter et al 2013).

In one study, it was discovered that mothers with infants less than one year old were performing dangerous traditional child care practices. They were applying salt on the neonates' skin. This led to high neonatal mortality rate (Beser A. et al, 2010). In another study done in Australia; no relationship was established between maternal ethnicity and neonatal mortality. However it was noted that maternal ethnicity influenced fetal and neonatal growth and morbidity (Ruan et al, 2011). This was in contrast with another study done in Brussels in which there was a high perinatal mortality in ethnic groups with low socioeconomic status (Rucape et al; 2010).

Cultural practices recommended by WHO is not always practiced. There are Fears of curses or subsequent diseases befalling the community. It is at times assumed that consumption of traditional remedies and long periods of indoor confinement will bring about healing and neonatal protection. Care at times is sort from traditional healers. Some people resort to crude methods of healing. Diverse traditional approaches are in existence. There are also false beliefs; like the cord falling off due to the baby being carried on the mothers back. Use of traditional tools and methods in baby care is a common practice. In many occasions no proper sterilization is observed (Herlily J.M. et al; 2013).

In a study done on cultural views and practices related to breastfeeding, it was found that only 39% of babies globally are breastfed exclusively for six months. This is a low level of practice. Breastfeeding is an important element in ensuring optimum newborn health (Daglasmaria et al). Traditional practices and quality of mother's milk were found to be the reasons for acceptance of breastfeeding by mothers who breastfed. It was recommended that public health societies should study the cultural status of the communities so as to establish favorable conditions for initiation and maintenance of breastfeeding for adequate periods. Poor dietary practices among neonates and babies were found to lead to child mortality (Daglasmaria et al).

In western countries, breasts are for sexual pleasure. This makes breastfeeding not to be a favored practice. In western African countries e.g. Sierra Leone, breastfeeding is stopped early because of the cultural belief that milk contamination due to sperms cause neonatal mortality and malnutrition. According to UNICEF, 2010, more than 10 million children die yearly due to diarrhea, measles and malaria. These conditions have an effect on neonatal diet.

Quality of water and lack of sterilization, e.g. of bottle feeding apparatus, also enhance diseases that affect neonatal nutrition. 3,500 neonates' mortalities could be reduced if there is exclusive breastfeeding for six months. It has also been established that childhood malnutrition is responsible for half of children deaths annually. Lack of breastfeeding may be a consequence of inadequate support from family and community members; e.g. spouses and other women in society. Breast feeding, for instance, is key to child survival strategy. 16% of neonatal deaths could be saved if infants breastfed from day 1 and 22% if started on breast feeding within 1 hour (Karen M. E. et al; 2006).

Many mothers, especially those in employment or those who are well educated, have relatively lost value in breastfeeding. They have taken up to other more modern methods of newborn feeding. Some have even taken up to unnecessary supplementation. In a study done recently in Uganda; it was found that about three million newborns die every year. This was the fifth highest globally. In this study the major contributing factors were lack of knowledge on baby care and cultural practices. There was use of herbs, Vaseline and powder for cord care. Urine, breast milk and water were also used to treat eye infections. Forty percent (40%) of mothers preferred home delivery because of traditional beliefs (14.1%), religious beliefs (3.2%) and lack of permission from husbands (3.8%) (Rwashara A.S et al, 2014). There is need to enforce knowledge on community health workers and the community. There is also need for serious input from medical professionals in empowering and caring for the community (Engman C.; 2011). There are also harmful cultural norms that compromise women status; e.g. FGM. These cause worse maternal and neonatal outcome (Kimney M.V. et al; 2010).

2.5 Economic factors that influence the maternal determinants on neonatal mortality

Poverty is a major underlying cause of many neonatal deaths. Increased risk of illness, undernourishment, inadequate housing, reduced care seeking and reduced access to health care service are some of its constraints. Increased urbanization causing crowded living conditions and poor sanitation also contributes to widespread poverty and disease especially in the slum areas. In a PEARL study done in low income areas; it was found that the main variable leading to neonatal mortality was poor economic status.

In low income countries, neonatal mortality was high. In those countries with high income there was low neonatal mortality. This confirmed that income was an important determining variable in neonatal mortality assessment (Rahman s.2010). Middle income countries need to

dramatically reduce neonatal deaths to achieve the expected standards of child survival. Increase in preterm births and quality of care is also causing medicalization problems (fernando C.B et al; 2005). Increased education, improved living and working conditions and increased access to water and sanitation are some of the benefits of good economic status. These are mainly found in uncrowded urban areas. They are also places where neonatal deaths are less experienced because of the prevailing lifestyle (Kimney M.V. et al; 2010).

Low birth weight deliveries cause huge health economic burden on poor economies around the globe especially in developing countries. Most are preterm deliveries to mothers with short inter-pregnancy intervals (ugbona H.A.A., Onyearuja C.N.; 2013). In a Pakistan study done in Qatar, low economic level was found to be the main determinant of neonatal mortality with poverty being the main determinant. It led to increase in poor maternal outcome and neonatal deaths (Ansari W.E et al, 2015). In another study, done in Sierra Leone, premarital sex for money among the teenagers was high because of poverty. It made them to be susceptible to STDs and HIV/AIDS with resultant poor neonatal outcome (Reproductive, Newborn and Child health strategy 2011-2015)

2.6 Health institutional factors that influence maternal determinants on neonatal mortality

These are factors like health facilities availability and accessibility, skilled health care providers, preventive and promotive health services, cost of treatment, quality of health services and availability of supplies and modern equipments which indirectly affect maternal health hence neonatal outcome. There is shortage of qualified health workers for essential health care in Africa. The continent has 24% of the global disease burden and only 3% of world health workers. (Herlily J.M. et al; 2013) Thirty six percent (36%) of the countries in Africa have critical shortage of human resource. In Mozambique, Malawi and Tanzania about 90% of emergency obstetric operations are done by clinical officers and not qualified doctors. Use of extension workers like community health workers is inevitable.

Although Africa is the worst hit, shortage of health personnel is also reflected in other developing countries (Herlily J.M. et al; 2013). Over 60 million women give birth annually outside health facilities. 52 million deliver under the services of skilled health attendants and 15 to 25 million in the hands of traditional birth attendants. This creates a big burden to the delivering mothers, the health care systems and the health service providers. Most of these

deliveries are in developing countries with relatively poorer health care systems and wanting economic states. (Herlily J.M. et al; 2013)

Over a period of 10 years, the global health community recognized that there is extraordinarily high mortality burden of neonatal deaths. There is need to establish best policies to reduce it. Efforts have been made to reduce this by establishing the AAP/AHA neonatal resuscitation program, WHO essential newborn care program and USAID/SNL/WHO helping babies breathe program. Essential newborn care package can reduce perinatal mortality rate by 30% (Engman C; (2011). Developing countries have 90% of world malaria deaths, 67% of world HIV patients and 28% of underweight children. They also have the worst state of neonatal deaths in the background of marked communicable and non-communicable disease burden and economic constraints; let alone the problems of poor governance and population pressure (Herlily J.M. et al; 2013).

Sub-Saharan Africa has 11% of the world population. It has however a disproportionate share of major health challenges. Every year 1.2 million newborns die in sub-Sahara Africa. It harbors ¼ of the world's newborn deaths. The biggest challenges are posed by pregnancy and child birth complications, new born diseases, malnutrition and HIV/AIDS. There is also a high level of stillbirths (880,000 annually) and congenital malformations in the continent. Newborn and child health must thus be addressed (Herlily J.M. et al; 2013). Eighty eight percent (88%) of newborn deaths globally is associated with infections; intrapartum related conditions and premature births. 90% of these deaths have low birth weight association due mainly to preterm births. This is made worse by poverty and inequity situations. Much of these problems could be overcome by provision of warmth, proper feeding, and maintenance of good hygiene and early treatment of disease conditions (Herlily J.M. et al; 2013). Sub Saharan countries have among the highest neonatal mortality rates in the world; yet some of the weakest health and vital registration system (Engman C.; 2011). This makes quantification of the problem even more difficult and in many situations is underreported. 70% of neonatal deaths occur in community settings; often in the homes. The deaths are rarely included in the vital registration process. Neonatal mortality rates are often underestimated with no known cause. This is an obstacle to neonatal health policy formulation (Engman C.; 2011).

In a study done in Uganda on advancing the application of health systems and understanding the dynamics of neonatal mortality, it was found that 40% of mothers preferred home than

hospital delivery. 14.7% of the respondents lacked trust in health care system because of poor or lack of equipments, insufficient health workers, overcrowding in the health facilities, long waiting, poor staff attitude (rudeness, abuse to pregnant mothers), and cost of treatment and high cost of delivery as the main factors why they preferred home delivery. Mothers said quality of health services and hygiene was good but out of their reach. 71% said that hygiene needed improvement. The health care providers also said that they were not motivated to work because of poor pay, less staff, lack of equipment and supplies; e.g. 34% of the health workers lacked resuscitation equipment. 67% of the staff respondents said there were no ultra sound facilities resulting in poor maternal and fetal outcome (Rwashana A.S et al 2014).

Health care is unaffordable for many families in low economic areas. User fee, cost sharing, cost of medicines and investigations, loss of work during hospitalization, traveling expenses, poor food and accommodation facilities are some of the constraints causing difficulty in accessing health service (Kimney M.V. et al; 2010). Health systems need to be enacted to fundamentally address human resource capacity, health facility infrastructure, supply systems, financial resources, government stewardship, district level management and monitoring systems. Coverage by these health systems vary in countries with notable gaps in sub-Saharan region (Kimney M.V. et al; 2010). Deficiencies affect the poor more dramatically especially where services are not provided for adequately in public health facilities.

There is need for multiple interventions, use of mortality and health service coverage data more effectively, prioritization of interventions, evidence based policy formulation, development of effective decision making mechanisms, effective implementation machinery and greater application of science (Kimney M.V. et al; 2010).

2.7 Awareness, disposition and habit factors that influence maternal determinants

Neonatal mortality and morbidity presents the greatest challenge in current health care practice. Many die because mothers fail to identify danger signs of illnesses with unnecessary delays in care seeking. The majority gets information from family members and health workers with reduced knowledge on some conditions like hypothermia and convulsions (Oommen A., Vatsa M.; 2013).

There are many disorders worldwide contributing to high neonatal morbidity and mortality especially in developing countries and sub-Saharan Africa. Among these is neonatal jaundice. Mothers may have good knowledge on treatment and complications but inadequate or wrong knowledge on the cause or danger signs (Egube B.A.; 2013). Proper maternal knowledge and

practice need to be evaluated. Practice is not satisfactory and is at times based on wrong knowledge of concepts (Abdolahad A., et al; 2008). Maternal education has a strong impact on infant and child mortality. This also gives economic advantages like improved income, better water and housing facilities and improved quality of housing (Cleland J.G.). Fourty four percent (44%) of newborn deaths occur in the 1st 24 hours of birth. The leading causes were preterm, low birth weight; birth asphyxia and neonatal sepsis. In a study on neonatal mortality in Ethiopia, short birth intervals and early pregnancy were the main causes of neonatal mortality. Women were not educated on their risks of having early pregnancy and at short intervals. It was concluded that women education is therefore good for good neonatal outcome (Mekonnenetal 2013).

Due to lack of knowledge on obstetric danger signs and poor counseling to expectant mothers in the antenatal period on birth preparedness, an increase in neonatal deaths do occur (Mekonnenetal 2013).In another study done in Gujarat, India, children of illiterate mothers had higher risk of dying during neonatal period compared to children of literate mothers (Ansari W, E et al 2015).

In a study done in Libya, the incidence of neonatal mortality and associated risk factors at a newborn unit were also established. It was noted that congenital malformations, e.g. neural tube defects like spinal bifida and congenital heart diseases, were the highest contributors to neonatal mortality rate (NMR). They accounted for 20.69% of the cases studied. This could be prevented if the antenatal mothers were taught about benefits of taking folic acid routinely during pregnancy. Those not taking it were at risk of developing these conditions thus increasing neonatal mortality (Rajab A.M et al, 2013).In Sierra Leone, there were 1:5 infants born less than two years apart from the previous pregnancy because of reduced use of family planning (Reproductive, Newborn and Child health strategy 2011-2015)

2.8 Gaps in literature review

There are many determinants of newborn deaths. Maternal contributions to these causes are by and large known. What has not been well established is maternal awareness of the causes that they personally attribute to in determining these causes because of their knowledge, attitudes, practice and behavior. How mothers respond to circumstances that define their state in relationship to their pregnancies and its care also need to be evaluated.

This study was thus designed to explore this with respect to social, demographic, cultural and economic and health institutional factors. Their levels of awareness, disposition and habit was

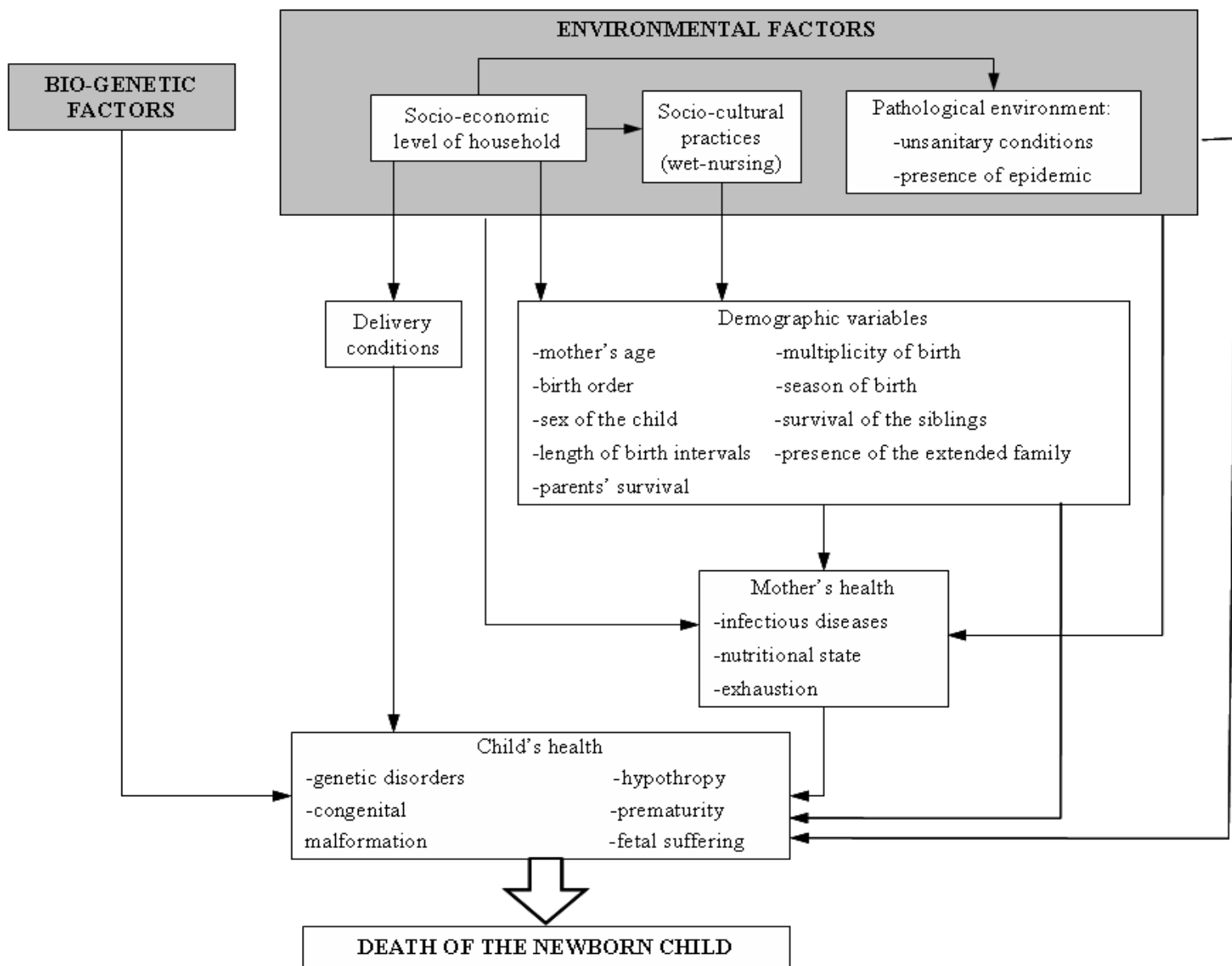
also be explored. With regard to newborns, implementation of education programs on prevention of neonatal mortality and morbidity need to be based on assessment of maternal ability to recognize factors contributing to these situations. This study was to help in also evaluating this (Abdolahad A., et al; 2008)

2.9 Theoretical framework and statement

The figure below shows that neonatal mortality is a result of many factors. This relates to the mother in many ways. The mother is therefore the most central person in determining the outcome of newborn babies' mortality and morbidity.

The concepts stated in the frame was remodeled into a conceptual framework to guide this study which was to help us understand how they influence the mothers' awareness, disposition and habits towards the care of their own newborn babies.

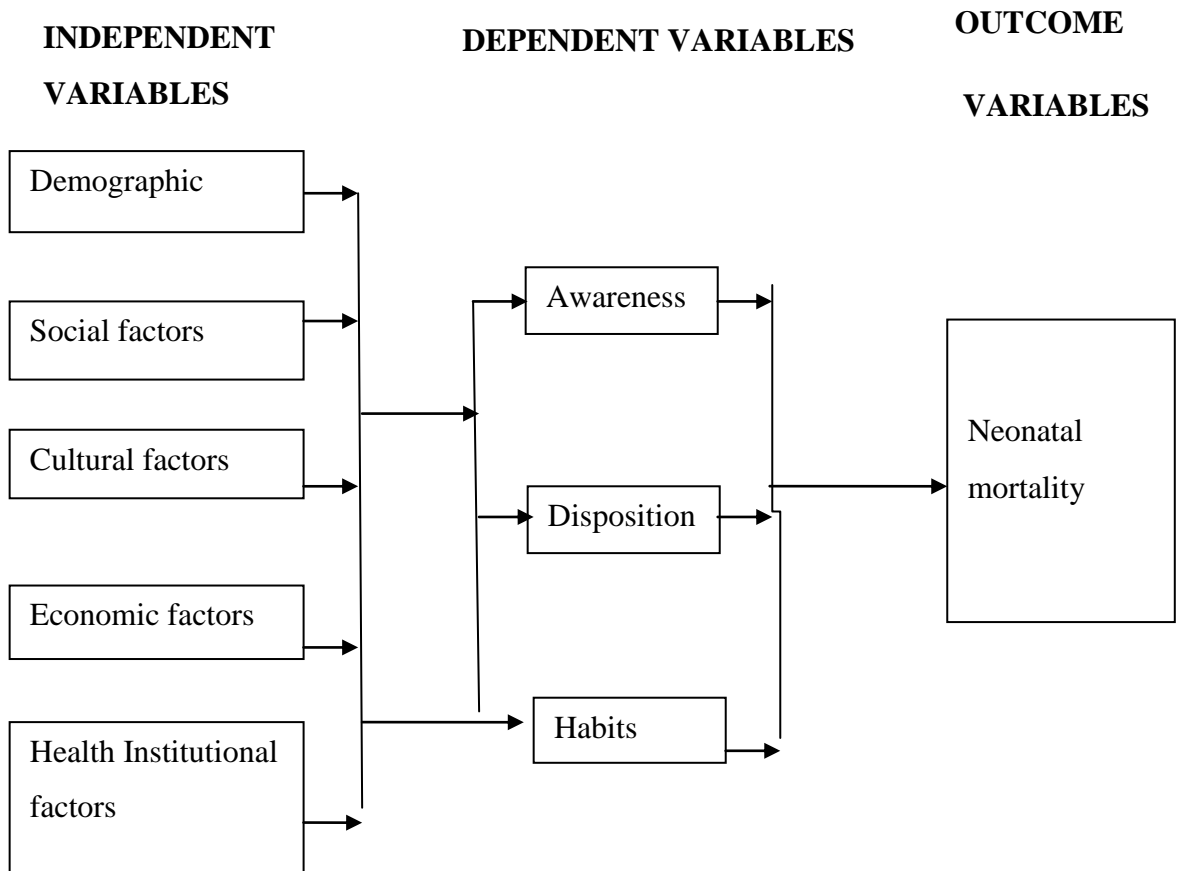
From the literature review presented, it has been established that most newborns die at home. They are essentially under the care of their mothers who should be adequately empowered in this role. The evaluation of maternal capabilities in understanding the extent of their own contribution (maternal perspectives) to the risks of neonatal deaths is therefore appropriate as defined in the relationships designed in the conceptual framework which borrowed many factors from the figure below:



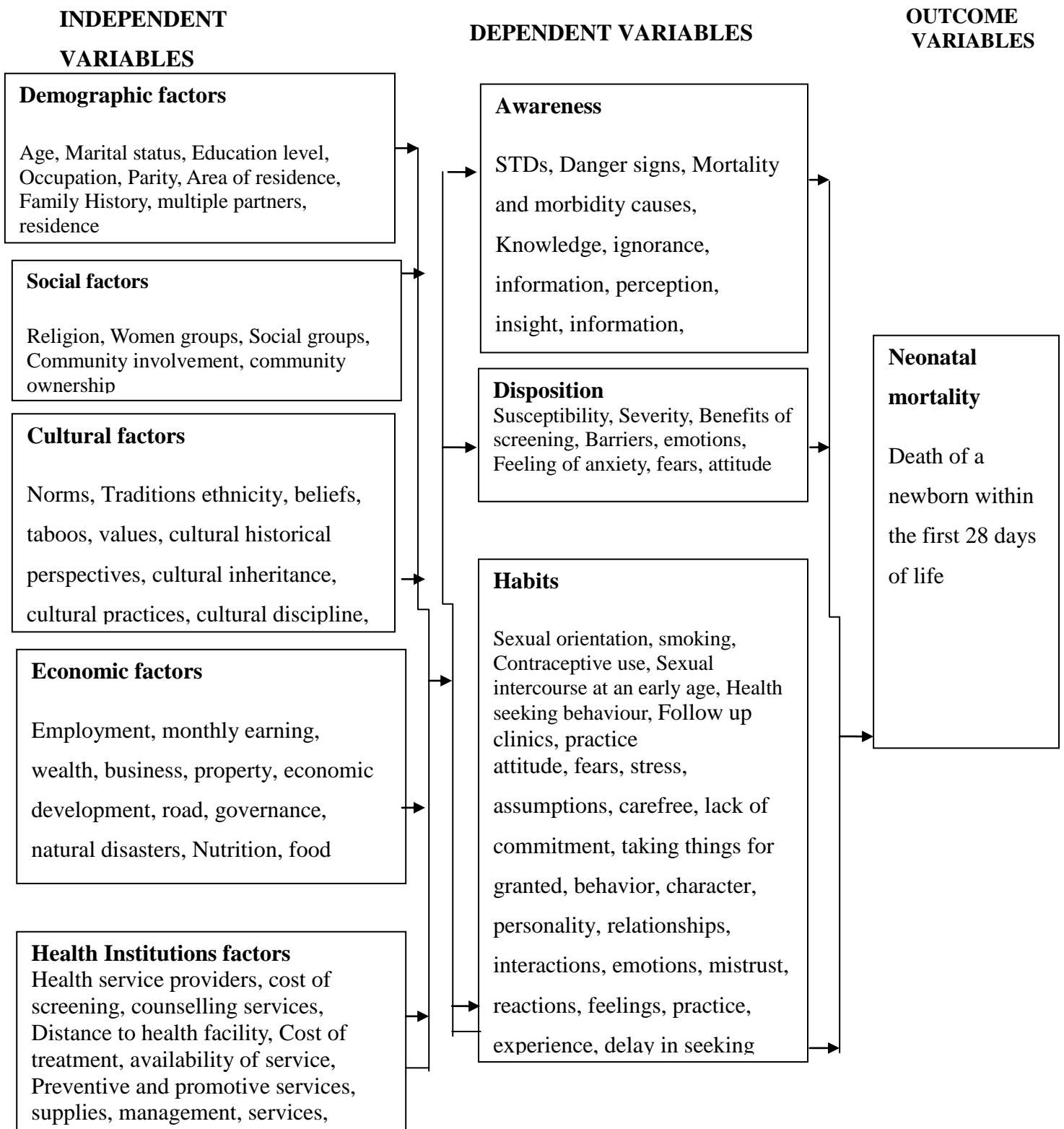
Source; Demographic Research: Krzysztof ; (2009)

Theoretical statement: The table above shows the Correlates of infant and childhood mortality: A theoretical overview and new evidence from the analysis of longitudinal data of the Bejsce (Poland) parish register reconstitution study of the 18th-20th centuries (Conceptual framework for analyzing the interrelation between endogenous and exogenous determinants of mortality at young ages in historical populations; Volume 20, Article 23, pages 563, Figure 1(<http://www.demographic-research.org/Volumes/Vol20/23/> DOI: 10.4054/DemRes.2009.20.23)

2.10 Conceptual framework



2.11 Operational framework



2.13 Definition of key

Definition of variables

Demographics factors: these are factors that relate to personal characteristics such as age, gender, family background, parity, marital status, Education level, Occupation, Area of residence, multiple partners.

Social factors: these are factors that relate to social characteristics such as social class, Religion, Women groups, Social groups, Community involvement and community ownership.

Cultural Factors: these are factors that relate to cultural characteristics such as way of life, race, ethnicity, Norms, Traditions, beliefs, taboos, values, cultural historical perspectives, cultural inheritance, cultural practices, cultural discipline, traditions, cultural corrective measures, cultural inhibitions, cultural enforcements, cultural barriers.

Economic factors: these are factors that relate to economic characteristics such as Employment, monthly earning, wealth, business, property, economic development, Environmental security, safety, sanitation, refuse disposal, roads, natural resources, public health, environmental facilities, stability, governance, natural disasters, Nutrition, food resources and security, food quality, nutritional values, food production and distribution, food hygiene, food safety.

Health institutional Factors: these are factors that relate to health and health institutional characteristics such as health status, health care facilities, health service providers, accessibility of the health facility, cost of screening, counselling services, distance to health facility, Cost of treatment, availability of service, preventive and promotive services, supplies, health care management, services, organizations.

Awareness factors: it's a familiarity with something or someone which can increase information, facts, direction, skill acquired through exposure or education. This relates to issues like STDs, Danger signs, Mortality and morbidity causes, Knowledge, ignorance, information, conceptualization, perception, interpretations, insight.

Disposition factors: it is a favourable or unfavourable evaluation of something, or a personal perspective toward a specific target and way of seeing and doing things. It includes susceptibility, Severity, benefits of screening, barriers, emotions, feeling of anxiety, fears, and attitude.

Habit factors: a method of leaning by repeating. It involves sexual orientation, smoking, contraceptive use, sexual intercourse at an early age, health seeking behaviour, follow up clinics, practice, attitude, fears, stress, assumptions, carefree, lack of commitment, taking things for granted, behaviour, character, personality, relationships, interactions, emotions, mistrust, reactions, feelings, practice, experience, institutional utility, delay in seeking medical care, delivery out of hospital, poor maternal care, abnormal deliveries.

CHAPTER 3: METHODS

3.1 Study Design

This was an institutional based descriptive cross-sectional qualitative and quantitative study to determine perception on maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 Hospital.

3.2 Study Area

The study was carried out in Nakuru county level 5 referral Hospital, in the postnatal wards in the maternity unit. The hospital is situated in Milimani area of Nakuru County in Rift Valley Province of Kenya. Nakuru County covers an area of 72.423km² and has a population of 1,187,000 according to the 1999 population census. Nakuru County hospital is a major referral hospital which admits neonates from a wide range of ethnic and cultural background from different areas in the province. It also admits newborns delivered within its precinct.

Nakuru County hospital is a major referral health institution which admits neonates from a wide ethnic and cultural background. It has a wide catchment area and admits newborns delivered within its precinct and the whole of Rift valley province. The hospital delivers about 1000 mothers per month and has all the departments of a major hospital. The hospital delivers approximately about 1000 mothers per month. Many of the mothers have pregnancy and delivery related complications which necessitate admission to the newborn unit. This is no different from what is experienced in any major hospital.

The hospital is a teaching institution and is the 4th largest referral hospital in the country. It serves most of the south and central Rift valley neighbouring counties which include Nakuru, Kericho, Bomet, Laikipia, Baringo, Nyandarua and Narok counties. According to the Hospital Nursing officer in charge, the hospital has a bed capacity of seven hundred (700) beds and it is served by three hundred and ninety four (394) nurses. The hospital had 12232 deliveries between Feb. 2015-Feb 2016 with a total of 360 Neonatal deaths in the same period (Hospital statistics, March 2016).

3.3 Study Population

Mothers who delivered in the maternity unit in Nakuru county level 5 Referral Hospital were recruited.

3.4 Inclusion criteria

- Mothers who delivered in Nakuru county level 5 hospital

- Mothers who gave informed consent.

3.5 Exclusion criteria

- Mothers who did not deliver in Nakuru county level 5 hospital
- Mothers who were referred to Nakuru vounty level 5 hospital
- Mothers who declined to give informed consent

3.6 sample size determination

The sample size was determined using Fisher et al (1999) formula,

I.e. $n = Z^2pq/d^2$, where:

n = the desired sample size (if the target population is greater than 10000),

z = the normal standard deviation at 95% confidence interval (1.96)

p = the prevalence of reproductive women who had the desired characters in the study. Here p was assumed to be 50% i.e 0.5 since the prevalence was not known.

$q = (1-p)$ which is $1-0.5=0.5$

Therefore $n = (1.96)^2 (0.5) (0.5) / 0.05^2$

$n = 384$

Since the population is less than 10,000 the alternative formula was applied.

Therefore $nf = n$

$1+n/N$

Where:

nf = the desired sample size (when the population is less than 10,000)

n = the desired sample size (when the population is more than 10,000)

N = the estimate of the population size

Therefore $nf = 384$

$$\begin{aligned}
 & \frac{1 + 384}{1000} \\
 = & \frac{384}{1.384} \\
 & = 278
 \end{aligned}$$

The targeted sample size was therefore 278 mothers

3.7 Sampling Interval

Sampling interval (N) = No of mothers

Sample size

I.e. $1000/278 = 3.5$ which is approximately 4

N is therefore 4 (sampling interval)

Therefore, the first and every 4th mother from the first were selected and included in the study until the sample size was met.

3.8 Sampling Method

On the 1st day of the study, all delivered mothers had their inpatient numbers serialized. By use of the table of randomized numbers the first mother was identified. The first and every 4th mother in the series were then included in the study sample until the sample size was obtained.

Focused group discussions had 8 to 12 participants per group up to a total of two groups. Focus group discussion responses were organized into themes, sub-themes and probes. Probing was done by the key researcher. There was an observer, moderator and note taker for each focus group discussion. The FGD was conducted for 2 groups of 10 women each. The selection of participants was from the study population that was not included in the study sample.

Key informants interview was conducted on people with good knowledge of the study concepts. This included the maternity departmental nursing officer in charge, postnatal ward nursing officer in charge, medical superintendent and the hospital nursing officer in charge.

3.9 Recruitment and Training of Research Assistants

Two research assistants who were Bachelor of Science nurses on internship at Nakuru county level 5 referral hospital were recruited and trained for a week on the methodology and how to administer the study tools.

3.10 Pre-Testing of Study Instruments

Pretesting of study Instruments was done in the adjacent Baringo county district hospital in the postnatal ward. The questionnaires were administered to the participants. 10% of the total sample size population was selected for the pre testing (28 participants). The selected participants were not included in the study. The pre-test results were used to improve the study Instruments by ensuring validity and reliability. This was further achieved by presenting the study instruments in the languages most understood by the patients. No major problems were identified.

3.11 Data collection and entry

After explanation and signing of the consent forms, the Research assistants administered and filled the pre-tested questionnaires for the participants. This was done in both English and Kiswahili languages to obtain quantitative data. Upon completion, the questionnaires were checked for completeness before leaving the participants. The information was then later entered into the SSSP computer package in preparation for data analysis. Focus group discussion guide and key informants interview guide were used to obtain qualitative data. Notes were taken. The sessions were also audio taped. Qualitative data was organized into themes, sub-themes and probes. Probing was done by the key researcher. There was an observer, moderator and note taker for each focus group discussion. The FGD was conducted for 2 groups of 10 women.

3.12 Data Analysis and Presentation

Data was entered into the computer and analyzed using SPSS version 20. Univariate analysis was presented using descriptive statistics like graphs, bar charts, pie charts and tables. Bivariate analysis was presented using inferential statistics like chi square and probability estimations to test for significance. Qualitative data were transcribed, translated and grouped

into themes and compared with quantitative findings. Verbatim reporting was also done for focused group discussions and key informant interviews.

3.13 Ethical Considerations

The research proposal was submitted to university of Nairobi/KNH research and ethical review committee for clearance and ethical approval. Permission was then sorted from the authorities of Nakuru County level 5 Hospital before the commencement of data collection. Participants signed the written informed consent before participating. The purpose and objectives of the study were clearly explained to them. Confidentiality, privacy and dignity were observed by ensuring that the data obtained was kept in confidence and questionnaires coded without stating the participants' identification. Interviews were conducted in a private conducive room. Participation was voluntary without coursing or enticement.

3.14 Study Limitations

This study was conducted in Nakuru county level 5 referral Hospital covering only a small population of mothers. This gives a picture of only one hospital. To get a representative sample, efforts were made to reach more than 90% of the study subjects. However, it is hoped that more studies will be done elsewhere to validate the findings of this study. Subject bias couldn't be completely avoided. This was however minimized by all study tools being pretested which ensured validity and reliability.

3.15 Dissemination Plan

The results will be disseminated to the University of Nairobi, Nakuru County level 5 referral Hospital and the Ministry of medical services. Further dissemination will be made through seminar presentations, workshops, conferences, report and publications in peer reviewed Journals.

CHAPTER 4: RESULTS

4.1: INTRODUCTION

This chapter presents the findings of the study. During the study a total of 278 respondents (mothers) delivering at Nakuru Level 5 Hospital were interviewed. The characteristics of the participants, including total neonatal deaths in their present and past pregnancies and associated factors related to the mortalities, are presented in this chapter.

The findings are presented and interpreted based on the quantitative data collected from the semi structured questionnaires and responses from the qualitative data from two focused group discussions ((FGDs) and 5 key informants' interview. The results are presented using descriptive statistics in the form of tables, graphs, frequency distribution tables, bar graphs and pie charts. Inferential statistical analysis has also been presented to show appropriate correlations. Qualitative data has been presented as themes and verbatim reporting and comparison made with quantitative data.

4.2 Demographic characteristics

4.2.1 Maternal age

The mean maternal age was 27.2 years (+_SD 6.6). Figure 1 below, shows that 81 mothers (29.1%) were aged between 21 and 25 years. This was followed by 76 mothers (27.3%) in 26-30 years age group and 51 mothers (18.4%) in 31-35 years age group. A total of 129 mothers (46.4%) were below 26 years; an age considered to represent the age of full maturity. Many mothers were therefore in the young age bracket.

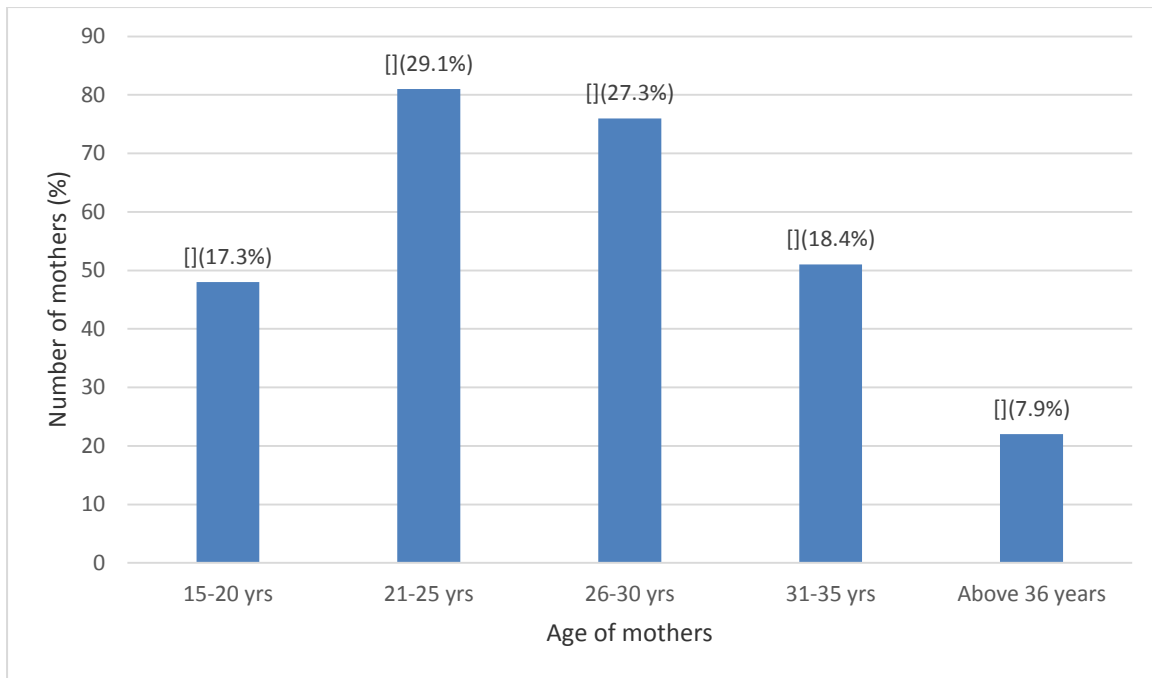


Figure 1 Age distribution of mothers delivering at Nakuru Level 5 Hospital

4.2.2 Marital status

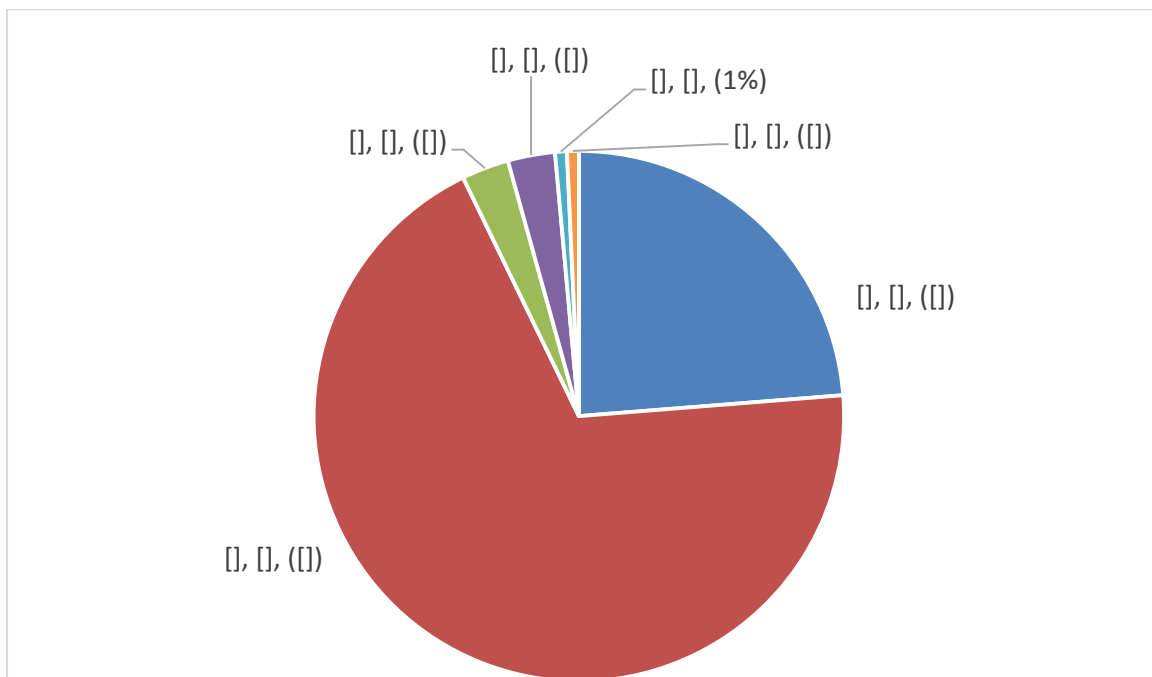


Figure 2 Marital status of women delivering at Nakuru Level 5 Hospital

Out of the total number of respondents (mothers) 192 mothers (69%) were married (Figure 2), 66 (24%) were single and the remaining 20 (7%) were separated, divorced, widowed or living with partners.

4.2.3 Level of education

There were 119 (42.8%) mothers reporting that they had attended formal education up to secondary school level while seventy three, 73 (26.3%) had primary level education and only 9(3.2%) had post secondary education (Table 1). .

4.2.4 Occupation

Regarding current occupation mothers commonly reported that they were either self-employed, ninety six, 96 (34.9%) or unemployed 94 (33.8%). Fifty eight (20.9%) mothers indicated that they were formally employed (Table 1).

Table 1. Education attainment and occupation of mothers delivering at Nakuru Level 5 hospital

	Frequency (n)	Percent (%)
Level of education		
Primary school	73	26.3
Secondary school	119	42.8
College	75	27
University	9	3.2
Others	2	0.7
Occupation		
Employed	58	20.9
Self employed	96	34.5
Peasant	6	2.2
Student	22	7.9
Unemployed	94	33.8
Retired	2	0.7

4.2.5 Prevalence of Neonatal mortality

Fifty six, 56 Mothers had at least one neonatal death from their present or past pregnancies giving a prevalence rate of 20% (95% CI 15.4 – 24.9). This is indicative of existing large number of pregnancy loss.

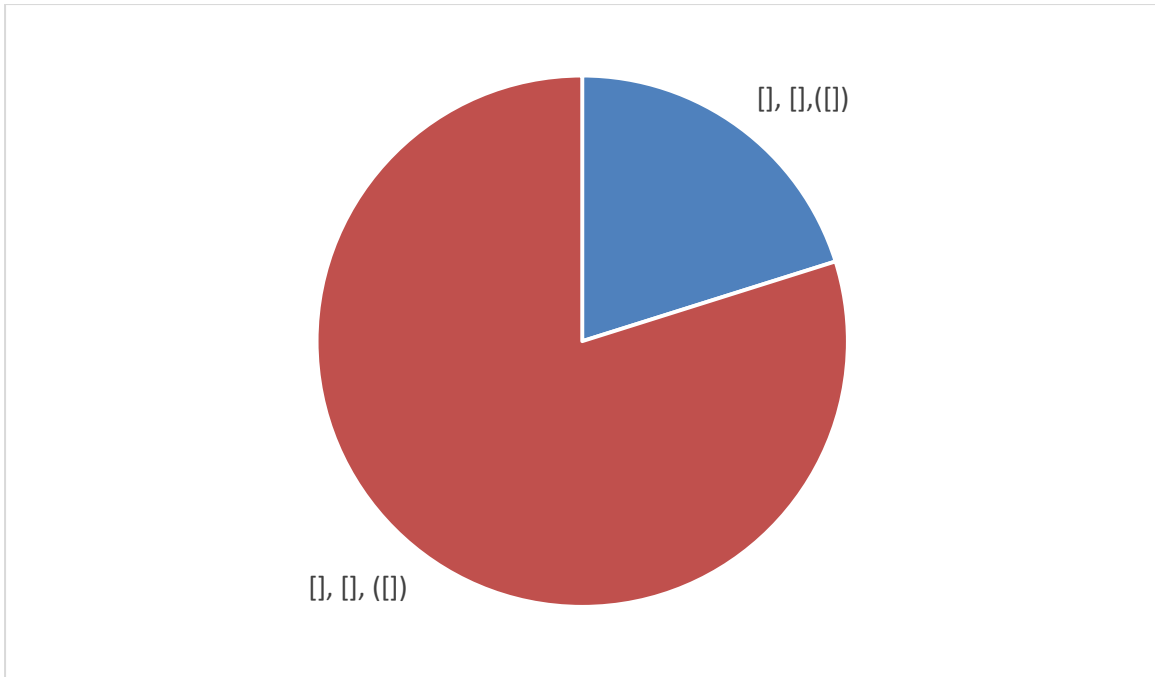


Figure 3 Maternal reported prevalence of lifetime experience of neonatal mortality

Demographic factors and neonatal mortality

Among maternal demographic factors presented in Table 2, marital status ($p < 0.001$) and ever having had a neonatal death in the family or among relatives ($p < 0.001$) were the factors that showed statistically significant association with prevalence of neonatal mortality. There were 32 (38.6%) respondents who reported ever having had neonatal deaths in their family or among relatives. They also indicated that they had a neonatal death themselves compared to 24 (12.3%) who had never had a neonatal death among relatives yet had a neonatal death themselves.

Married women had the lowest rates of neonatal death ($n = 31$ out of 192, 16.1%) followed by single women ($n = 14$ out of 66, 21.2%). Women who had separated ($n = 5$ out of 8, 62.5%), divorced ($n = 1$ out of 2, 50%) or were in a “come we stay” relationship ($n = 5$ out of 8, 62.5%) had higher rates of neonatal mortality.

Table 2. Demographic characteristics of mothers delivering at Nakuru Level 5 Hospital and prevalence of neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Maternal age					
15-20	9(18.8)	39(81.3)	5.7	4	0.221
21-25	12(14.8)	69(85.2)			
26-30	14(18.4)	62(81.6)			
31-35	16(31.4)	35(68.6)			
Above 36 years	5(22.7)	17(77.3)			
Marital status					
Single	14(21.2)	52(78.8)	21.4	5	0.001
Married	31(16.1)	161(83.9)			
Come we stay	5(62.5)	3(37.5)			
Separated	5(62.5)	3(37.5)			
Divorced	1(50.0)	1(50.0)			
Widowed	0(0.0)	2(100.0)			
Level of education					
Primary school	20(27.4)	53(72.6)	4.8	4	0.31
Secondary school	21(17.6)	98(82.4)			
College	13(17.3)	62(82.7)			
University	1(11.1)	8(88.9)			

Others	1(50.0)	1(50.0)			
Occupation					
Employed	14(24.1)	44(75.9)	2.6	5	0.765
Self employed	16(16.7)	80(83.3)			
Peasant	1(16.7)	5(83.3)			
Student	4(18.2)	18(81.8)			
Unemployed	20(21.3)	74(78.7)			
Retired	1(50.0)	1(50.0)			
Ever had neonatal death in family/ among relatives					
Yes	32(38.6)	51(61.4)	24.9	1	<0.001
No	24(12.3)	171(87.7)			
Mother had multiple partners					
Yes	1(20.0)	4(80.0)	0	1	0.994
No	55(20.1)	218(79.9)			

From qualitative interview results, lack of marital relationships had an impact on newborn survival directly due to lack of financial or social support. These also had indirect impact on maternal physical and psychological wellbeing. Single women in the African society have challenges as confirmed by this study and many have no male support in their lives.

Reported verbatim: “if the husband is a smoker or drunkard or there is a quarrel between husband and wife due to stress, the mother may think a lot. Recently there was a case of a drunken man whose wife was to deliver. She delivered twins. The man told the wife that there was no agreement for her to give birth to twins. The husband disappeared because of

that. This stressed her. Some community traditions don't accept twins as firstborns. Stress also causes ulcers. If the mother's health is not right, the babies' health will also be affected."

A mother who had previously lost a pregnancy reported that she was cautious during the subsequent pregnancy. Such mothers may therefore be aware of a possible link between previous neonatal deaths and higher neonatal mortality rates.

She reported verbatim: "I had to go directly to the maternity to ask what should be done so as not to lose my baby as I had in the last pregnancy. A doctor came and told me that I was having an infective discharge and gave me drugs to help me not to deliver a premature baby at 6 months."

4.3 Social factors and neonatal mortality

Christians were the majority among participating mothers with Protestants and Catholics accounting for 159 (57%) and 85 (31%) mothers respectively (Figure 3). There were 9 (3%) Muslims and 9% of mothers were practicing other religions.

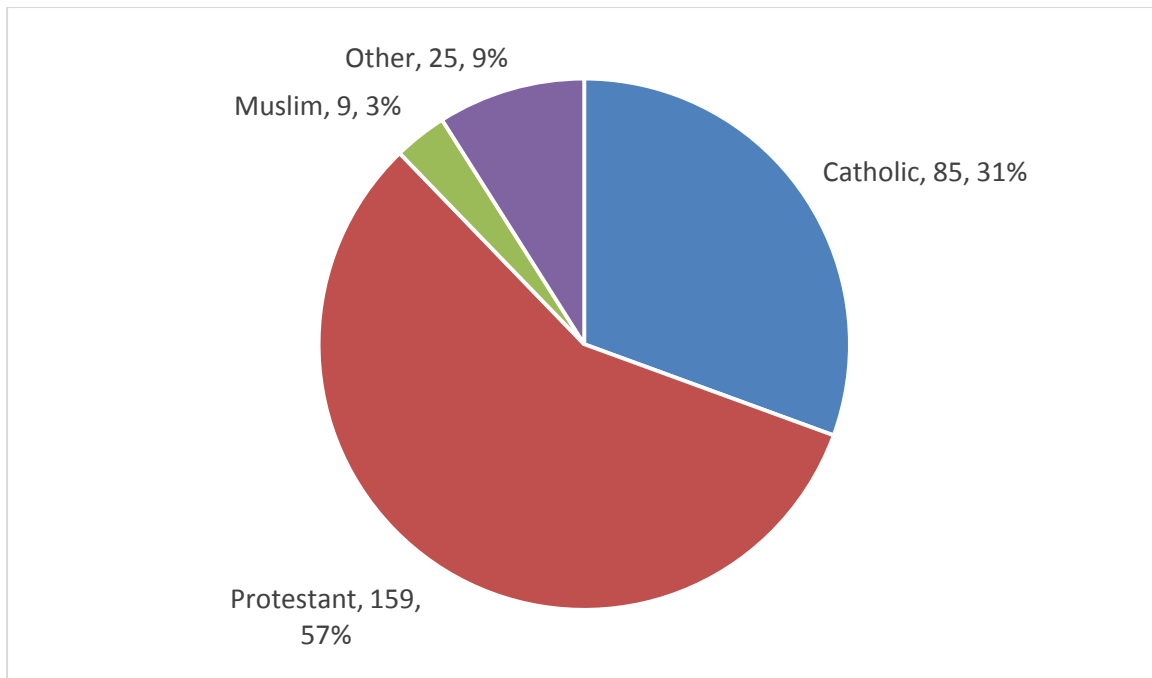


Figure 4. Religious affiliation of mothers delivering at Nakuru level 5 Hospital

There was a significant association between belonging to social groups and prevalence of neonatal deaths with mothers who belonged to social groups reporting lower neonatal deaths (n=20 out of 146, 13.7%) compared to those who did not belong to such groups (n=36 out of 132, 27.3%) with $p = 0.02$ (Table 3). Residing within a community that was involved in activities aimed at preventing neonatal deaths was not significantly associated with neonatal mortality ($p = 0.498$). Neither was religious affiliation ($p = 0.876$).

Table 3: Association between maternal social factors and neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Member of social groupings					
No	36(27.3)	96(72.7)	7.9	1	0.005
Yes	20(13.7)	126(86.3)			
Community involvement in preventing neonatal death					
Yes	5(15.6)	27(84.4)	0.5	1	0.498
No	51(20.7)	195(79.3)			
Religion					
Catholic	17(20.0)	68(80.0)	0.7	3	0.876
Protestant	32(20.1)	127(79.9)			
Muslim	1(11.1)	8(88.9)			
Others	8 (32.0)	17 (68.0)			

4.4 Cultural factors and neonatal mortality

The major ethnicity groups were Kikuyu 99 (35.6%), Kalenjin 64 (23%) and Kisii 28 (10.1%). The remaining ethnic groups comprised of less than 10% of participants. They included Luhya (n=22, 7.9%), Luo (n=22, 7.9%), Kamba (n=10, 3.6%), Masaai/ Turkana (n=9, 3.2%), Mijikenda (n=3, 1.1%) and others (n=21, 7.6%).

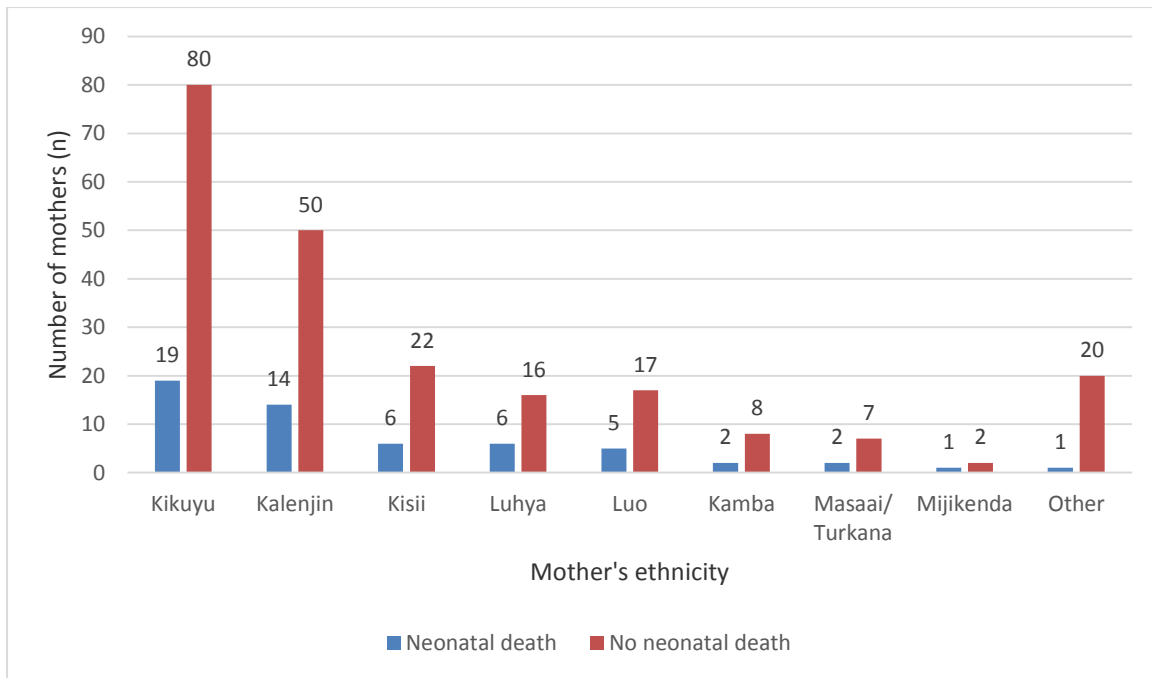


Figure 5: Neonatal mortality among mothers delivering at Nakuru county Level 5 Hospital according to ethnicity

The ratios between mothers who had neonatal mortality ever in their pregnancies and those who had not ranged between 1:2.6 and 1: 4.2 for all ethnic groups significantly represented. This is a further illustration that there was no significant ethnic influence on neonatal mortality experiences as shown below;

Table showing the neonatal mortality ratio among different ethnic groups

Ethnic group	No neonatal mortality	Neonatal mortality	Mortality: no mortality ratio
Kikuyu	80	19	4.2
Kalenjin	50	14	3.5
Kisii	22	6	3.6
Luhya	16	6	2.6
Luo	17	5	3.4
Kamba	8	2	4.0
Masai/turkana	7	2	3.5
Mijikenda	2	1	2.0
Others	20	2	10
All	222	56	3.96

Table 4: Association between maternal cultural factors and neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Community norm/ values target neonatal death					
Yes	1(14.3)	6(85.7)	0.2	1	0.696
No	55(20.3)	216(79.7)			
Taboos/ cultural values relating to neonatal death exist					
Yes	2(22.2)	7(77.8)	0	1	0.874
No	54(20.1)	215(79.9)			
Traditional beliefs/ cultural practices promoting/ preventing neonatal death					
Yes	1(14.3)	6(85.7)	0.2	1	0.696
No	55(20.3)	216(79.7)			

Maternal report of taboo/ cultural values and traditional beliefs/ cultural practices did not show significant association with neonatal deaths.

However, despite the absence of clear associations between cultural and traditional practices and neonatal deaths, a mother gave a vivid description of poor pregnancy outcomes that was linked to traditional practices as reported below.

Reported verbatim “A traditional doctor inserted a stick in a friend’s womb because she said that the mothers’ baby was not positioned well in the womb. So when the mother came to the hospital she lost the baby.”

While recognizing the importance of cultural factors in neonatal mortality the responses of mothers in the qualitative interviews implied an overall weak influence of these factors due to

urbanization and pluralistic nature of the population. This lends credibility to quantitative findings in which there was no overall effect of cultural issues on neonatal mortality.

However, from the interview of one of the key informants' cultural factors were associated with neonatal mortality. She stated as follows:

Reported verbatim “on the cultural factors, I said we are in a cosmopolitan town and the mothers have different cultures. So we find that these cultural factors, when we talk about coming from the Kalenjin communities, some would prefer to stay at home and deliver with the help of the TBA. When they come to seek for care it’s too late. You cannot assist the mother or the baby. There are some cultures that say that coming to the hospital is a sign of weakness for a woman. You have to deliver at home to show courage. These can be some of the cultural factors.” More research thus needs to be done to validate this. This discrepancy could be because the study population was heavily represented by only two cultures. A community based study could possibly be recommended.

4. 5 Economic factors and neonatal mortality

Table 5: Association between maternal economic factors and neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Economic factors					
Do you have any business?					
Yes	8(22.2)	28(77.8)	0.1	1	0.739
No	48(19.8)	194(80.2)			
Participating in any economic development?					
Yes	4(16.7)	20(83.3)	0.2	1	0.657
No	52(20.5)	202(79.5)			
How do you rate environmental security or safety?					
Good	50(20.1)	199(79.9)	0	1	0.938
Bad	6(20.7)	23(79.3)			
How do you rate your sanitation/ refuse disposal system?					
Good	47(19.1)	199(80.9)	1.4	1	0.231
Bad	9(28.1)	23(71.9)			
Rate access to health care facility?					
By walking	13(21.0)	49(79.0)	1.1	4	0.9
By use of vehicles	33(18.7)	143(81.3)			
By use of bicycles/motor bikes	9(23.1)	30(76.9)			

Others	0(0.0)	3(100.0)			
How do you rate nutritional values/ food resources/ food security/ food quality?					
Good	48(19.0)	205(81.0)	2.4	1	0.121
Bad	8(32.0)	17(68.0)			
How do you rate the level of governance?					
Good	54(20.8)	205(79.2)	1.2	1	0.279
Bad	2(10.5)	17(89.5)			

The study shows that there was no significant association between economic factors and neonatal mortality as shown in Table 5 above.

There was no difference in income of mothers who had experienced neonatal mortality and those who had not. There was also no significant association between the variables used to assess economic status including ownership of business, environmental sanitation and nutritional values or food security. Although no significant association was demonstrated, the direction of associations between these economic factors and neonatal mortality were mostly consistent with literature. The mothers who reported lack of food security had 32% neonatal mortality compared to 18% for food secure mothers. Mothers residing in areas with poor sanitation/ waste disposal had rates of 28% compared to 19% for those in areas with good sanitation.

Existing studies in literature report a strong and consistent association between poverty and neonatal mortality with mothers in poor socio-economic status experiencing higher neonatal death rates (Ansari W.E et al 2015; Rahman S, 2010). The absence of valid measurements for socioeconomic status in the current study probably made a limitation on the study's ability to determine whether economic factors were significantly associated with neonatal mortality.

Consistent with cultural factors qualitative findings, mothers interviewed in the qualitative study showed a clear link between economic factors and neonatal outcome. This was despite the absence of clear relationship in the quantitative analysis.

Verbatim report “Poor economic conditions cannot sustain good upkeep. So it risks the life of the baby and the mother.”

4.6 Health institution factors and neonatal mortality

Maternal responses on health institution factors and its association with neonatal mortality is shown in Table 6. There was no significant association between reported distance to the health facility ($p = 0.391$), receiving counselling during facility visits ($p = 0.649$) or cost of treatment ($p = 0.972$) and neonatal mortality.

Table 6: Association between health institution factors and neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Ever received counselling to prevent neonatal mortality					
Yes	12(18.2)	54(81.8)	0.2	1	0.649
No	44(20.8)	168(79.2)			
Distance to health facility					
Near	17(17.3)	81(82.7)	0.7	1	0.391
Far	39(21.7)	141(78.3)			
Cost of treatment					
Expensive	14(20.0)	56(80.0)	0	1	0.972
Cheap	42(20.2)	166(79.8)			

Despite the fact that there was no significant association demonstrated, the study found out that those mothers who received counseling during their antenatal period on prevention of neonatal mortality ($n=12$ out of 66, 18.2%) had less neonatal deaths compared to those who didn't get any counseling (44 out of 212, 20.8%). Moreover, those whose distance to the health facilities was far ($n=39$ out of 180, 21.7%) reported high rates of neonatal mortality compared to those whose distance was near ($n=17$ out of 98, 17.3%).

4.7 Maternal awareness, disposition, habits and neonatal mortality

4.7.1 Maternal awareness and neonatal mortality

Most mothers were aware of the factors that increase the risk of neonatal mortality (Table 7). 257 (92.7%) mothers were aware that delays in getting services contributed to neonatal mortality. Other factors that were known by most mothers were lack of ANC attendance (n=237 out of 278, 85.3%), complicated deliveries (n=226 out of 278, 81.3%), poor services (n= 234 out of 278, 84.2%), unskilled delivery (n=227 out of 278, 81.7%) and lack of knowledge on prevention of neonatal deaths (n=226 out of 278, 81.3%).

Table 7: Maternal awareness of factors contributing to neonatal mortality

	Yes	No	Don't know
Sexually transmitted disease	199(71.6)	33(11.9)	46(16.5)
Lack of antenatal clinic attendance	237(85.3)	24(8.6)	17(6.1)
Premature delivery	176(63.3)	54(19.4)	48(17.3)
Complications of pregnancy and delivery	226(81.3)	22(7.9)	30(10.8)
Unskilled delivery	227(81.7)	32(11.5)	19(6.8)
Lack of information	204(73.4)	41(14.7)	32(11.5)
Poor health service	234(84.2)	23(8.3)	21(7.6)
Delays in getting services	257(92.4)	15(5.4)	6(2.2)
Ignorance of danger signs and risk factors	209(75.2)	26(9.4)	43(15.5)
Lack of knowledge on prevention methods	226(81.3)	23(8.3)	29(10.4)

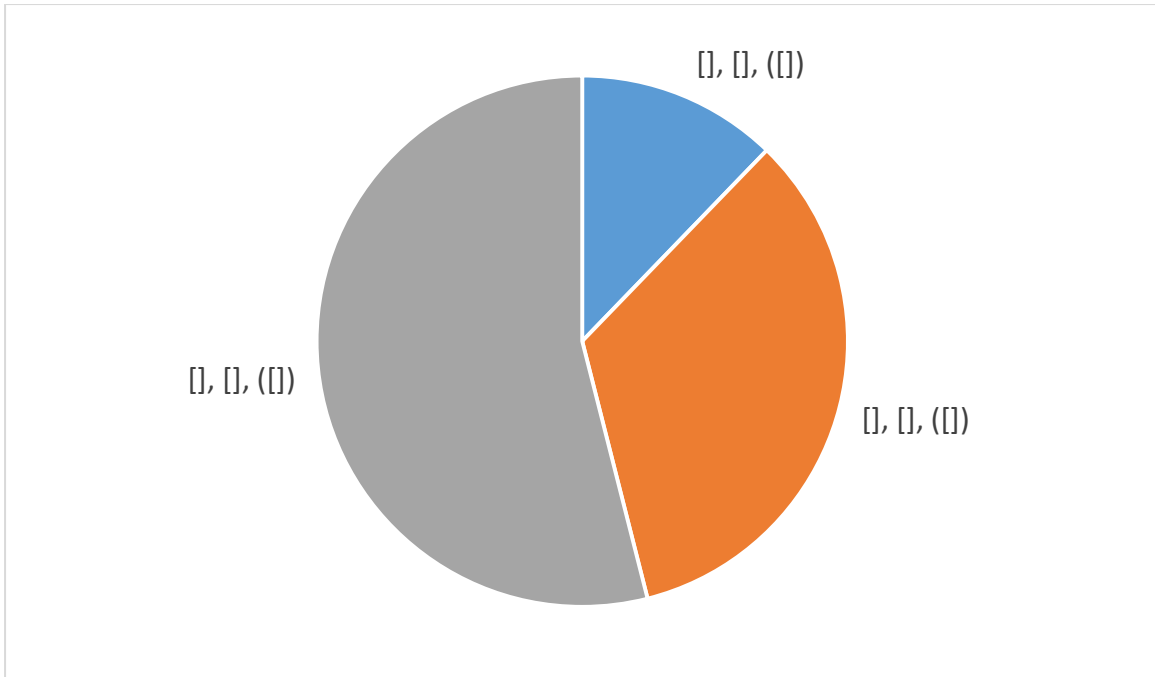


Figure 6: Maternal knowledge of factors contributing to neonatal deaths

The factors presented in Figure 6 above were used to determine overall maternal knowledge of neonatal mortality. The scale used was poor knowledge (1 to 4 correct answers out of 10), moderate knowledge (5 to 8 correct answers out of 10) and good knowledge (9 to 10 correct answers out of 10). Most mothers 150 (54%) had good knowledge of contributors to neonatal mortality. Therefore; there was a significant association between maternal knowledge and neonatal mortality (Table 8). Mothers with good knowledge reported lower neonatal mortality rates (n=15 out of 150, 10%) compared to those with moderate (n=31 out of 94, 33%) or poor (n=10 out of 34, 29.4%) knowledge on contributors to neonatal deaths ($p < 0.001$).

Table 8: Maternal knowledge and its association with neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Maternal knowledge of factors contributing to neonatal mortality					
Poor knowledge	10(29.4)	24(70.6)	21	2	<0.001
Moderate knowledge	31(33.0)	63(67.0)			
Good knowledge	15(10.0)	135(90.0)			

During the interview, a mother who had experienced a neonatal mortality said that personal initiative to know about the health status of both mother and baby would contribute to newborn survival.

She said, *“The other problem is mothers not having interest in asking questions during pregnancy. If one is eager he asks. If you experience something strange you should ask a question. And if you ask, the health care provider will tell you even the things you didn’t ask about. That is a good thing. So ask questions no matter how simple.”*

4.7.2 Maternal Disposition (attitude) to neonatal mortality

Susceptibility to neonatal deaths and severity of consequences of neonatal deaths were perceived by 64.3% and 53.6% of delivering mothers at Nakuru Level 5 Hospital as being causes of concern (Table 9). There was lower concern regarding cultural consequences (18.5%), ignorance of danger signs and risk factors (27.7%) and emotional trauma (33.8%) related to neonatal death.

Table 9: Perceived disposition of mothers to neonatal mortality

	None	Little	Enough
Susceptibility to have neonatal death	45(16.2)	58(20.9)	175(64.3)
Severe consequences of neonatal death	26(9.6)	103(37.1)	149(53.6)
Cultural consequences of neonatal death	59(21.2)	168(60.3)	51(18.5)
Ignorance of danger signs and risk factors	58(20.9)	143(51.4)	77(27.7)
Emotional trauma resulting from neonatal death	39(13.7)	145(52.2)	94(33.8)
Fear of having neonatal death	51(18.4)	138(49.6)	89(32.1)
Negative attitude of people towards neonatal death	66(23.7)	134(48.2)	78(28.1)
Unpleasant/ embarrassing experience of having neonatal death	54(19.4)	89(32.1)	135(48.6)

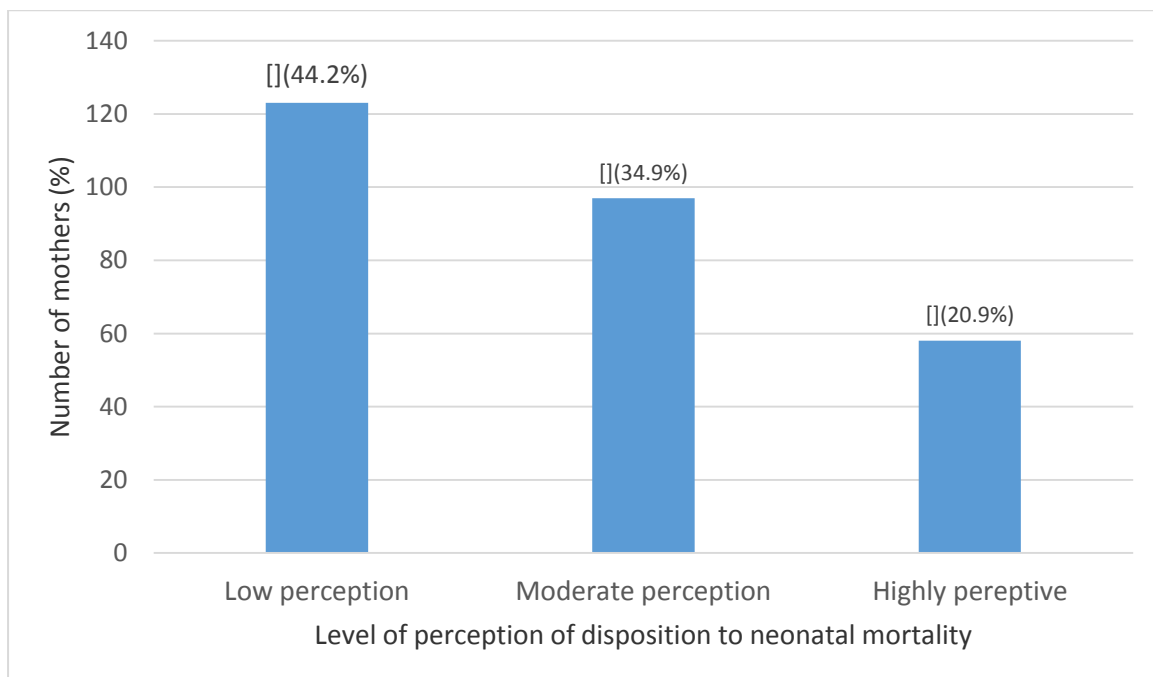


Figure 7: Maternal perception of disposition to neonatal mortality

Table 10: Association between perception of disposition to neonatal death and neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Maternal perception of disposition to neonatal mortality					
Low perception	33(26.8)	90(73.2)	13.6	2	0.001
Moderate perception	21(21.6)	76(78.4)			
Highly perceptive	2(3.4)	56(96.6)			

There was a significant association between maternal perception of disposition to neonatal death and the prevalence of neonatal mortality ($p = 0.001$). Table 9 shows that mothers who were highly perceptive of their disposition had lower rates of neonatal mortality ($n=2$ out of 58, 3.4%) compared to those with moderate ($n=21$ out of 97, 21.6%) or low ($n=33$ out of 123, 26.8%) perception of disposition to neonatal mortality.

4.7.3 Maternal habits and neonatal mortality

Table 11: Maternal habits related to neonatal mortality

	Maternal habit	
	Positive	Negative
Smoking	13(4.7)	265(95.3)
Health seeking behavior like going for medical check ups	197(70.9)	81(29.1)
Attending follow up clinics	213(76.6)	65(23.4)
Past experience with neonatal death	70(25.2)	208(74.8%)

Having delays in seeking medical	164(59.0)	114(41.0)
Having home deliveries	208(74.8)	70(25.2)
Drinking any illicit brew or alcohol	42 (15.1)	236(85.0)

There were 13 (4.7%) smokers and 42 (15.1%) mothers who drank alcohol or illicit brews during their pregnancy. Most mothers attended follow up clinics (77.3%) and went for medical checkups (70.9%), Table 11.

Table 12: Association between neonatal mortality and maternal habits

	Neonatal death		Chi	DF	P value
	Yes	No			
Maternal habits					
Positive	5(8.3)	55(91.7)	6.6	1	0.01
Negative	51(23.4)	167(76.6)			

Table 12 above shows that there was a significant association between positive maternal habits and lower reported neonatal mortality rates ($p = 0.01$). Among the mothers who reported observing all the seven positive habits in Table 11, neonatal mortality was 8.3% and this was significantly lower than the rate reported in mothers who did not observe each of the seven positive habits (23.4%).

4.8 Maternal perceptions

Among the aspects of maternal perceptions presented in Table 13 below, knowledge on how neonatal deaths could be prevented ($p = 0.008$) and existing negative practices that hinder mothers from preventing neonatal deaths reported in community ($p = 0.028$) were significantly associated with neonatal mortality.

Table 13: Association between neonatal mortality and maternal perceptions on neonatal mortality

	Neonatal death		Chi	DF	P value
	Yes	No			
Any positive practices in preventing neonatal mortality during pregnancy					
Yes	22(23.7)	71(76.3)	0.2	1	0.623
No	38(20.5)	147(79.5)			
Knows how neonatal death can be prevented					
Yes	26(32.1)	55(67.9)	7.1	1	0.008
No	34(17.3)	163(82.7)			
Existing negative practices that hinder mothers from preventing neonatal deaths reported in community					
Yes	10(41.7)	14(58.3)	4.9	1	0.027
No	50(19.7)	204(80.3)			
Cultural beliefs that hinder mothers from preventing neonatal deaths reported in community					
Yes	4(20.0)	16(80.0)	0.7	1	0.406
No	56(21.7)	202(78.3)			

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

This study established mothers' perception on maternal determinants of neonatal mortality among mothers delivering in Nakuru county level 5 Hospital. Maternal demographic factors, social factors, knowledge, disposition and habits were found to be associated with neonatal mortality.

The prevalence of neonatal mortality in the study was 21%. This agrees with reports in literature which states that in Africa one in every five mothers experience newborn death (UNICEF 2012). It also confirms that progress in reducing neonatal mortality in Africa is slow (Francisca M. et al; 2013). This mortality rate is relatively high compared with a rate of 1 per 100 mothers in developed countries. Conclusions have been drawn and recommendations made based on the study findings.

5.2 Demographic factors and neonatal mortality

The married mothers had better pregnancy outcome with respect to neonatal mortality than the separated, single and divorced mother. This could be justifiable because married mothers get the psychological and material support from their partners. This would enable them to have easy access to health care services and to have less stress during pregnancy resulting into better pregnancy outcome.

Poorer neonatal outcome observed among single mothers and others were reported in other studies that said such mothers were more likely to opt for home deliveries (Envuladu E.A, 2013). The level of birth preparedness of married mothers was also stated to be higher than that of other mothers. Spousal support was cited as a positive factor in these pregnancies.

A study in Kenya also showed that poor reproductive health and multiple sexual partners among unmarried women were associated with poor neonatal outcomes (Wintz et al; 2013). In the same study women, especially single mothers, engage in sexual relations in order to survive poverty. This can lead to STDs and HIV. If the mothers' health is compromised, it leads to poor neonatal outcome (Wintz et al; 2013)

Neonatal mortality rate among newborns of mothers who had never had neonatal deaths in the family or among relatives was relatively higher compared to those who had experienced such deaths (38.6 versus 11.5%). This is an expected finding because of the previous experience and the subsequent reduction in neonatal deaths.

Despite existing literature showing significant associations between demographic factors, including maternal age, level of education and occupation status, with neonatal mortality rates this study did not report significant associations between these factors and neonatal mortality (Joshua et al 2015).

Possible explanations for this were that there was homogeneity among participants in the study. For example, all mothers in the study had attended some form of formal education. This could have had

an effect of reducing neonatal mortality rate. In previous studies higher mortality rates have been reported in babies of teenage mothers due to higher incidence of low birth weights and also among babies of mothers aged 30 years and above (Amu Patel et al; 2011). Babies of teenage mothers in this study were not at higher risk of neonatal death (18.8%) but there was a tendency towards higher mortality rates in neonates of mothers above 30 years (31.4%). This increase in mortality rate was however not statistically significant.

5.3 Social factors and neonatal mortality

Among the social factors that were studied, only maternal membership in social groupings showed a significant association with neonatal mortality rate. Neonates of mothers who belonged to social groupings were at lower risk of death. Maternal interactions in these groups could have improved the outcome for neonates through acquisition of critical knowledge and skills on child care especially for first time mothers. In addition, such groups are a source of social support both during pregnancy and after delivery; a factor that is critical in promoting newborn survival.

Mother's religious affiliation was not an important determinant of newborn survival unlike in other studies (Walters J.S et al 2013). While considering this absence of association, it is important to note that mothers in this study were predominantly Christians (89%) with an almost even split between Protestants and Catholics. There was thus reduced variability in beliefs and practices which may have contributed to no association in neonatal outcomes.

It is also noteworthy that existing community based interventions to improve neonatal survival did not have impact on neonatal mortality. This was despite expectations linking communities with such initiatives to better neonatal survival (Engman C; 2011). Reliance on maternal self-reporting and possible unawareness of activities involved in the interventions by the mothers could explain this lack of association in this study.

5.4 Economic factors and neonatal mortality

There was no difference in income of mothers who had experienced neonatal mortality and those who did not. There was also no significant association between other variables used to assess economic status, including ownership of business, environmental sanitation and nutritional values or food security and neonatal death. Although no significant association was demonstrated, observed relationship between these economic factors and neonatal mortality was consistent with findings of other researchers. The mothers who reported lack of food security had 32% neonatal mortality compared to 18% for mothers who had food security. Mothers residing in areas with poor sanitation/waste disposal had rates of 28% compared to 19% for those in areas with good sanitation.

Existing studies in literature report a strong and consistent association between poverty and neonatal mortality with mothers in poor socio-economic status experiencing higher neonatal death rates

(Ansari W.E et al 2015; Rahman S, 2010). The absence of valid measures for socioeconomic status in the current study caused a limitation on the study's ability to determine whether economic factors were significantly associated with neonatal mortality.

5.5 Cultural factors and neonatal mortality

The predominant ethnic groups were Kikuyu and Kalenjin. Less than ten mothers out of 278 participants reported that community norms/ values targeting newborn survival had relationship to neonatal mortality. Existence of taboos, traditional beliefs or cultural practices also was not related to neonatal mortality. In cases where such cultural factors were reported, there was no significant association with neonatal deaths. These findings are in agreement with other studies that have shown no association between ethnicity and neonatal deaths (Ruan et al, 2011). There are some studies however that reported associations between ethnicity and neonatal mortality (Rucape et al, 2010). There are two possible explanations for lack of an association existing between cultural factors and neonatal mortality. Firstly, the study setting was urban. Evidence indicates that traditional and cultural practices are more likely to impact on newborn survival in rural areas as opposed to urban populations (Rwashara AS et al, 2015). Secondly, there were very few mothers reporting cultural and tradition practices that could impact on neonatal mortality. The potential impact and range of these cultural practices was minimal.

5.6 Health institutional factors and neonatal mortality

The study didn't show any significant association between health institutional factors and neonatal mortality. However, the study found out that those mothers who received counseling during their antenatal period on prevention of neonatal mortality had less neonatal deaths compared to those who didn't get any counseling. Those whose distance to the health facilities was far reported high rates of neonatal mortality than those whose distance was nearer.

In a study done in Uganda on advancing the application of health systems and understanding the dynamics of neonatal mortality, it was found that 40% of mothers preferred home than hospital delivery. 14.7% of the respondents lacked trust in health care system because of poor or lack of equipments, insufficient health workers, overcrowding in the health facilities, long waiting, poor staff attitude (rudeness, abuse to pregnant mothers), cost of treatment and high cost of delivery as the main factors making them preferred home delivery (Rwashana A.S et al 2014). This wasn't however observed in this study. Free maternal services which were initiated by the Kenyan first lady could have been a factor. This made services not to be expensive any more.

5.7 Awareness, disposition and habit factors and neonatal mortality

There was a strong association between level of maternal knowledge of predisposition to neonatal mortality and rates of neonatal mortality. In line with other studies, mothers who had good knowledge

reported significantly lower mortality compared to those with poor or moderate knowledge (Mekonnenetal 2013).

There was a link between knowledge and practice and neonatal mortality. Knowledgeable mothers were more likely to give appropriate care to their newborns and thus experience lower neonatal deaths (Abdolahad A. et al; 2008).

Delays in decision making for health care utility, reaching adequately equipped health care facility in time or receive adequate care at the health facility causes some of the greatest problems as reported in other studies. Delays, which include caretaker delays (44%), delays in reaching health care facility (34%) and household and transport delay, must be effectively overcome (Ravi U. et al; 2012). These experiences are influenced by maternal lack of appropriate information and practice.

In line with other studies, many newborns die because mothers fail to identify danger signs of illnesses with unnecessary delays in care seeking. The majority gets information from family members and health workers with reduced knowledge on some conditions like hypothermia and convulsions (Oommen A., Vatsa M.; 2013). There are many disorders worldwide contributing to high neonatal morbidity and mortality especially in developing countries and sub-Sahara Africa. Among these is neonatal jaundice. Mothers may have good knowledge on treatment and complications but inadequate or wrong knowledge on the cause or danger signs (Egube B.A.; 2013).

5.8 Conclusions

The study shows a direct relationship between most perceptions of mothers on maternal determinants of neonatal mortality and neonatal death hence accepting the alternative hypothesis in the study. Demographic, social, knowledge, disposition and habits factors were all associated with neonatal mortality.

Neonatal mortality rate among newborns of mothers who had ever had neonatal deaths in the family or among relatives was relatively lower compared to those who had not experienced such deaths. This was an expected finding because previous experience had a positive effect of reducing neonatal deaths among these mothers.

Neonatal mortality rates remain high in area of study with one in every five mothers in this study reporting that they had ever experienced a newborn death. This high neonatal mortality rate is consistent with the high rates seen in developing countries. It is especially comparable to other studies in the African region.

Promoting maternal knowledge on risk factors associated with neonatal mortality is important. They should also be discouraged from engaging in habits that predispose newborns to death during neonatal period.

5.9 Recommendations

As evidenced by the findings, the following are recommended;

- Health care providers should ensure that mothers are empowered with knowledge on prevention of neonatal mortality which should include counseling on risk factors during pregnancy and after delivery.
- The antenatal clinics and maternity units should have a teaching manual which gives instructions or information that must be given so that the midwives know the information to be given to the mothers and to obtain feedback to ensure retention of knowledge.
- The mothers and their communities should be discouraged to eliminate harmful practices that predispose newborns to deaths during the neonatal period.
- The government of Kenya and religious leaders should raise awareness on risks and discourage multiple sexual partners among women.
- Pregnant mothers' especially first time mothers should be encouraged to join social support groups during pregnancy and after delivery for maternal interactions which in turn enables them to acquire knowledge and skills from experienced mothers to improve their neonatal outcome.
- More studies in other establishments in both urban and rural settings should be done to support and validate the findings of this study.

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APPENDICES

APPENDIX 1:

PARTICIPANTS INFORMATION SHEET AND CONSENT FORM

INFORMATION SHEET FOR PARTICIPANTS

Dear participant,

I am a masters' student at the School of Nursing sciences, University of Nairobi. I am conducting a research about **‘Maternal determinants on Neonatal mortality among mothers delivering in Nakuru county level 5 Hospital’** .

No one has a right to force you to participate and you will only participate if you wish to do so. Also note that whether you decide to participate or not will not affect the usual care that you are entitled to receive at this health facility. This is a consent form that gives you information about the purpose, procedure, risks, benefits, confidentiality/privacy and the process that will be expected during the study. Please read this information sheet carefully before you decide whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

What is the Purpose of the study?

This study has been designed to investigate maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital.

The study will evaluate your inputs on the issues raised and the intention is to use the data to come up with a better plan to empower mothers with ways of promoting health and preventing unnecessary neonatal mortality. Your answers will be confidential (i.e., not mentioning your identity). Honesty is required to make this information useful in identifying strengths /weakness of the current systems and addressing them.

Who are eligible for this study?

Participants should be consenting mother who have delivered in Nakuru county level 5 Hospital at the time of this study.

What is expected of you as a participant?

My research assistants will administer a questionnaire to you which discusses the issue of “maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 hospital”. The interview may take between 15-20minutes to complete. You are requested to answer the question as honestly as you can. There will be no tests done to you.

Voluntary participation

Your participation in the study is voluntary. You may withdraw your participation at any point should you change your mind on continuing without any consequences to you. Also understand that the participation in the study does not entail any financial benefit.

Anticipated risk

No risk is anticipated for participating in the study.

Confidentiality

The information you provide me and my team will be kept in strict confidence and only used for the purpose of this research. No information, by which your identity can be revealed, will be released or published.

If you have any questions about this study, either now or later, please feel free to contact:

The principal investigator;

Stella Jepkoech Kulei

Mobile number-0722392026

E-mail - kuleistella@gmail.com

You may also contact the chairman of KNH/UON research and ethical committee (Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

CONSENT FORM FOR PARTICIPANTS

I have read, heard and understood all the explanations on this study that I have been invited to take part in. I have been given a written and verbal explanation of what is asked of me and i have had an opportunity to ask questions and have had them adequately answered.

I understand that i may withdraw from the study at any time and that my consent to participate does not alter my legal rights. It is clear to me that all information will be confidential and will only be used for research purposes.

I understand that any information collected will be stored in a secure place for a period of 7 years before being destroyed or discarded in an ethical manner.

With all the foregoing, I consent freely to taking part as a participant in this study.

Name of participant _____

Signature _____

Date: _____

Residential /contact address:

Phone contact(s) _____ Home: _____ Work: _____

Study number _____ (to be filled by the principal investigator)

WITNESS TO COMPLETE THIS SECTION

In my opinion consent was given freely and with understanding.

Name of witness: _____

Signature: _____

Date: _____

*The witness should not be a study investigator and should preferably be a person principally concerned with the subject's welfare, such as a relative or friend or guardian. All participants below are 18 years of age will have guardians consenting on their behalf)

You may also contact the chairman of KNH/UON research and ethical committee

(Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

APPENDIX 1: FOMU YA IDHINI

TAARIFA KARATASI YA WASHIRIKI

Ndugu mshiriki,

Tumekualika kushiriki katika utafiti huu unaoitwa “Vigezo Kwa afya ya kina mama wajawazito vinavyochangia vifo vya watoto wachanga katika hospitali kuu ya Kaunti ya Nakuru”.

Tafadhali soma karatasi hii Kwa makini kabla uamue kushiriki ama kutoshiriki.

Tunakushukuru Sana Kwa kuisoma karatasi hii. Hakuna ubaya wowote wa kutoshiriki katika utafiti huu. Hivyo basi, usiogope kutuambia unavyohisi kuhusu ushiriki wako. Pia, una uhuru wa kukataa kushiriki katika utafiti huu ata kama ulikuwa ushaitikia kushiriki hapo awali

Ni nini madhumuni ya utafiti huu?

Utafiti huu umebuniwa kuchunguza vigezo uzazi juu ya vifo vya watoto wachanga miongoni mwa kinma mama wajawazito. Ujumbe tutakaopata kutoka kwako utakuwa muhimu Sana kutatua vigezo hivi. Tunakuhahikishia kuwa ujumbe utakaotupa utakuwa siri yako na hutapatikana na binadamu yeyote mwingine ila mtafiti tu.

Ni nani amehitimu kwa utafiti huu?

Washiriki Kwa utafiti huu watakuwa kina maama watakaoitikia kuhusika katika kupeana ujumbe kwa dodoso la utafiti huu. Kila mmoja wa washiriki atasoma fomu hii na kutia sahihi ya kuitikia kushiriki

Nini Kinachotarajiwa kwakokama mshiriki?

Mshiriki atayajibu maswali yaliyo katika dodoso atakalopewa na mtafiti au msaidizi wa mtafiti. Maagizo ya kujaza dodoso hili yuamo katika dodoso, lakini msaidizi wa mtafiti au mtafiti mwenyewe atasaidia mshiriki kuelewa maswali atakayopenda kuelezwa. Mshiriki ana uhuru wa kukataa kujibu swali lolote katika dodoso hili

Ushiriki wa hiari

Ushiriki wako katika utafiti ni hiari. Unaweza kuondoa ushiriki wako katika hatua yoyote ya utafiti huu. Hakuna faida zozote za kifedha zitahusiana na ushiriki katika utafiti huu

Hatari Zinazotarajiwa na mshiriki

Hakuna hatari inatazamiwa kwa kushiriki katika utafiti huu.

Usiri

Habari utakazotoa kwa mtafiti na wasaidiziwake zitawekwa katika imani kali na tu kutumika kwa madhumuni ya utafiti huu pekee. Hakuna taarifa, au habari yoyote ambayo inaweza weka utambulisho wako wazi itatolewa kwa mtu yeyote au kuchapishwa. Kama una maswali yoyote kuhusu utafiti huu, aidha sasa au baadaye, tafadhali jisikie huru kuwasiliana:

Stella Jepkoech Kulei

Simu ya mkononi-0722392026

E-mail - kuleistella@gmail.com

Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kimaadili kamati (Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 kificho 00202 Nairobi) kwa wasiwasi wowote.

FOMU YA IDHINI YA WASHIRIKI

Nimesoma na nimeelewa maelezo yote juu ya utafiti huu ambao mimi nimealikwa kushiriki. Nimepewa habari ya kutosha kwa kuambiwa na pia kwa maandishi na nikapewa nafasi ya kuuliza maswali yote niliyokuwa nayo kuhusu utafiti huu. Haya maswali yote yamejibiwa nilivyotamani na nimeelewa majibu yote.

Naelewa kwambanaweza kujiondoa kutoka utafiti huu wakati wowote na kwamba ridhaa yangu ya kushiriki haijabadilisha vyovyote haki zangu za kisheria. Ni wazi kwangu kwamba taarifa zote zitakuwa siri nazitatumika tu kwa madhumuni ya utafiti huu. Naelewa kwamba taarifa zozote zilizokusanywa zitahifadhiwa katika mahali pa siri kwa kipindi cha miaka 7 kabla ya kuharibiwa au kuondolewa kwa kuzingatia maadili. Pamoja na yote haya, nimekubali kwa hiari kushiriki katika utafiti huu

Jina la mshiriki _____

Sahihi _____

Tarehe: _____

Mawasiliano:

Simu mawasiliano (s) _____ Simu ya Nyumbani:

_____ Simu ya kazi _____

Nambari ya utafiti _____ (kujazwa na mpelelezi mkuu)

SHAHIDI kukamilisha sehemu hii

Kwa maoni yangu ridhaa ilitolewa kwa uhuru na kwa akili.

Jina la shahidi: _____

Sahihi: _____

Tarehe: _____

* Shahidi hapaswi kuwa msaidizi wa mtafiti au mtafiti. Tunatamani Sana shahidi awe mtu anayeshughulikia maslahi ya mshirika, kwa mfano mtu waukoo wake. Kila mshiriki aliye na miaka isiyofika 18 atatiliwa sahihi ya kushiriki na mzazi wake

Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kamati ya maadili

(Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723- 00202 Nairobi) kwa wasiwasi wowote.

APPENDIX 2: STUDY QUESTIONNAIRE

Topic: Maternal determinants on neonatal mortality among mothers delivering in Nakuru County level 5 Hospital

Interview questionnaire

Researcher code-----

Study number-----

Date of interview (dd/mm/yy) -----

PART 1: DEMOGRAPHICS FACTORS

Q1) How old are you (in completed years?) (Read all and tick only one box)

15-20 21-25 26-30 31-35 above 36years .

Q2) Indicate your marital status? (Read all and tick only one box)

Single Married Come we stay Separated Divorced Widowed

Q3) Indicate your level of education?

Primary school Secondary school College University

Others (please specify) _____

Q4) what is your occupation?

Employed Specify _____

Self-employed Specify _____

Peasant Student Unemployed Retired

Q5) How many children do you have? _____

Q6) Area of residence: _____

Q7) Have you had neonatal death in your family/ among your relatives?

a) Yes b) No if yes, Specify person _____

Q8) Do you have multiple partners a) yes b) no . If yes how many (Specify number)

PART2: SOCIAL

Q9) Indicate your religion? (Tick one)

a) Catholic b) Protestant c) Muslim d) Indigenous/traditional e) any other
specify _____

Q10) Are you in any women or social groups? Women group social group

Q11) Do you have any form of community involvement in preventing neonatal deaths?

a) Yes b) No . If yes how much? Little moderate much

PART 3: CULTURAL FACTORS

Q12) what is your tribe (specify) _____

Q13) Do you have any norms or values in your community that promote/prevent neonatal deaths? Yes/No . If yes which ones? _____

Q14) Do you have any Taboos/cultural barriers in your community that promote/prevent neonatal death?

Yes/No . If yes which ones? _____

Q15) Do you have any traditional believes/cultural practices that promote/prevent neonatal death?

Yes/No . If yes which ones? _____

PART 4: ECONOMIC FACTORS

Q16) What is your average monthly earning? (Specify in approximate Ksh) _____

Q17) Do you have any business? If yes, specify _____

Q18) Do you own any properties? If yes, specify _____

Q19) Do you participate in any economic development program in your community?

Yes/No . If yes which ones? _____

Q20) How do you rate your environmental security or safety?

Good Bad . If bad specify _____

Q21) How do you rate your sanitation/refuse disposal system?

Good Bad . If bad specify _____

Q22) How do you access the health care facility?

By walking by use of vehicles by use of bicycles/motor bikes others (specify)

Q23) How do you rate your Nutritional values/ food resources/ food security/ food quality?

Good Bad . If bad specify _____

Q24) How do you rate the level of governance? (In a scale of 10; 10 is good and 1 is bad)

Good Bad . If bad specify _____

PART 5: Health Institutions factors

Q25) How do you rate the quality of Health service providers in helping you prevent neonatal death?

Good Bad . If bad specify _____

Q26) Have you ever been given counselling services or health talk to help you prevent neonatal death?

Yes No . If yes, in which way? _____

Q27) what is the distance from your residence to the health facility? Near Far

Q28) How do you rate Cost of treatment? Expensive Cheap .

Q29) How much do you value quality of health service provided in terms of the following? (In a scale of 10 whereby Bad=0; Good=5 and Very good=10)

Valued object	Very good	Good	Bad
Supplies			
Management			
Services			
Organization			
Health facilities			
Efficiency and effectiveness			

30) Do you ever participate in Preventive and promotive initiatives? Yes No . If yes, specify _____

PART6: AWARENESS

31) In your own understanding, what are the greatest contribution to maternal causes of neonatal mortality and morbidity? _____

32) In your own understanding, do you think the following factors on knowledge level contribute to Neonatal mortality?

Knowledge level	Yes	No	I don't know
Sexually transmitted diseases			
Lack of antenatal clinic attendance			
Premature delivery			
Complications of pregnancy and delivery			
Unskilled delivery			
Lack of information			
Poor health service			

Delays in getting services			
Ignorance of danger signs and risk factors			
Lack of knowledge on prevention methods			

PART 7: DISPOSITION

33) In your own understanding, how do you rate the following factors in influencing your maternal ability to prevent neonatal death? (In a scale of ten; none=0; little=5 and enough=10)

Influence level	None	Little	Enough
Susceptibility to have neonatal death			
Severe consequences of neonatal death			
Cultural consequences of having neonatal death			
Ignorance of danger signs and risk factors			
Emotional trauma resulting from neonatal death			
Fear of having neonatal death			
Negative attitude of people towards neonatal death			
Unpleasant / embarrassing experience of having neonatal death			

PART 8: HABITS

34) Do you have any of the following habits/practices? Yes/ No

Habits	Yes	No
Smoking		
Health seeking behaviour like going for medical check ups		
Attending Follow up clinics		
Past experience with neonatal death		
Having delays in seeking medical care		
Having home deliveries		
Drinking any illicit brew or alcohol		

PART 9: POSITIVE MATERNAL PERCEPTIONS

35) Have you ever had a neonatal death?

Yes No . If yes how many? _____

36) Do you have any Positive practices in preventing neonatal deaths when you are expectant?

Yes No . If yes which ones? _____

37) In your own knowledge, do you know how neonatal deaths can be prevented?

Yes No . If yes which ones? _____

PART 10 NEGATIVE MATERNAL PERCEPTIONS

38) In your community, are there any negative practices that hinder you from preventing neonatal deaths when you are expectant?

Yes No . If yes which ones? _____

39) In your community, are there any cultural beliefs that hinder you from preventing neonatal deaths when you are expectant?

Yes No . If yes which ones? _____

THANK YOU FOR YOUR TIME

APPENDIX 2: FOMU DODOSO

Mada: Vigezo kwa afya ya kina mama wajawazito vinavyochangia vifo vya watoto wachanga katika hospitali kuu ya Kaunti ya Nakuru

Dodoso la utafiti

Nambari fiche ya utafiti -----

Nambari fiche ya dodoso -----

Tarehe ya mahojiano (dd / mm / yy) -----

SEHEMU YA 1: SIFA ZA KIDEMOGRAFIA

Q 1) Una umri gani (miaka kamili) (Soma chaguo zote kisha uchague moja tu)

Miaka 15-20 Miaka 21-25 Miaka 26-30 Miaka 31-35 Miaka inazidi 35 .

Q 2) Hali yako ya ndoa ni gani? (Soma chaguo zote kisha uchague moja tu)

Sijaolewa Nimeolewa Nakaa na mpenzi lakini ndoa sio rasmi Niko katika ndoa lakini sikai na mpenzi wangu Nilimpa mume wangu talaka Mimi ni Mjane

Q 3) Ngazi yako ya elimu ni gani?

Shule ya msingi Shule ya Sekondari Chuo Chuo Kikuu Ngazi nyingine ya elimu
(tafadhali ieleze) _____

Q 4 Hali yako ya ajira ni gani?

Nimeajiriwa (eleza) _____

Nimejiajiri na biashara yangu (eleza) _____

Mimi ni mkulima Mimi ni mwanafunzi Sijaajiriwa Nimestaafu

Q 5) Una watoto wangapi? _____

Q 6) Unakoishi kunaitwaje? _____

Q7) Je, kushawahi kuwa na kifo cha mtoto mchanga katika familia yako /kwa jamaa wako?

a) Ndiyo b) La Kama ndiyo, eleza uhusiano wako na aliyefiwa _____

Q 8) Je, una wapenzi wengi

a) Ndiyo b) La . Kama ndiyo, tafadhali eleza ni wangapi kwa kutaja idadi _____

SEHEMU YA 2: SIFA ZA KIJAMI

Q 9) Dini lako ni gani? (Jibu moja)

a) Katoloki b) Kiprotestanti c) Waislamu d) Dini ya jadi e) Nyingine yoyote

Eleza _____

Q 10) Je wewe ni mwanachama katika kundi lolote ya kijamii? Kundi la kina mama kundi la kijamii

Q 11) Je, una ushiriki wowote wa kijamii katika kuzuia vifo vya watoto wachanga?

a) Ndiyo b) La . Kama ndiyo kiasi gani? Kidogo Wastani Ushiriki mno

SEHEMU 3: SIFA ZA KITAMADUNI

Q 12) Kabila lako ni gani (taja) _____

Q 13) Je, kuna kanuni au maadili yoyote katika jamii yako ambayo huzuia vifo vya watoto wachanga? Ndiyo La . Kama ndiyo, tafadhali yaeleze

Q 14) Je, kuna Miiko ama vikwazo vyovyote vya kitamaduni katika jamii yako ambavyo huzuia vifo vya watoto wachanga?

Ndiyo La . Kama ndiyo, tafadhali eleza _____

Q 15) Je, kuna jadi zozote unazoamini au zakitamaduni ambazo huzuia vifo vya watoto wachanga?

Ndiyo La . Kama ndiyo, tafadhali eleza jadi hizi

PART 4: SIFA ZA KIUCHUMI

Q 16) Je, pato lako la kila mwezi ni takribani shilingi ngapi? _____

Q 17) Je, una biashara yoyote? Kama ndiyo, itaje _____

Q 18) Je, unamiliki Mali yoyote? Kama ndiyo, itaje _____

Q 19) Je, unashiriki katika miradi yoyote ya kiuchumi na maendeleo katika jamii yako?

Ndiyo La . Kama ndiyo, eleza miradi hii _____

Q 20) Kwa maoni yako, usalama wako mazingira uko katika hali gani?

Nzuri mbaya . Kama umechagua “mbaya”, tafadhali
eleza _____

Q 21) Kwa maoni yako, usafi wa mazingira yako uko katika hali gani?

Nzuri Mbaya . Kama umechagua “mbaya”, tafadhali eleza

Q 22) Unatumia jinsi gani ya usafiri kufikia huduma za afya zilizo karibu nawe?

Kwa kutembea Kwa gari Kwa baiskeli / pikipiki Jinsi zingine za usafiri (zitaje)

Q23) Kwa maoni yako, una usalama wa lishe bora na la kutosha? Ndiyo La .

Kama”la” tafadhali eleza _____

Q 24) Kwa maoni yako, katika kiwango cha moja mpaka kumi, kiwango cha utawala mzuri
katika taifa hili ni kipi? Eleza sababu ya kiwango

hiki _____

SEHEMU 5: SIFA ZA KIAFYA

Q 25) Kwa maoni yako, utaalamu wa wafanyakazi katika vituo vya afya kwa kuzuia vifo vya
watoto wachanga uko katika kiwango gani?

Nzuri mbaya . Kama”mbaya” tafadhali
eleza _____

Q 26) Je, umewahi ushuriwa kiafya ili ukusaidie kuzuia vifo vya watoto wachanga?

Ndiyo La . Kama “ndiyo” kwa njia gani?

Q 27) Umbali kutoka makazi yako kwa kituo cha afya ni kiasi gani? Karibu Mbali

Q 28) Kwa maoni yako, gharama za matbabu ziko katika kiwango gani? Ghali Nafuu

Q 29) Eleza, kwa maoni yako, kiasi cha ubora wa huduma za afya zinazotolewa (Katika ukubwa wa 10 ambapo Sio bora=0, Bora = 5, Bora sana = 10)

Suala	Bora sana	Bora	Sio Bora
Utoshelevu wa vifaa vya matibabu			
Usimamizi wa huduma za afya			
Huduma za afya kwa wagonjwa			
Ubora wa mpangilio ya matibabu			
Ubora wa vituo vya afya			
Tija na ufanisi wa matibabu			

30) Je, umewahi shiriki katika miradi ya kuzuia magonjwa na vifo vya watoto wachanga?

Ndiyo La . Kama ndiyo, eleza _____

SEHEMU YA 6: UFAHAMU

Q 31) Kwa maarifa yako mwenyewe, ni nini katika afya ya kina mama huchangia sana kwa maradhi na vifo vya watoto wachanga?

Q 32) Kwa maarifa yako mwenyewe, kuwa na ufahamu katika mambo yafuatayo huchangia kwa vifo vya watoto wachanga?

Ufahamu katika jambo hili;	Ndiyo unachangia	La, hauchangii	Sijui kama unachangia
Magonjwa ya zinaa			
Ukosfu wa kwenda kliniki ya wajawazito			
Kujifungua mtoto ambaye hajakomaa			
Matatizo kiafya yanayosababishwa na kujifungua			

Ukosefu wa huduma za kiafya wakati wa kujifungua			
Ukosefu wa fahamu			
Huduma duni za kiafya			
Kuchelewa kupata huduma za kiafya			
Kutotilia maanani ishara za matatizo katika ujauzito			
Ukosefu wa maarifa kuhusu jinsi za kuzui matatizo			

SEHEMU 7: MAHOJIANO

Q 33) Kwa maarifa yako mwenyewe, unaweza weka umuhimu wa mambo yafuatayo katika kuzuia vifo vya watoto wadogo kwa kiwango gani (Katika wadogo wa kumi; hakuna hata = 0; kidogo = 5 na kutosha= 10)

Kiwango cha uchangiaji	Halichangii vyovyote(hakuna)	Linachangia kidogo	Linachangia vya kutosha
Kuwa na hatari ya kumpoteza mtoto mchanga			
Madhara makubwa ya kufiwa na motto			
Madhara ya kitamaduni ya kufiwa na mttoto			
Kutotilia maanani ishara za hatari za kiafya			
Hisia chungu na sumbufu za kufiwa na motto			
Hofu ya kumpoteza motto			

Mtazamo wa jamii kuhusu vifo vya watoto wachanga			
Aibu na unyanyapaa wa kumpoteza motto mchanga			

SEHEMU 8: TABIA

Q 34) Je, una tabia ama desturi yoyote ifuatayo?

Tabia	Ndiyo	La
Kuvuta sigara		
Kutafuta huduma za afya		
Kwenda kliniki za kufuatilia matibabu		
Kufiwa na mtoto hapo zamani		
Kuchelewa kutafuta huduma za matibabu		
Kujifungulia watoto nyumbani		
Kunywa pombe		

SEHEMU 9: HISIA BORA ZA MAMA

Q 35) Umewahi fiwa na mtoto mchanga?

Ndiyo La . Kama ndiyo, wangapi? _____

Q 36) Je, huwa unafanya lolote ili uzuie kifo cha mtoto mchanga wakati ungali mjawazito?

Ndiyo La . Kama ndiyo, tafadhali lieleze

Q 37) Kwa maarifa yako mwenyewe, unajua jinsi vifo vya watoto wachanga vinaweza zuiwa?

Ndiyo La . Kama ndiyo, eleza unavyojua

SEHEMU 10: HISIA ZIZIZO BORA ZA KINA MAMA

Q 38) Katika jamii yako, kuna mazoea yoyote ambayo huzia kifo cha mtoto wako ungali mjamzito? Ndiyo La . Kama ndiyo, tafadhali yaeleze

Q 39) Katika jamii yako, kuna imani yoyote ya kitamaduni ambayo hukutatiza kwa kuzuia vifo vya watoto wachanga ungali mjamzito? Ndiyo La . Kama ndiyo, taja _____

ASANTE KWA MUDA WAKO

APPENDIX 3: FOCUSED GROUP DISCUSSION GUIDE

INFORMATION SHEET FOR PARTICIPANTS

Dear participant,

You are hereby invited to participate in a ‘ ‘ Maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital’ ’ research as one of the members in a focused discussion group made up of 8 participants. The details of the research are as per the information sheet for participants and requirements for informed consent in the informed consent form. Read all the issues carefully and ensure that you comply with all the requirements. Be as honest, free and active in your participation as possible in responding to all the questions as specified. There will be an observer, moderator and note taker for your focus group discussion.

What is the Purpose of the study?

This study has been designed to investigate maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital.

The study will evaluate your inputs on the issues raised and the intention is to use the data to come up with a better plan to empower mothers with ways of promoting health and preventing unnecessary neonatal mortality. Your answers will be confidential (i.e., not mentioning your identity).Honesty is required to make this information useful in identifying strengths /weakness of the current systems and addressing them.

Who are eligible for this study?

Participants should be consenting mothers who have delivered in Nakuru county level 5 Hospital at the time of this study and who are not part of the study sample.

What is expected of you as a participant?

My research assistants will administer a questionnaire to you which discusses the issue of “maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital’ ’. The interview may take between 15-20minutes to complete. You are requested to answer the question as honestly as you can. There will be no tests done to you.

Voluntary participation

Your participation in the study is voluntary. You may withdraw your participation at any point should you change your mind on continuing without any consequences to you. Also understand that the participation in the study does not entail any financial benefit.

Anticipated risk

No risk is anticipated for participating in the study.

Confidentiality

The information you provide me and my team will be kept in strict confidence and only used for the purpose of this research. No information, by which your identity can be revealed, will be released or published.

If you have any questions about this study, either now or later, please feel free to contact:

Stella Jepkoech Kulei

Mobile number-0722392026

E-mail - kuleistella@gmail.com

You may also contact the chairman of KNH/UON research and ethical committee (Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

CONSENT FORM FOR PARTICIPANTS

I have read, heard and understood all the explanations on this study that I have been invited to take part in. I have been given a written and verbal explanation of what is asked of me and i have had an opportunity to ask questions and have had them adequately answered.

I understand that i may withdraw from the study at any time and that my consent to participate does not alter my legal rights. It is clear to me that all information will be confidential and will only be used for research purposes.I understand that any information collected will be stored in a secure place for a period of 7 years before being destroyed or discarded in an ethical manner.

With all the foregoing, I consent freely to taking part as a participant in this study.

Name of participant _____

Signature _____

Date: _____

Residential /contact address:

Phone contact(s) _____ Home: _____ Work: _____

Study number _____ (to be filled by the principal investigator)

WITNESS TO COMPLETE THIS SECTION

In my opinion consent was given freely and with understanding.

Name of witness: _____

Signature: _____

Date: _____

*The witness should not be a study investigator and should preferably be a person principally concerned with the subject's welfare, such as a relative or friend or guardian. All participants below 18 years of age will have guardians consenting on their behalf)

You may also contact the chairman of KNH/UON research and ethical committee

(Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

FOCUSED GROUPS DISCUSSION GUIDE

1. What are the demographic factors that influence maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 hospital
2. What are the social factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
3. What are the cultural factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
4. What are the Economic factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
5. What are the health institutional factors that influence maternal determinants on neonatal mortality determinants in Nakuru county level 5 hospital
6. What are the awareness, disposition and habit factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 Hospital?

THANK YOU FOR YOUR TIME.

APPENDIX 3: MWONGOZO WA KUNDI WA UMAKINI KATIKA MAJADILIANO

TAARIFA KARATASI YA WASHIRIKI

Ndugu mshiriki,

Tumekualika kushiriki katika utafiti huu unaoitwa “Vigezo kwa afya ya kina mama wajawazito vinavyochangia vifo vya watoto wachanga katika hospitali kuu ya Kaunti ya Nakuru”. Tafadhali soma karatasi hii kwa makini kabla uamue kushiriki ama kutoshiriki. Tunakushukuru sana kwa kuisoma karatasi hii. Hakuna ubaya wowote wa kutoshiriki katika utafiti huu. Hivyo basi, usiogope kutuambia unavyohisi kuhusu ushiriki wako. Pia, una uhuru wa kukataa kushiriki katika utafiti huu ata kama ulikuwa ushaitikia kushiriki hapo awali

Ni nini Madhumuni ya utafiti huu?

Utafiti huu umebuniwa kuchunguza vigezo uzazi juu ya vifo vya watoto wachanga miongoni mwa kina mama wajawazito. Ujumbe tutakaopata kutoka kwako utakuwa muhimu sana kutatua vigezo hivi. Tunakuhahikishia kuwa ujumbe utakaotupa utakuwa siri yako na hutapatikana na binadamu yeyote mwingine ila mtafiti tu.

Ni nani amehitimu kushiriki katika utafiti huu?

Washiriki kwa utafiti huu watakuwa kina mama wasiokuwa katika kundi sampuli na watakoitikia kuhusika katika kupeana ujumbe kwa dodoso la utafiti huu. Kila mmoja wa washiriki atasoma fomu hii na kutia sahihi ya kuitikia kushiriki

Nini Kinachotarajiwa kwako kama mshiriki?

Mshiriki atayajibu maswali yaliyo katika dodoso atakalopewa na mtafiti au msaidizi wa mtafiti. Maagizo ya kujaza dodoso hili yuamo katika dodoso, lakini msaidizi wa mtafiti au mtafiti mwenyewe atasaidia mshiriki kuelewa maswali atakayopenda kuelezwa. Mshiriki ana uhuru wa kukataa kujibu swali lolote katika dodoso hili

Ushiriki wa hiari

Ushiriki wako katika utafiti ni hiari. Unaweza kuondoa ushiriki wako katika hatua yoyote ya utafiti huu. Hakuna faida zozote za kifedha zitahusiana na ushiriki katika utafiti huu

Hatari Zinazotarajiwa na mshiriki

Hakuna hatari inatazamiwa kwa kushiriki katika utafiti huu.

Usiri

Habari utakazotoa kwa mtafiti na wasaidizi wake zitawekwa katika imani kali na tu kutumika kwa madhumuni ya utafiti huu pekee. Hakuna taarifa, au habari yoyote ambayo inaweza wekas utambulisho wako wazi itatolewa kwa mtu yeyote au kuchapishwa.

Kama una maswali yoyote kuhusu utafiti huu, aidha sasa au baadaye, tafadhali jisikie huru kuwasiliana:

Jina- Stella Jepkoech Kulei

Simu ya mkononi-0722392026

E-mail - kuleistella@gmail.com

Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kimaadili kamati (Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 kificho 00202 Nairobi) kwa wasiwasi wowote.

FOMU YA IDHINI YA WASHIRIKI

Nimesoma na nimeelewa maelezo yote juu ya utafiti huu ambao mimi nimealikwa kushiriki. Nimepewa habari ya kutosha kwa kuambiwa na pia kwa maandishi na nikapewa nafasi ya kuuliza maswali yote niliyokuwa nayo kuhusu utafiti huu. Haya maswali yote yamejibiwa nilivyotamani na nimeelewa majibu yote. Naelewa kwamba naweza kujiondoa kutoka utafiti huu wakati wowote na kwamba ridhaa yangu ya kushiriki haijabadilisha vyovyote haki zangu za kisheria. Ni wazi kwangu kwamba taarifa zote zitakuwa siri na zitatumika tu kwa madhumuni ya utafiti huu.

Naelewa kwamba taarifa zozote zilizokusanywa zitahifadhiwa katika mahali pa siri Kwa kipindi cha miaka 7 kabla ya kuharibiwa au kuondolewa Kwa kuzingatia maadili. Pamoja na yote haya, nimekubali kwa hiari kushiriki katika utafiti huu

Jina la mshiriki _____

Sahihi _____

Tarehe: _____

Mawasiliano:

Simu mawasiliano (s) _____ Simu ya Nyumbani:

_____ Simu ya kazi _____

Nambari ya utafiti _____ (kujazwa na mpelelezi mkuu)

SHAHIDI kukamilisha sehemu hii

Kwa maoni yangu ridhaa ilitolewa Kwa uhuru na kwa akili.

Jina la shahidi: _____

Sahihi: _____

Tarehe: _____

* Shahidi hapaswi kuwa msaidizi wa mtafiti au mtafiti. Tunatamani Sana shahidi awe mtu anayeshughulikia maslahi ya mshirika, kwa mfano mtu waukoo wake. Kila mshiriki aliye na miaka isiyofika 18 atatiliwa sahihi ya kushiriki na mzazi wake. Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kamati ya maadili;

(Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723- 00202 Nairobi) kwa wasiwasi wowote.

MWONGOZO WA KUNDI WA UMAKINI KATIKA MAJADILIANO

1. Ni sifa gani za kidemografia zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
2. Ni sifa gani za kijamii zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
3. Ni sifa gani za kitamaduni zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
4. Ni sifa gani za kiuchumi zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
5. Ni vipengele gani katika vituo vya afya vinavyohusu afya ya wajawazito ambavyo huchangia Kwa vifo vya watoto wachanga?
6. Ni sifa gani za kimaarifa zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?

ASANTE KWA MUDA WAKO

APPENDIX 4: KEY INFORMANTS INTERVIEW GUIDE (KII)

INFORMATION SHEET FOR PARTICIPANTS

Dear participant,

You are hereby invited to participate in a ‘ ‘ maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 hospital’ ’ research as one of the key informants. The details of the research are as per the information sheet for participants and requirements for informed consent in the informed consent form. Read all the issues carefully and ensure that you comply with all the requirements. Be as honest as possible in responding to all the questions as specified.

What is the Purpose of the study?

This study has been designed to investigate maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 hospital

The study will evaluate your inputs on the issues raised and the intention is to use the data to come up with a better plan to empower mothers with ways of promoting health and preventing unnecessary neonatal mortality. Your answers will be confidential (i.e. not mentioning your identity).Honesty is required to make this information useful in identifying strengths /weakness of the current systems and addressing them.

Who are eligible for this study?

Key informants will include people with good knowledge on the study concepts.

What is expected of you as a participant?

They will be expected to give expert insight in relevant areas of the research.

My research assistants will administer key information guide to you which discusses the issue of “maternal determinants on neonatal mortality among mothers delivering in Nakuru county level 5 Hospital’ ’. The interview may take between 15-20minutes to complete. You are requested to answer the question as honestly as you can. There will be no tests done to you.

Voluntary participation

Your participation in the study is voluntary. You may withdraw your participation at any point should you change your mind on continuing without any consequences to you. Also understand that the participation in the study does not entail any financial benefit.

Anticipated risk

No risk is anticipated for participating in the study.

Confidentiality

The information you provide me and my team will be kept in strict confidence and only used for the purpose of this research. No information, by which your identity can be revealed, will be released or published.

If you have any questions about this study, either now or later, please feel free to contact:

Stella Jepkoech Kulei

Mobile number-0722392026

E-mail - kuleistella@gmail.com

You may also contact the chairman of KNH/UON research and ethical committee (Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

CONSENT FORM FOR PARTICIPANTS

I have read, heard and understood all the explanations on this study that I have been invited to take part in. I have been given a written and verbal explanation of what is asked of me and I have had an opportunity to ask questions and have had them adequately answered.

I understand that I may withdraw from the study at any time and that my consent to participate does not alter my legal rights. It is clear to me that all information will be confidential and will only be used for research purposes.

I understand that any information collected will be stored in a secure place for a period of 7 years before being destroyed or discarded in an ethical manner. With all the foregoing, I consent freely to taking part as a participant in this study.

Name of participant _____

Signature _____

Date: _____

Residential /contact address:

Phone contact(s) _____ Home: _____ Work: _____

Study number _____ (to be filled by the principal investigator)

WITNESS TO COMPLETE THIS SECTION

In my opinion consent was given freely and with understanding.

Name of witness: _____

Signature: _____

Date: _____

*The witness should not be a study investigator and should preferably be a person principally concerned with the subject's welfare, such as a relative or friend or guardian. All participants below 18 years of age will have guardians consenting on their behalf)

You may also contact the chairman of KNH/UON research and ethical committee

(Email; uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 code 00202 Nairobi) for any concerns.

KEY INFORMANTS INTERVIEW GUIDE

1. What are the demographic factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
2. What are the social factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
3. What are the cultural factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
4. What are the Economic factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 hospital
5. What are the health institutional factors that influence maternal determinants on

neonatal mortality in Nakuru county level 5 hospital

6. What are the awareness, disposition and habit factors that influence maternal determinants on neonatal mortality in Nakuru county level 5 Hospital?

THANK YOU FOR YOUR TIME.

APPENDIX 4: MWONGOZO KWA WASHIRIKI WAKUU KATIKA MAHOJIANO

TAARIFA KWA WASHIRIKI

Ndugu mshiriki,

Tumekualika kushiriki katika utafiti huu unaoitwa “Vigezo Kwa afya ya kina mama wajawazito vinavyochangia vifo vya watoto wachanga katika hospitali kuu ya Kaunti ya Nakuru”.

Tafadhali soma karatasi hii Kwa makini kabla uamue kushiriki ama kutoshiriki.

Tunakushukuru Sana Kwa kuisoma karatasi hii. Hakuna ubaya wowote wa kutoshiriki katika utafiti huu. Hivyo basi, usiogope kutuambia unavyohisi kuhusu ushiriki wako. Pia, una uhuru wa kukataa kushiriki katika utafiti huu ata Kama ulikuwa ushaitikia kushiriki hapo awali

Ni nini madhumuni ya utafiti huu?

Utafiti huu umebuniwa kuchunguza vigezo uzazi juu ya vifo vya watoto wachanga miongoni mwa kinma mama wajawazito. Ujumbe tutakaopata kutoka kwako utakuwa muhimu Sana kutatua vigezo hivi.

Tunakuhahikishia kuwa ujumbe utakaotupa utakuwa siri yako na hutapatikana na binadamu yeyote mwingine ila mtafiti tu.

Ni nani amehitimu kushiriki katika utafiti huu?

Washiriki Kwa utafiti huu watakuwa watu ambao wana ujuzi juu ya dhana ya utafitiki na watakoitikia kuhusika katika kupeana ujumbe kwa dodoso la utafiti huu. Kila mmoja wa washiriki atasoma fomu hii na kutia sahihi ya kuitikia kushiriki

Nini Kinachotarajiwa kwako Kama mshiriki?

Mshiriki atayajibu maswali atakayoulizwa na mtafiti au msaidizi wa mtafiti. Ujumbe utakaompa mtafiti katika mahojiano haya hautatolewa Kwa mtu yeyote yule ila mtafiti peke yake. Mshiriki ana uhuru wa kukataa kujibu swali lolote katika dodoso hili

Ushiriki wa hiari

Ushiriki wako katika utafiti ni hiari. Unaweza kuondoa ushiriki wako katika hatua yoyote ya utafiti huu. Hakuna faida zozote za kifedha zitahusiana na ushiriki katika utafiti huu

Hatari Zinazotarajiwa na mshiriki

Hakuna hatari inatazamiwa kwa kushiriki katika utafiti huu.

Usiri

Habari utakazotoa Kwa mtafiti na wasaidizi wake zitawekwa katika imani kali na tu kutumika kwa madhumuni ya utafiti huu pekee. Hakuna taarifa, au habari yoyote ambayo inaweza wekas utambulisho wako wazi itatolewa Kwa mtu yeyote au kuchapishwa. Kama una maswali yoyote kuhusu utafiti huu, aidha sasa au baadaye, tafadhali jisikie huru kuwasiliana:

Stella Jepkoech Kulei

Simu ya mkononi-0722392026

E-mail - kuleistella@gmail.com

Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kimaadili kamati (Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723 kificho 00202 Nairobi) kwa wasiwasi wowote.

FOMU YA IDHINI YA WASHIRIKI

Nimesoma na nimeelewa maelezo yote juu ya utafiti huu ambao Mimi nimealikwa kushiriki. Nimepewa habari ya kutosha kwa kuambiwa na pia kwa maandishi na nikapewa nafasi ya kuuliza maswali yote niliyokuwa nayo kuhusu utafiti huu. Haya maswali yote yamejibiwa nilivyotamani na nimeelewa majibu yote.

Naelewa kwamba naweza kujiondoa kutoka utafiti huu wakati wowote na kwamba ridhaa yangu ya kushiriki haijabadilisha vyovyote haki zangu za kisheria. Ni wazi kwangu kwamba taarifa zote zitakuwa siri na zitatumika tu kwa madhumuni ya utafiti huu. Naelewa kwamba taarifa zozote zilizokusanywa zitahifadhiwa katika mahali pa siri kwa kipindi cha miaka 7 kabla ya kuharibiwa au kuondolewa kwa kuzingatia maadili. Pamoja na yote haya, nimekubali kwa hiari kushiriki katika utafiti huu

Jina la mshiriki _____

Sahihi _____

Tarehe: _____

Mawasiliano:

Simu mawasiliano (s) _____ Simu ya Nyumbani:

_____ Simu ya kazi _____

Nambari ya utafiti _____ (kujazwa na mpelelezi mkuu)

SHAHIDI kukamilisha sehemu hii

Kwa maoni yangu ridhaa ilitolewa kwa uhuru na kwa akili.

Jina la shahidi: _____

Sahihi: _____

Tarehe: _____

* Shahidi hapaswi kuwa msaidizi wa mtafiti au mtafiti. Tunatamani sana shahidi awe mtu anayeshughulikia maslahi ya mshirika, kwa mfano mtu waukoo wake. Kila mshiriki aliye na miaka isiyofika 18 atatiliwa sahihi ya kushiriki na mzazi wake. Unaweza pia kuwasiliana na mwenyekiti wa KNH / UON utafiti na kamati ya maadili

(Email, uonknh-erc@uonbi.ac.ke, P.O.BOX 20723- 00202 Nairobi) kwa wasiwasi wowote.

TAARIFA MWONGOZO KWA WASHIRIKI WAKUU KATIKA MAHOJIANO

1. Ni sifa gani za kidemografia zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
2. Ni sifa gani za kijamii zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
3. Ni sifa gani za kitamaduni zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
4. Ni sifa gani za kiuchumi zinazohusu afya ya wajawazito ambazo huchangia Kwa vifo vya watoto wachanga?
5. Ni vipengele gani katika vituo vya afya vinavyohusu afya ya wajawazito ambavyo huchangia kwa vifo vya watoto wachanga?
6. Ni sifa gani za kimaarifa zinazohusu afya ya wajawazito ambazo huchangia kwa vifo vya watoto wachanga?

ASANTE KWA MUDA WAKO

APPENDIX 5: GANTTCHART (WORK PLAN)

Duration in Weeks / Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Problem Identification	■															
Proposal Writing		■														
Seeking consent from Ethical committees			■	■												
Recruitment and training of research assistants					■											
Pre-testing of study tools						■										
Administration of tools							■	■	■	■						
Data cleaning and entry											■					
Data analysis												■	■			
Report writing and presentation														■	■	
Compilation of final report and dissemination																■

APPENDIX 6: BUDGET

ITEM	UNIT COST	QUANTITY	COST	TOTAL COST
HUMAN RESOURCE				
(a) Training of research assistants				
Research assistants allowance(2) lunch and transport	1500	2x1500*10days	30,000	
Principal investigator researcher(1)	2,000	1x2,000*10days	20,000	
(a)Pre-testing of questionnaire				
Research assistants(2)	500	2x500*5days	5,000	
Principal researcher(1)	1,000	1x1,000*5days	5,000	
(a)Data collection				
Research assistants(2)	1000	2x1000*10days	20,000	
Principal researcher(1)	2000	1x2,000*10days	20,000	
Sub-total				100,000
MATERIALS AND SUPPLIES				
Biro pens(1 dozen)	180	180x1	180	
Pencils(1 dozen)	60	60x1	60	
Rubbers(3)	10	10x3	30	
Folders(3)	100	100x3	300	
Field books	65	65x3	195	
Stapler and staples	600	600	600	
Sub-total				1,365
PROPOSAL AND THESIS				
Proposal typing and printing (50 pages)	35	50x35	1,750	
Analyzing and Photocopying final report (5 copies)	3	250 x5*20000	21,250	
Sub-total				23,000
TOTAL				124,365

APPENDIX 7: LETTER OF APPROVAL FROM THE UNIVERSITY OF NAIROBI

KENYATTA NATIONAL HOSPITAL ETHICS REVIEW COMMITTEE ((UON/KNH ERC)



UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
Tel: (254-020) 2720380 Ext 44355



KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726209-0
Fax: 726272
Telegrams: MEDGUP, Nairobi

KNH-UoN ERC

Email: uonknh_erc@uonbi.ac.ke
Website: <http://www.erc.uonbi.ac.ke>
Facebook: <https://www.facebook.com/uonknh.erc>
Twitter: @UONKNH_ERC https://twitter.com/UONKNH_ERC

Ref: KNH-ERC/A/126

Stella Jepkoech Kulei
Reg. No. H56/74543/2014
School of Nursing Sciences
College of Health Sciences
University of Nairobi

8th April, 2016



Dear Stella,

Revised Research Proposal: Determinants of Neonatal Mortality among Mothers Delivering in Nakuru County Level 5 Hospital (P52/02/2016)

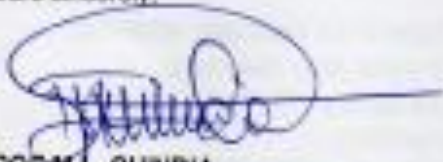
This is to inform you that the KNH- UoN Ethics & Research Committee (KNH-UoN ERC) has reviewed and **approved** your above proposal. The approval period is from 8th April 2016 – 7th April 2017.

This approval is subject to compliance with the following requirements:

- Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH-UoN ERC before implementation.
- Death and life threatening problems and serious adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH-UoN ERC within 72 hours of notification.
- Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH- UoN ERC within 72 hours.
- Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (Attach a comprehensive progress report to support the renewal).
- Clearance for export of biological specimens must be obtained from KNH- UoN ERC for each batch of shipment.
- Submission of an executive summary report within 90 days upon completion of the study.
This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/ or plagiarism.

For more details consult the KNH- UoN ERC website <http://www.erc.uonbi.ac.ke>

Yours sincerely,




PROF M.L. CHINDIA
SECRETARY, KNH-UoN ERC

c.c. The Principal, College of Health Sciences, UoN
The Deputy Director, CS, KNH
The Assistant Director, Health Information, KNH
The Director, School of Nursing Sciences, UoN
Supervisors: Dr. Jennifer Dyeke, Dr. Blasio Osogo Omuga

APPENDIX 8: AUTHORITY LETTER FROM THE NAKURU COUNTY LEVEL 5 REFERRAL HOSPITAL TO CONDUCT THE STUDY

MINISTRY OF HEALTH

Telegrams: "PROVMED", NAKURU
Telephone: Nakuru 051-2215480-90
When replying please quote
FAX 051 2214497



PROVINCIAL GENERAL HOSPITAL
RIFT VALLEY PROVINCE
P.O. Box 71
NAKURU.

RH/VOL/08

Date: 12/5/2016

To: MEDICAL SUPERINTENDENT
PO BOX 71
NAKURU

Dear SIR

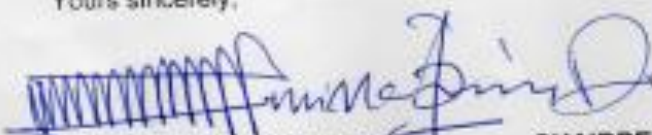
RE: APPROVAL TO UNDERTAKE RESEARCH AT THE RIFT VALLEY PROVINCIAL GENERAL HOSPITAL


Reference is made to your letter dated 21/4/2016 seeking approval to conduct a research on Determinants of neonatal mortality among mothers delivering at Provincial General Hospital Nakuru County level 5 hospital.


Permission has been granted/~~Not granted~~ for the research. It is hoped that you will adhere to the ethics and standards that relate to research at our institution.

Thank you.

Yours sincerely,


MEDICAL SUPERINTENDENT


**CHAIRPERSON
RESEARCH AND ETHICS COMMITTEE**



APPENDIX 9: AUTHORITY LETTER FROM THE BARINGO COUNTY HOSPITAL TO PRETEST MY DATA COLLECTION TOOLS


UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING SCIENCES

TELEGRAMS: UARSTY NAIROBI
TELEPHONE: 020 272638 EXT. 45880
TELEFAX: 020 2711250

P.O. BOX 19676-0200
KENYATTA NATIONAL HOSPITAL
NAIROBI KENYA

H56/74643/2014

21st April 2016

The Medical Superintendent
Baringo County Hospital
BARINGO

Dear Sir

STELLA JEPKOECH KULEI - H56/74643/2014

The above named is a Masters Student at the School of Nursing Sciences, University of Nairobi. She is undertaking a research on **"Determinants of Neonatal Mortality Among Mothers Delivering At Nakuru County Level 5 Hospital"**. She wishes to pretest her research tools.

Kindly accord the necessary assistance in your institution.

Thank you for your continued support.

Yours faithfully,

For Prof. Grace M. Omondi
PROF. GRACE M. OMONDI
DIRECTOR,
SCHOOL OF NURSING SCIENCES



 **ISO 9001:2008 CERTIFIED**
The Foundation of Knowledge
Providing leadership in academic excellence

Approved by Dr. Atanga S.O. 10/11/2016
To be attested by No. 1/c



APPENDIX 10– LOCATION, DIRECTIONAL MAP AND PICTURES OF NAKURU COUNTY LEVEL 5 HOSPITAL FACILITIES

A) Location and directional maps of Nakuru county level 5 hospital



B) Pictures of Nakuru county level 5 Hospital showing the main gate, administration block, the hospital sign post and the maternity unit;

