

FACTORS ASSOCIATED WITH NEONATAL MORTALITY AT KAMPALA
INTERNATIONAL UNIVERSITY TEACHING HOSPITAL

BUSHENYI-UGANDA

TUMUKUNDE MERAB

M16/U011/DNE/050

A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF NURSING IN
PARTIAL FULFILLMENT FOR THE AWARD OF A DIPLOMA OF
NURSING SCIENCE BY UGANDA NURSES AND MIDWIVES
EXAMINATION BOARD

OCTOBER 2017

Abstract

According MDG 4: the mortality rate among children under five was to be reduced by two thirds by 2015. Unfortunately; it has remained a day dream up to today.

A quantitative descriptive cross-sectional study employed convenient purposive sampling was carried in Kampala international university teaching hospital to assess factors associated to neonatal mortality among mothers that had lost a neonate during time of data collection.

Young age mothers 19-24 and Prime-parity were associated to neonatal mortality by (26.6%) and (30%) respectively in addition to low level of education (60%), living in rural areas (83.5%) and poor economic status of mother (66.6%). Maternal factors associated with neonatal mortality included close intervals between pregnancies (53.3%), poor ANC visits where by $\Sigma=66.5$ had visited <4 times, a minimum required. Neonatal factors associated to neonatal mortality were; male sex (56.6%), prematurity (33.3%), low birth weight (40%) while infections, respiratory failure and hypothermia were 30%, 23.3% and 20% respectively. Whereas facility related factors associated to neonatal mortality were poor utilization of facility during labour where (56.5%) of neonates that died were home deliveries, through SVD (56.6%) under assistance of TBAs and relatives (56.6%). However, 100% of mothers reported that the facility lacked protocols on neonatal care in postnatal and neonatal care units to guide mothers on essential neonatal care. Obstetric complications related to young age mothers, low education, poor social economic status, Rapid intervals between pregnancies, and failure to utilise antenatal were associated to neonatal mortality. Neonatal factors were male sex,

prematurity, low births weight, infections, respiratory failure and hypothermia. Neonates delivered from outside facility, under care of TBAs died more than those delivered within hospital by professionals. Generally the lack of essential new-born care protocols in facility created knowledge gaps that led to neonatal deaths.

Declaration

I Tumukunde Merab, hereby declare that this report to assess “**Factors associated with neonatal mortality at Kampala International University Teaching Hospital**” Bushenyi district is my own work and that all sources used or quoted are indicated and acknowledged by means of full referencing and that this work has never been submitted before for any other diploma award or other program at any other institution.

Sign.....Date.....

TUMUKUNDE MERAB

DNS/E/4873/161/DU

Approval

I hereby certify that this report has been prepared under my supervision and has never been presented anywhere for any purpose and is now ready for submission to the School of Nursing of Kampala International University and to Uganda nurses and midwives examinations board.

Sign..... Date.....

Ms. SYLVIA

SUPERVISOR

Signature Date/...../.....

Sister. KABANYORO ANNET

(DEAN SCHOOL OF NURSING)

Copyright

Copyright © 2017 Tumukunde Merab. All rights Reserved.

Authorisation

Unpublished research report submitted to Kampala International University school of Nursing and deposited in the library, is open for inspection, but is to be used with due regard to the rights of **Tumukunde Merab**. The author and Kampala international University school of Nursing can grant privilege of loan or purchase of a copy to accredited borrowers provided credit is given in subsequent written or published work.

Sign.....Date.....

TUMUKUNDE MERAB DNS/E/4873/161/DU

Sign..... Date.....

Ms.SYLVIA SUPERVISOR

Signature Date/...../.....

Sister. KABANYORO ANNET (DEAN SCHOOL OF NURSING)

Dedication

I dedicate this work to my family especially my son Joel, my beloved parents Mr and Mrs Kayebiire George, for their upbringing that has seen me reach this tremendous height. May God of grace bless them richly and abundantly.

Acknowledgement

I wish to acknowledge my Supervisors, Ms SYLVIA, my tutors and Sister Kabanyooro Annet my Dean who tirelessly helped to shape this dissertation. Thanks to my colleagues and class mates who were not only an encouragement but also provided different types of motivation and support.

Special thanks to my brother Joshua who has supported and encouraged me financially throughout the processes of this study.

Finally to Mzee Meshack Niyonsenga for his support in typing my compiled findings right from data coding up to now when this tremendous achievement that will live to be remembered has been reached. Blessings unto you all.

Contents

Abstract.....	i
Declaration.....	iii
Approval.....	iv
Copyright.....	v
Authorisation	vi
Dedication	vii
Acknowledgement	viii
List of figures.....	xii
List of tables.	xii
Definition of Key Terms	xiii
List of Acronyms.....	xiv
CHAPTER ONE	15
Introduction.....	15
Background.....	15
Problem Statement.	18
Objectives of the study.....	19
General objective	19
Specific objectives	19
Research questions.....	19
Justification of the Study	19
Scope of the Study	20
Time scope	20
Content scope.....	20
Geographical scope.....	20
CHAPTER TWO: LITERATURE REVIEW	21
2.0 Introduction.....	21
2.1 Social demographic and economic factors related to neonatal mortality.....	22
2.2 Maternal and neonates' factors associated with neonatal mortality.....	23
2.3 Health care factors associated with neonatal mortality.....	27
CHAPTER THREE: METHODOLOGY.....	30
3.0 Introductions	30

3.1 Study Design and rationale.	30
3.2 Study area.....	30
3.3 Study Population.....	31
3.3.1 Inclusion criteria.	31
3.3.2 Exclusion Criteria.	31
3.4 Sampling of Study Population.	31
3.4.1 Sample Size Determination.....	31
3.4.2 Sampling Procedure and rationale.	32
3.5 Data Collection Method and rationale	32
3.6 Data Management and Analysis.	33
3.6.1 Data Management.	33
3.6.2 Data Analysis.	34
3.7 Ethical Considerations.	34
3.8 Limitations of the study.	35
3.9 Dissemination of findings.	35
CHAPTER FOUR: RESULTS FROM THE RESEARCH STUDY.....	36
4.0 Introduction.....	36
4.1 Demographic characteristics of the study population.	36
4.2 Maternal factors	37
4.3 Neonatal factors	40
4.4 Hospital factors.	42
CHAPTER FIVE: DISCUSSION OF STUDY FINDINGS, CONCLUSION, AND RECOMMENDATIONS	44
5.0 Introduction.....	44
5.1 Discussion of the study findings	44
5.1.1 Demographic characteristics of respondents.....	44
5.1.2 Maternal factors	48
5.1.3 Neonatal factors	51
5.1.4 Hospital factors	54
5.2 Conclusion from the study findings	57
5.3 Recommendations from the study findings	59
5.4 Implication to nursing practice.	60

REFERENCES	62
APPENDICES	68
Appendix I: Informed Consent Form.....	68
Appendix II: Questionnaire	69
Section B. Maternal factors affecting neonatal mortality in KIU-TH.....	70
Appendix III. SCANNED LETTER FOR AUTHORIZATION	73
APPENDIX IV: A MAP OF UGANDA SHOWING LOCATION OF BUSHENYI DISTRICT WHERE KIU-TH HOSPITAL IS LOCATED.....	74
APPENDIX V: MAP OF BUSHENYI DISTRICT WHERE KIU-TH HOSPITAL IS LOCATED.	75

List of figures.

Figure 1: Health condition of mother during pregnancy of neonate that died.....	38
Figure 2: mothers' knowledge on essential new borne care.	39
Figure 3: place where neonate was delivered n=30	42
Figure 4: mode of delivery n=30	42
Figure 5: attendant during labour and child births n=30	43
Figure 6: usage of ENC protocols in neonatal care ward and postnatal care ward	43

List of tables.

Table 1. Demographic characteristics of respondents.	36
Table 2: contraception, spacing interval in conception and parity, ANC visiting.	38
Table 3: neonatal factors.....	40

Definition of Key Terms

Neonatal mortality.	Number of neonates that die in Kampala International Hospital per 1000 live births.
Factor.	Anything that directly or indirectly affects negatively the healths of neonate causing deaths.
Neonate.	Refers to a new borne from 1 st day of life up to 28 days of life.

List of Acronyms

GHO:	Global Health Observatory
MDG:	Millennium Development Goals
MPDR:	Maternal and Peri-natal Death Review
PMNCH:	Partnership for Maternal, Newborn, and Child Health
SOWM:	State of world's mothers
UBOS:	Uganda Bureau of Statistics
VHT:	Village Health Team
WHO:	world health organization.
CHWs:	community health workers
KIU-TH	Kampala international university
SVD:	Spontaneous vaginal delivery
UNICEF:	United Nations children fund.
MOH:	Ministry of health
IUGR:	Intra uterine growths rate.
ENC:	essential new borne care.
UDHS:	Uganda demographic and health survey.
NMR:	Neonatal mortality rate.
ANC:	Neonatal mortality rate.
DHS:	Demographic health survey
LBW:	Low births weight
SOWM	save the children of the world mothers.
IDP:	Internally displaced persons

CHAPTER ONE

Introduction

This chapter deals with the background of the study that gives clear over view of the problem under the study, the problem statement, purpose of the study, specific objectives, research questions and study justification for the research study titled “Factors associated with neonates mortality in Kampala international university teaching hospital”

Background.

Globally, 45% of deaths among children under five are new-borns (WHO 2015).

In Europe 5.9 babies in every thousand do not survive beyond 28 days, but in Africa and parts of Asia that figure is four or five times higher.(Save the Children org, 2014)

In sub-Saharan Africa alone, 1.2 million new-borns die every year (lawn et al 2009). This is equivalent to 13,000 deaths per day or almost nine deaths every minute (lawn et al 2009).

Uganda is one of the ten countries globally which contribute the highest, New-born Mortality rate in the world (WHO 2011). Nsambya hospital’s review for peri-natal death involving a total of 173 babies audited revealed that 99 (57.2%) of the deaths were neonatal deaths (MPDR, 2013)

At least 45,000 new-born deaths occur each year and an equal number are stillborn. Uganda’s neonatal mortality rate (NMR), possibly an under-estimate, is very high at 29 deaths per 1,000 live births, has not declined over a period of 15 years. More new-born deaths occur at home, among the rural poor, internally displaced persons (IDP) camps and in western and central regions. The common causes of neonatal

deaths in Uganda are similar to the rest of Africa and include birth asphyxia, infections and complications of preterm birth. Underlying causes of death are related to poor access and utilisation of health services during pregnancy and childbirth, especially the high number of deliveries that take place without skilled attendance (MOH, 2008).

45% of deaths among children under five were new-borns in 2015 (WHO 2015). By 2016, the neonatal mortality rate for Uganda was 27 deaths per 1,000 live births (UBOS, 2017). Neonatal deaths account for an increasing proportion of child deaths, estimated at 41 % by Lawn et al. This unacceptably high rate must be reduced if success towards achieving better child survival is to be reached (Lawn et al 2009). In low-income countries nearly half of all mothers and new-borns do not receive skilled care during and immediately after birth (Lawn et al 2009). However two thirds of new-born deaths can be prevented if known effective health measures are provided at birth and during the first week of life (WHO 2010).

In Uganda, 141, 000 children die before reaching their fifth birthday annually; 26 % of these children die in their first month of life (Mbonye et al, 2012). Between 2000 and 2010, Uganda's neonatal mortality rate reduced by 2.2 % per year, which is greater than the regional average rate of decline but not good enough to cause significant change in child survival statistics (Mbonye et al, 2012). The major causes of neonatal deaths in Uganda like in other Sub Saharan African countries include; sepsis/pneumonia, tetanus, diarrhoea, prematurity, and birth asphyxia (Liu et al 2012). In Uganda, underlying causes of death are related to poor access and low utilization of health services during pregnancy and childbirth (Waiswa et al,

2010). As a result more new-born deaths occur at home among the rural poor (WHO; 2008. 2008.)

To counter these causes of deaths, mothers and new-borns need safe and easily accessible care so as to promote the effective management of any arising complications, timely access to simple interventions such as treating maternal infections during pregnancy, ensuring a clean safe birth, care of the umbilical cord and immediate exclusive breast-feeding could avert most of the new-born preventable deaths (Mathews 2005). Empowering families and communities to practice safe new-born care practices, to recognize danger signs and early care seeking can help save new-born lives. Community health workers (CHWs) have been used in several low-income settings to sensitize and educate households on a range of health issues and events (Gogia, 2010). In Uganda, the CHW strategy also known as the Village health Team (VHT) strategy has been adopted by the ministry of health to improve new-born care practices within the communities among other functions (Waiswa et al 2010). This strategy aims at using CHWs to increase health related knowledge and awareness in the communities. Regarding new-born health, CHWs have been used to mobilize pregnant women to attend antenatal, delivery and postnatal care at the nearest health facilities (Waiswa et al 2010). They also sensitize mothers on a range of care practices and empower them with knowledge to identify danger signs so as to seek appropriate care in time (Waiswa et al 2010) Despite all the above mentioned struggles to reduce neonatal mortality in Uganda, neonatal mortality rate has a number of years remained constant at 27 deaths per 1,000 live births. This situation is for analysis especially to find the factors responsible for that constant neonatal mortality rate. As for Kampala international

university teaching hospital, there is no published study that has been conducted to find out the factors associated with neonatal deaths. Therefore this study is worth doing.

Problem Statement.

According MDG 4: the mortality rate among children under five was to be reduced by two thirds between 1990 and 2015(Sara, 2011)

Community health workers (CHWs) have been used in several low-income settings to sensitize and educate households on a range of health issues and events (Gogia, 2010). In Uganda, the CHW strategy also known as the Village health Team (VHT) strategy has been adopted by the ministry of health to improve new-born care practices within the communities among other functions (Waiswa et al 2010). This strategy aims at using CHWs to increase health related knowledge and awareness in the communities. Regarding new-born health, CHWs have been used to mobilize pregnant women to attend antenatal, delivery and postnatal care at the nearest health facilities (Waiswa et al 2010). They also sensitize mothers on a range of care practices and empower them with knowledge to identify danger signs so as to seek appropriate care in time (Waiswa et al 2010)

Despite all the above mentioned struggles to reduce neonatal mortality in Uganda, neonatal mortality rate has a number of years remained constant at 27 deaths per 1,000 live births. This situation is for analysis especially to find the factors responsible for that constant neonatal mortality rate. As for Kampala international university teaching hospital, there is no published study that has been conducted to find out the factors associated with neonatal deaths

Objectives of the study.

General objective

To assess the factors associated with neonatal mortality at KIU-TH

Specific objectives

- i. To determine maternal factors associated to neonatal death in KIU-TH
- ii. To assess neonates' factors associated with neonatal death at KIU-TH
- iii. To determine health care factors associated with neonatal death at KIU-TH

Research questions

1. What are maternal factors associated with neonatal mortality at KIU-TH?
2. What are neonatal factors that are associated to neonatal mortality at KIU-TH?
3. What are health care related factors that are associated with neonatal mortality at KIU-TH?

Justification of the Study

Neonatal mortality is actually a Global problem, 45% of deaths among children under five are new-borns (WHO 2015). Yet the factors associated to neonatal deaths at KIU-TH are not known, this study will therefore find the factors associated to neonatal mortality and suggest ways to reduce neonatal mortality basing on the factors that will be identified.

This study will be of great importance to nursing education. This is because it will identify the factors associated with neonatal mortality which will be a basis of information for nursing educators.

It will further be vital for nursing researchers as the study gaps will be a basis for further investigation.

Scope of the Study

Time scope

The study took four months from august to November 2017

Content scope

The study focused on the factors associated with neonatal mortality at Kampala International University Teaching hospital.

Geographical scope

The study was only carried out in Kampala International university teaching hospital.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Recent data shows that the day of birth is the most dangerous day of all. In 2012, more than 1 million babies (1,013,000) did not survive their first – and only – day of life. (Save the Children org 2014).

Save the Children's State of the World's Mothers 2013 report compiled a 'Birth day risk index' that ranked countries according to mortality rates on the day of birth. The report found that key causes for high first-day death rates in sub-Saharan Africa and south Asia include: high numbers of preterm births and of low birth weight babies, poor maternal health and nutrition, girls and young women having children at a young age, low contraception use, lack of healthcare for mothers, with only half of all women in sub-Saharan Africa having skilled care during birth. (SOWM, 2013)

According to UNICEF, the global distribution of neonatal deaths, by cause by 2012 was as follows, Preterm birth complications 34%, Intrapartum-related complications 24%, Sepsis/meningitis 12%, Pneumonia 10%, congenital abnormalities 9%, Tetanus 2%, Diarrhoea 2% and others accounting for 6% of neonatal deaths causes (UNICEF, 2012)

According to MOH (2013), Birth asphyxia and prematurity complications were among the commonest causes of the perinatal deaths. Other causes accounted for a large proportion as well, and these included: Jaundice, Respiratory distress syndrome, Intra-Uterine Growth Restriction (IUGR), meningitis,

2.1 Social demographic and economic factors related to neonatal mortality.

Decision making ability is an important determinant of health care seeking behaviour and in contexts where decisions are made by men this may delay or deny seeking appropriate health care. Gender norms, roles and relations also have other effects on the incidence and ability to adequately respond to ill health. In most cases married women may not be able to make decisions on their own regarding how resources in the home can be spent (MOH 2010)

Within poor countries there are dramatic inequalities in death rates for new-born babies, with the poorest communities and other marginalised groups generally experiencing considerably higher rates of new-born mortality (UNICEF, 2010). In India, among the wealthiest 20% of the population the new-born mortality rate is 26 per 1,000 babies, whereas among the poorest households 56 new-born babies out of 1,000 die in their first month of life. In Sierra Leone, the new-born mortality rate among the wealthiest fifth of the population is 41 per 1,000 babies, compared with 68 new-born babies' deaths per thousand births among the poorest families. (PMNCH, 2011)

Inequalities are not solely on the basis of wealth. Rural populations usually have higher rates of new-born mortality than urban areas. A mother's level of education is another strong predictor of the risk that she might lose a new-born baby (Pattinson et al, 2011). Minority ethnic groups living in rural areas may be subject to discrimination and are more likely to live in areas that are remote and poorly-serviced in terms of new-born healthcare. (Whitaker, 2012)

In Ethiopia, Yared's study found out that Neonates born to women with secondary or higher schooling versus no education had a lower risk of dying (Yared, 2013).

Maternal education affects many aspects of new-born life, including individual social, economic and health behaviour. Studies have shown that a mother's education level is strongly associated with contraceptive use, fertility, general health status, and the health and survival of their children.(UNICEF, 2008)Education provides girls with sexual and reproductive health and rights information, in addition to peer support programmes that develop life skills with long-term benefits for them and their new-borns. The UDHS 2006 showed that a low education level is associated with much higher neonatal mortality compared to mothers with secondary education (UBOS, 2007).

2.2 Maternal and neonates' factors associated with neonatal mortality

Study in eastern Uganda on new-born care practices found out that; There were low levels of coverage of new-born care practices among both the poorest and the least poor. SES and place of birth were not associated with any of the composite new-born care practices. Multi-para mothers were less likely to have safe cord practices (OR 0.5, CI 0.3 - 0.9) as were mothers whose labour began at night (Waiswa et al 2010).

Lack of spacing between pregnancies is also closely linked with child mortality. Children born less than two years after a sibling are two times more likely to die within the first year of life than those born after three or more years (Cleland, 2012). Very young mothers face more pregnancy-related problems. They are also prone to obstructed labour because their pelvic bones are still developing, and are more likely to have premature babies and are also themselves at higher risk of fistula (Shaikh, 2012)

In low- and middle-income countries overall almost 10% of girls become mothers by the age of 16. They are at greater risk of losing their babies than women who become mothers later – mothers under 20 are 50% more likely to have a stillbirth or to lose their baby within the first week after birth than mothers aged 20–29 years.(WHO,2014)Pregnant women who are malnourished are more likely to have low birth-weight babies. So are women who were undernourished during their own childhood (Black, 2013). Delay in seeking Help is contributes to high neonatal mortality rates (MPDR, 2013)

Sex of the New-born

Baby girls have a lower mortality rate than boys in societies where equal care is offered to both sexes.²¹ Similarly in Uganda, new-born mortality levels seem to be 1.8 times higher among male than female children.(UBOS, 2007)Differences in mortality rates for male and female children are highest during the neonatal period.

Birth Order

According to the UDHS 2006, birth order affects the child's chances of survival mostly during infancy. The NMR is highest among first births (44 deaths per 1,000 live births) compared to other births with mortality rates around 30 per 1,000 live births (UBOS, 2007).

Birth Intervals

Globally, Sub-Saharan Africa has the highest total fertility rate; Uganda has the fifth highest total fertility rate in Africa at an average of 6.6 births per woman (UBOS, 2007). This results in shorter birth intervals, and greater risk of new-born death. The UDHS 2006 reported the highest NMR (40 per 1,000 live births) among babies whose previous birth interval was less than two years (UBOS, 2007)

Hypothermia

Low body temperature endangers new-born survival and preserving warmth is important even in tropical climates. Many common practices, such as bathing immediately and frequently after birth, can be detrimental to new-born health. Hypothermia is eminently preventable, but it is not routinely checked, even in health facilities. Babies with low birth weight are particularly susceptible and need extra care to ensure they are kept warm and dry (MOH, 2008)

A study of 300 new-borns in a private, not-for-profit tertiary hospital found a persistent pattern of high prevalence of hypothermic new-borns; 80 percent of new-borns carefully monitored had hypothermia within the first 90 minutes of life. The frequency of hypothermia was much higher in babies who had no body contact, compared to those who had body contact with their mothers and those babies who were bathed in the first hour after birth (MOH, 2008) An analysis of records at the Special Care Baby Unit at Mulago Hospital in Kampala indicated that in 2006, three in every 10 new-born deaths (29 percent) were associated with hypothermia.

Maternal Health Status

New-borns and their mothers are inseparably linked in life. The death of a mother increases the risk of new-born death. (MOH, 2008) Low status of women in society can lead to reduced access to social services and limited control of resources. Harmful practices such as female genital mutilation further endanger childbirth and pregnancy outcome. (UNICEF, 2008).

Poor utilisation of health services, including failure to attend Antenatal Care (ANC) and delays in seeking care at health facilities during labour were listed by health care providers as major factors contributing to both maternal and new-born deaths.

This was thought to be due to the long distances that mothers have to travel to health facilities and poor referral and transport systems.

Adolescent girls have a higher risk of giving birth to preterm babies and babies who are small for gestational age. According to UDHS 2006, the NMR among adolescent mothers was 47 per 1,000 live births. (UBOS, 2007)

A common supporting argument is that maternal education increases mothers' knowledge about child health and healthcare services, and thereby improves mothers' healthcare-seeking behaviours for their children and themselves (Macassa 2011). After adjustment for confounders, there was a 53% excess risk of neonatal mortality among infants born to mothers in the youngest vs. oldest age category in Nepal (Sharma et al, 2008). Previous studies have reported that preterm birth or small-for-gestational-age are possible mediating factors (Sharma et al, 2008),

An approximately 20-year longitudinal study of 145 000 pregnancy outcomes from an experimental setting in Matlab, Bangladesh found that compared with intervals of 3 or more years, preceding inter-birth intervals of less than 24 months were associated with significantly higher risks of early neonatal mortality (DaVanzo, 2008). Analyses of DHS data from the developing world, controlling for potential confounders, indicated that neonatal mortality decreases by approximately 40% for preceding birth intervals of 3 years or more, compared with intervals of less than 2 years. A preceding birth interval of less than 2 years was reported to carry a 2.8 times higher risk of dying among neonates in Indonesia (Arokiasamy, 2008).

Studies consistently show a relationship between short birth interval and heightened neonatal mortality risk (Titaley, 2008)

A study carried out in Ghana and Zambia indicates that community delivery still stands to more than 50% under the care of TBAs and Mother's relatives. Hence meeting the standard on cord care using normal saline highly doubtful. In Uganda, community delivery stand at 60% of all deliveries hence cord care among these neonates borne by community deliveries is entirely home based cultural practice dependant (Eisha et al 2013).

2.3 Health care factors associated with neonatal mortality

Lack of transport between to health is factor also responsible associated to neonatal deaths (MPDR, 2013). The common causes of neonatal deaths in Uganda are similar to the rest of Africa and include birth asphyxia, infections and complications of preterm birth. Underlying causes of death are related to poor access and utilisation of health services during pregnancy and childbirth, especially the high number of deliveries that take place without skilled attendance (MOH, 2008

On factors associated to knowledge and practices, the lack of skilled providers at health facilities creates the perception of poor quality of essential new-born care and causes low rates of utilization, as reported in Tanzania (Dogba and Fournier 2009).

In Uganda, the CHW strategy also known as the Village health Team (VHT) strategy has been adopted by the ministry of health to improve new-born care practices within the communities among other functions (Waiswa et al 2010).

Neonatal deaths accounts for two thirds of all deaths during first year of life and 40% of all deaths under five years globally. (Carlo et al 2014). Deaths among neonates being 45.9% due to sepsis and neonatal mortality rate for proven sepsis being 51% if early onset (Eman et al 2015).

Essential New-born Care (ENC) is care that every new-born baby needs regardless of where it is born or its size. ENC should be applied immediately after the baby is born and continued for at least the first 7 days after birth. Many ENC interventions are simple and can be provided by a Skilled Birth Attendant (SBA) or a trained Community Health Worker (CHW) or Traditional Birth Attendant (TBA) or by a family member supporting the mother in a health facility or at home. (Jennifer A Callaghan-Koru 2013).

Unfortunately, in Uganda, hospital deliveries stand 38%, whereas home based deliveries at 62%. And postnatal care (which consists of new-borne care and mother care) visits at 2.8% as the least utilized perinatal package (MOH Uganda 2014). However, simple and low-cost interventions, such as community-based neonatal care packages supporting clean birth practices, early detection of illness through use of clinical algorithms (Mohammed 2010).

The results suggest that there are not large differences for most essential new-born care indicators between facility and home deliveries, with the exception of delayed bathing and skin-to-skin care (Jennifer A Callaghan-Koru 2013).

Poverty and Inequity

Mothers and new-borns in poor families have an increased risk of illness and face more challenges in accessing timely quality care compared to wealthier families. Rural families and the urban poor are particularly vulnerable. Factors that contribute to neonatal mortality include civil strife, especially in the northern and eastern parts of the country, which contributes to instability, poverty and economic collapse. Nutrition and food security are also important factors related to poverty. The majority of districts surveyed reported that most mothers, especially the younger

ones, are malnourished due to poverty and inadequate food at the household level.

This finding coincides with that of the UDHS (UBOS, 2007).

In Ethiopia, Yared's study found out that increased neonatal mortality risk was associated with male sex, neonates born to mothers aged < 18 years ,and those born within 2 years of the preceding birth (Yared, 2013).

CHAPTER THREE: METHODOLOGY

3.0 Introductions

This chapter is dealt with study design, study area, study population, variables, sample size determination and sampling technique, data collection and technique, data processing and analysis, ethical considerations, dissemination of results and study limitations

3.1 Study Design and rationale.

A hospital based cross sectional study utilizing quantitative data collection approach was used. A cross-sectional study is the one that is carried out at a point in a time or over a short period of time. It is a good design when the purpose of the study is descriptive and helps to find the prevalence of the outcome of interest for a group in a population. It was chosen because of its simplicity and nature of the study the researcher was to undertake.

3.2 Study area.

This study will be carried out at Kampala International University Teaching Hospital in Ishaka- Bushenyi district. It is a major private medical hospital in south western Uganda. It has a capacity of 500 beds and provides medical services for people as well as training medical and nursing students. The hospital has different wards and departments such as general outpatient department, Surgical, Medical, Paediatrics, and obstetrics and gynaecology wards among others. The study will specifically be carried out in the post natal unit, which is part of the obstetrics and gynaecology ward at KIUTH.

3.3 Study Population.

The study participants will be mothers of reproductive age (15-49 years) who have ever lost a child during the neonatal period.

3.3.1 Inclusion criteria.

Mothers of reproductive age (15-49 years) who have ever lost a child during the neonatal period that will be present on ward during time of data collection. These included those that delivered within the facility, and those that lost neonates that had been brought in facility after delivery for care in neonatal unit.

3.3.2 Exclusion Criteria.

Mothers who meet the inclusion criteria but decline to give informed verbal or written consent to participate in the study.

Mothers who meet the inclusion criteria but with unsound mind.

Mothers with gross speech and hearing problems

3.4 Sampling of Study Population.

3.4.1 Sample Size Determination.

The sample size will be calculated using Fisher's (1990), formula for a single population.

$$N = Z^2 * PQ / d^2$$

Where, N- sample size.

Z- Being the standard deviation corresponding to 95% and confidence interval=1.96

d- Being the measurement of anticipated error as a proportion of standard deviation=0.1

p- An estimate of proportion of the people falling into the group of mothers whose neonates died. In Uganda, 45% of deaths among children under five were newborns in 2015 (WHO, 2015). Therefore the value of p will be taken as 45%

Taking $p=0.45$

And q is $1-p= 45/100 =0.45$

Thus $n = (1.96)^2 (0.45 \times 0.45) / (0.1)^2 = 78$

$N = 40$, hence sample size will be 78 respondents.

Since my sample population N was less than 10,000

Equation 2: Target population $n < 10,000$;

$$n_{\Sigma} = \left(\frac{n}{1 + \frac{n}{N}} \right); \quad n_{\Sigma} = \left(\frac{78}{1 + \frac{78}{50}} \right); \quad n_{\Sigma} = 30.46 \text{ respondents}$$

The sample size therefore was 30 mothers that had lost a neonate within KIU-TH.

3.4.2 Sampling Procedure and rationale.

Convenience sampling method was used to recruit mothers for the study; all mothers of reproductive age that had lost a neonate within the facility who were found on the post natal ward and neonatal care units of KIU-TH at the time of data collection were enrolled in the study following their verbal consent. This Convenience sampling method involved giving all members chances to be recruited into the study basing on the respondents availability at the time of data collection. This method was preferred because of its simplicity in limited study period and number of respondents.

3.5 Data Collection Method and rationale

Primary data was obtained using a researcher administered questionnaire administered in English and Runyankole languages. The research questionnaire was

preferred in this study because to aid believed mothers that had lost neonates give information regarding the research study.

The first section was used to collect the social economic and demographic data, the second section was used to assess maternal factors associated to neonatal mortality, third factors was to assess neonatal mortality associated to neonatal mortality, and fourths section was to assess hospital factors associated with neonatal mortality.

An introductory letter from Kampala International University School of Nursing Sciences seeking approval to undertake the study was got and taken to the office of the administrator of KIU-TH; permission to go to the selected wards for data collection was obtained. Pre-tested questionnaire was administered to respondents until the sample size was reached and mothers that had lost a neonate participated in the study. Informed consent was obtained from all participants before enrolment into the study. Privacy and confidentiality was maintained throughout the process of data collection.

3.6 Data Management and Analysis.

3.6.1 Data Management.

Each study participant were given a unique participant identification number that were recorded on the questionnaire. Collected data from the study was thoroughly checked and validated for accuracy and completeness and stored in a database established using Microsoft Excel. A password was used to prevent unauthorized access to the database. Data on the questionnaire was kept under lock and key while electronically stored data was protected with a strong password.

3.6.2 Data Analysis.

Data was manually entered into the computer using the computer key board. Data was then categorized, ordered, manipulated and summarized to obtain answers to the objectives. The process involved data preparation and undertaking statistical analysis. Data processing included cleaning and organizing it for analysis. Data was then electronically analysed using a computer program statistical package for social sciences (SPSS) version 16.0 and was summarized and displayed into a table using Microsoft excel 2007. Collected data was transformed into a meaning interpreted report which was presented using percentages, figures and tables.

3.7 Ethical Considerations.

A letter of Approval to conduct this study was obtained from Kampala International University School of nursing western campus research committee and then an introductory letter from the School of Nursing was taken to Kampala International University-Teaching hospital authorities.

Prior to the study, a sensitization meeting with the health authorities in charge of the health facility was held. An explanation of the objectives of the study was done and permission sought from Kampala International University Teaching hospital authorities to carry out the study at the health facility. Thereafter, voluntary and informed consent obtained. Only those mothers, who met the study requirements, consented and voluntarily signed the consent forms were enrolled into the study and questionnaires administered. Only those who voluntarily sign the consent form were recruited. Those who could not write consented by a fingerprint and were witnessed by the interviewer. Each respondent was informed about their right to decline or withdraw any time from participating in the study without feeling

constrained. Respondents were informed that the information was not to be made available to persons outside the study team. Data collection and storage was observed issues of confidentiality and privacy. Data on the questionnaires was coded and kept under lock and key while electronically stored data in a database was protected with a strong password.

3.8 Limitations of the study.

Approaching believed mothers was really hard experience. Some did not want to participate, others took long before could give their response, others would break up into cries, and withdraw their consent from the study, hence creating a need to be replaced a process that necessitated long time of data collection. The time of data collection was interfering with other school activities.

Resources and logistical support were not enough, which kept the researcher stressed and uncomfortable.

3.9 Dissemination of findings.

Copies of the dissertation were produced and presented to;

Kampala International University School of Nursing western campus for other scholarly review

Kampala International University Teaching Hospital for problem focused health education to reduce neonatal mortality.

Uganda nurses and midwives council for approval and award of diploma in nursing sciences.

CHAPTER FOUR: RESULTS FROM THE RESEARCH STUDY.

4.0 Introduction

This study was done in August 2017 and a total of 32 mothers that had lost a neonate within KIU TH during time of data collection were sampled using convenient sampling technique, and got the following results as presented in tables, figures as shown below. The data is presented following the demographic characteristics of the study population, and the specific objectives of the research study.

4.1 Demographic characteristics of the study population.

Social demographic characteristics were assessed as deemed directly or indirectly affecting neonatal survival. The following were considered. Age of the mother, Parity, level of education, residence and occupation.

Table 1. Demographic characteristics of respondents.

Characteristic	Frequency	Percentages (%)
Age n=30		
<19	7	23.3
19-24	8	26.6
25-29	4	13.3
30-34	5	16.6
>34	7	23.3
Parity n=30		
1	9	30.0
2-3	8	26.6
4-6	5	16.6
>6	8	26.6

Education n=30		
None	2	6.6
Primary	18	60
Secondary	8	26.6
Tertiary	2	6.6
Residence n=30		
Rural	25	83.5
Urban	5	16.6
Occupation n=30		
Civil servant	01	3.3
Business woman	07	23.3
Peasant.	20	66.6
Student.	02	6.6

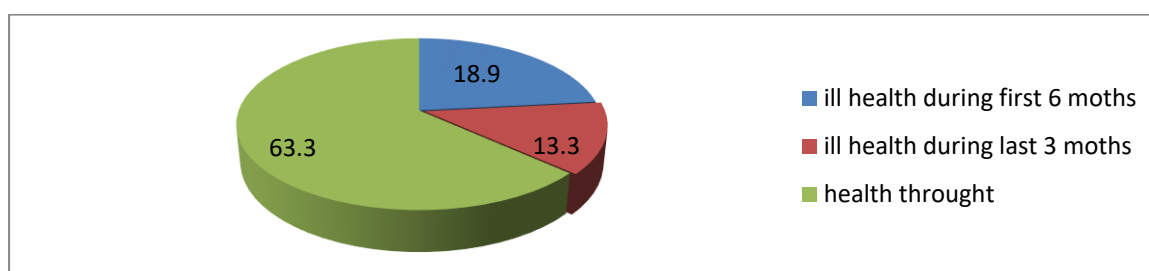
Majority (26.6%) of neonates' mothers were aged 19-24 followed by mothers aged <19 and those >34 who were equally 23.3 percentages respectively. Majority of neonates' mothers (30%) were prime Para, followed by those Para 2-3 and Para >6 who were 26.6 and 26.6 percentages respectively. Majority of neonates' mothers (60%) had had primary level of education, while those that had had secondary and tertiary levels of education were few with 26.6 and 6.6 percentages respectively. Majority of neonates' mothers (83.5%) of mother on neonates died lived in rural areas, while a few (16.6) live in urban areas. Majority of neonates' mothers (66.6%) were peasants, while a few (3.3%) were civil servants.

4.2 Maternal factors

Maternal factors affecting neonatal death were assessed based on their status of health during pregnancy of the neonate that died, contraception use among mothers,

interval of time between time of conception of neonate that died and previous pregnancy, antenatal care(ANC) visits during pregnancy and whether they had any knowledge on essential new borne care (ENC).

Figure 1: Health condition of mother during pregnancy of neonate that died.



Majority of mothers (63.3%) were health through pregnancy of neonate that had died, while 36.7% who had heard ill health, 13.3% had ill health during last 3 months, while 18.9% had ill health during first 6 months.

Table 2: Contraception, spacing interval in conception and parity, ANC visiting

Contraception use n=30	Frequency	Percentage
Ever used	13	43.3
Never used	16	53.3
Was using	1	3.3
Interval between pregnancies n=24		
<6 months	3	12.5
6-12 months	4	16.6
13-18 months	8	33.3
19-24 months	5	20.8
>24 months	4	16.6

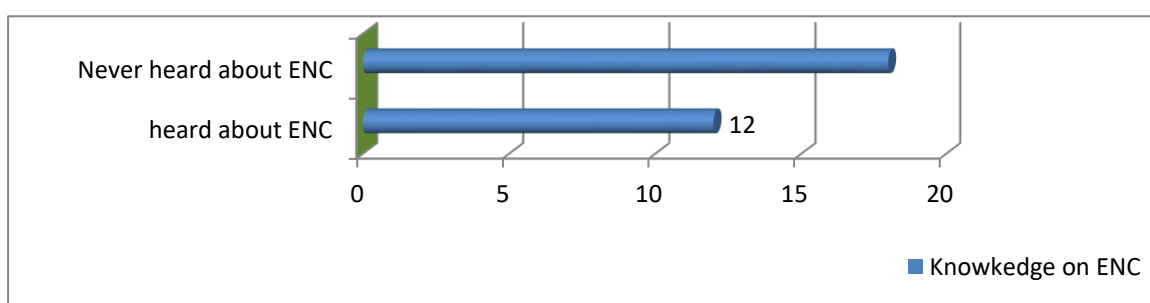
ANC during pregnancy n=30		
Visited once(1)	5	16.6
visited twice(2)	8	26.6
visited thrice(3)	7	23.3
visited four times(4)	6	20.0
Visited > 4 times.	4	13.3

Majority of mothers (53.3%) had never used a contraceptive method, followed by 43.3% of mother that had ever used a contraceptive method, while 1(3.3%) of mother reported to have conceived while she was using contraceptive method at time of conception.

Majority of mothers who had lost a neonate had conceived that neonate after 13-18 months following previous pregnancy. This was followed by those that conceived 19-24 months (20.8%), while those that conceived after >24 months and those that conceived 6-12 months following previous pregnancy were (16.6%) and (16.6%) respectively.

Majority of mothers that had lost a neonate (26.6%) had had two ANC visits, while only a few (20.0%) had had four ANC visits.

Figure 2: mothers' knowledge on essential new borne care.



Majority of mother that lost a neonate (60%) had never heard about essential new borne care (ENC) while only 40% had ever heard about ENC.

4.3 Neonatal factors

Neonatal factors affecting neonatal death in KIU-TH were assessed on sex of the neonate, gestational age, birth weight, and condition at birth, signs and symptoms before births, what mothers were told as the causes of neonates' death by health worker who were caring for the neonates.

Table 3: Neonatal factors

Neonatal factor	Frequency	%
Sex		
Male	17	56.6
Female	13	43.4
Gestational age(weeks) n=30		
<28 weeks	3	10
28 but <37 weeks	10	33.3
37-40 weeks	15	50
>40 weeks	2	6.6
Birth weight n=30		
<2.5	12	40
2.5-3.5	14	46.6
>3.5	4	13.3
Condition at birth n=30		
normal and healthy	9	30
had malformation	2	6.6
was unable to cry	9	30
cyanosed	11	36.6
jaundiced	6	20

Signs and symptoms n=30	Frequency	percent
High grade fever	18	60
red umbilicus	5	16.6
difficulty in breathing	13	43.3
failure to pass meconium	2	6.6
failure to breastfeed	8	26.6
others	6	20
Cause of deaths		
Infections	9	30
hypoglycaemia	4	13.3
hypothermia	6	20
malformation	3	10
respiratory failure	7	23.3
others	1	3.3

Male neonates formed majority (56.6%) of the neonates that died, while female neonates were only 43.4% of the neonates that had died.

Majority (50%) of neonates that died were term neonates of 37-40 weeks. This was followed by preterm neonates (33.3%) aged 28-37 weeks, while a few (6.6%) were post term.

Normal births weight babies were the majority (46.6%) followed low births weight (LBW) babies (40.0%) while a few (13.3%) were large babies.

Majority of neonates that died (36.6%) had cyanosis, followed by those who were health and those that were unable to cry (30%) and (30%) respectively while only 6.6% had congenital malformations.

Majority of neonates that died (60.0%) had high grad fever; those that had difficulty in breathing were (43.3%) while 6.6% failed to pass meconium before they died.

From death reports as were told by mothers from health care providers, 30% of neonates died of infections, 23.3% were due to respiratory failure, while hypothermia and hypoglycaemia were 20% and 13.3% respectively.

4.4 Hospital factors.

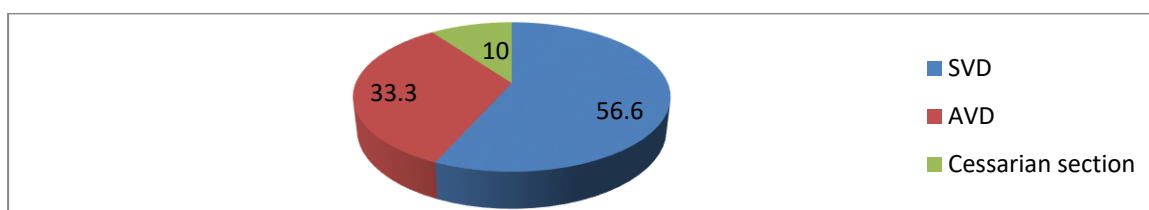
Hospital factor were assessed based on where mother delivered from within or outside, distance from mothers home to health facility, attendance during labour and care of the neonate after births, protocols on neonatal care to all mothers, and essential new-born care received by the neonate within the facility.

Figure 3: place where neonate was delivered n=30



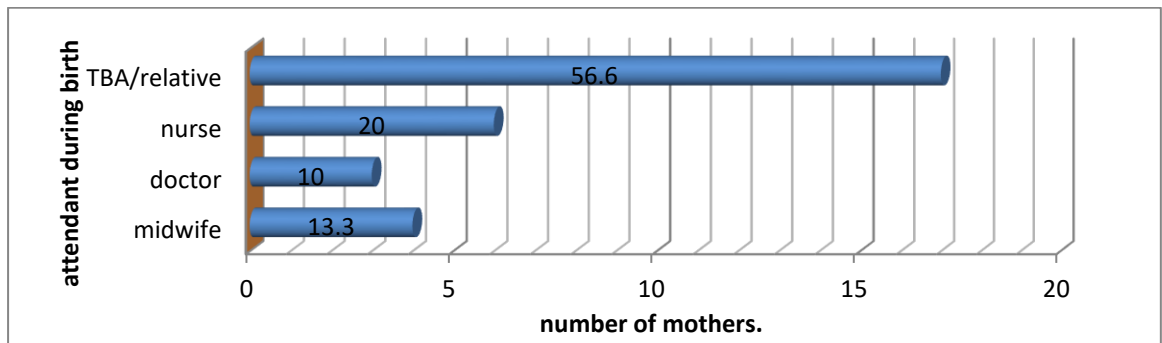
Majority of the neonates (56.6%) that died from facility had been delivered from home, while only 43.4% had been hospital deliveries.

Figure 4: Mode of delivery n=30



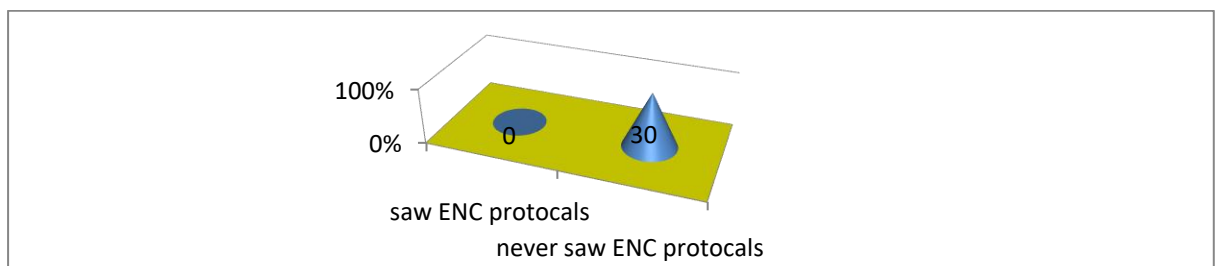
Majority of the neonates that died had been delivered through SVD (56.6%) followed by assisted vaginal delivery (33.3%) while those delivered by caesarean section were only 10%.

Figure 5: attendant during labour and child births n=30



Majority of neonates that died had been delivered by TBAs and relatives (56.6%), 20% were delivered by nurses, while only 10% of neonates that died were delivered by doctors.

Figure 6: Usage of ENC protocols in neonatal care ward and postnatal care ward



All of mothers (100%) of mother that had lost a neonate admitted that there was no any ENC protocol in postnatal ward and in neonatal care unit.

CHAPTER FIVE: DISCUSSION OF STUDY FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction.

The chapter presents a discussion, conclusions and recommendations of the study findings. The discussions were arranged in themes for easy follow up and how the issues were being noted and presented in the chapter 4 above and are compared with findings from other study findings in literature review from chapter two. The discussion is arranged following data presentation as in chapter four, and in accordance to demographic characteristics of respondents, and study objectives as well outlines in chapter I of this study.

5.1 Discussion of the study findings

5.1.1 Demographic characteristics of respondents

Majority (26.6%) of neonates' mothers were aged 19-24 similarly to WHO 2014 that in low- and middle-income countries overall almost 10% of girls become mothers by the age of 16. They are at greater risk of losing their babies than women who become mothers later – mothers under 20 are 50% more likely to have a stillbirth or to lose their baby within the first week after birth than mothers aged 20–29 years. (WHO, 2014).

These were followed by mothers aged <19 and those >34 who were equally 23.3 percentages respectively. This could be possibly because, age group 19-24 consist of very sexually active young women, conceiving, and producing. Unfortunately, most of women at this age being prime gravidas are risk due to narrow passage, knowledge deficit regarding care for pregnancy and neonate after they have delivered hence being most victims of neonatal death similarly to UHD 2007 that

Adolescent girls have a higher risk of giving birth to preterm babies and babies who are small for gestational age. According to UDHS 2009, the NMR among adolescent mothers was 47 per 1,000 live births.

Mothers less than 19 years are young, with inadequate pelvises for safer and easy baby passage, hence neonates delivered by these mother face narrow passage during parturition. Most of them end with neonatal distress during intra partum period, others face inadequate care due to low knowledge by these young mothers not knowing neonates care that end up risking neonates to infections, hypothermia, hypoglycaemia and other related factors that lead to neonates deaths similarly to Sharma et al 2008 finding that concluded that there was a 53% excess risk of neonatal mortality among infants born to mothers in the youngest vs. oldest age category in Nepal (Sharma et al, 2008). Previous studies have reported that preterm birth or small-for-gestational-age are possible mediating factors (Sharma et al, 2008),

According to Shaik 2012, Very young mothers face more pregnancy-related problems. They are also prone to obstructed labour because their pelvic bones are still developing, and are more likely to have premature babies and are also themselves at higher risk of fistula. (Shaikh, 2012)

Majority of neonates' mothers (30%) were prime Para, followed by those Para 2-3 and Para >6 who were 26.6 and 26.6 percentages respectively. This could be because; they consist of young mothers that are at more risks for distress during labour and child birth. Hence delivery of babies by this age being mostly associated to complications affecting both mother and neonate leading to neonatal deaths similarly to UBOS 2007 that concluded that birth order affects the child's chances

of survival mostly during infancy. The NMR is highest among first births (44 deaths per 1,000 live births) compared to other births with mortality rates around 30 per 1,000 live births. (UBOS, 2007)

Majority of neonates' mothers (60%) had had primary level of education, while those that had had secondary and tertiary levels of education were few with 26.6 and 6.6 percentages respectively. There is a significant low level of formal education where majority of mothers had had only primary level of education. This greatly affects neonatal survival because, some basic health care are taught in systems of education as one goes higher in formal education. Hence these mothers are expected to have had little knowledge regarding neonatal care, prevention and infection prevention that end up exposing their neonates to illnesses and other complications that results into neonatal death. This is similarly to Macassa 2011 finding that concluded that maternal education increases mothers' knowledge about child health and healthcare services, and thereby improves mothers' healthcare-seeking behaviours for their children and themselves (Macassa 2011)

Majority of deceased neonates' mothers (83.5%) lived in rural areas, while a few (16.6) live in urban areas. Rural areas are greatly associated with low social economic activities, poor hygiene and poor health systems regarding neonatal care. This implies that there are little resources for disease prevention to neonates borne to these mothers; hence they end up developing illnesses and other complications. Being rural with no improved facilities for neonatal care, neonates who are borne with complications and those that develop illnesses do not get medical attention immediately which results into high neonatal mortality rate. This is similarly to Lui et al, findings that the major causes of neonatal deaths in Uganda included;

sepsis/pneumonia, tetanus, diarrhoea, prematurity, and birth asphyxia (Liu et al 2012), and similarly to Waiswa et al 2010's finding that In Uganda, underlying causes of neonatal death are related to poor access and low utilization of health services during pregnancy and childbirth (Waiswa et al 2010). As a result more new-born deaths occur at home among the rural poor (WHO; 2008. 2008.) similarly to Whitaker (2012) who concluded that Minority ethnic groups living in rural areas may be subject to discrimination and are more likely to live in areas that are remote and poorly-serviced in terms of new-born healthcare.(Whitaker, 2012)

Majority of neonates' mothers (66.6%) were peasants, while a few (3.3%) were civil servants. These could have been due to elicited low level of formal education as the employment status is directly proportionate to levels of formal education. It also depicts low social economic class among mothers that lost neonates since most of them are peasant subsistence farmers. This results into lack of self-support financially during antenatal care visit, lack of transport to deliver from improved facilities, which may cause them to deliver from home under the care of unskilled personnel under poor hygiene condition. In case of complications to neonate that requires urgent attention, its diagnosis delays, if its diagnosed, financial support to take the neonate into an improved neonatal care unit may not be readily available, increasing risk of poor outcome of management even while they are brought into hospital, a factor that results into neonatal deaths similarly to UNICEF 2008 that reported that Low status of women in society can lead to reduced access to social services and limited control of resources. Harmful practices such as female genital mutilation further endanger childbirth and pregnancy outcome. (UNICEF, 2008)

5.1.2 Maternal factors

Majority of mothers (63.3%) were health throughout pregnancy of neonate that had died, while 36.7% who had heard ill health, 13.3% had ill health during last 3 months, while 18.9% had ill health during first 6 months. Maternal health during pregnancy has a direct influence to neonates survival during parturition and thereafter. This is because some diseases cross placenta, some mothers use drugs that affects growth and development of a foetus while intrauterine, resulting into diseases, malformations and deaths. Unfortunately, majority of mothers that lost a neonate had good health through pregnancy time save a few (13.3% and 18.9% who had illnesses during last trimester and first two trimesters respectively. This implies that neonates that died, the cause originated from point of labour to delivery and thereafter, this may be due to labour related complications, and neonatal illnesses after delivery contrary to Black (2013) that concluded that Pregnant women who are malnourished and those that were sick are more likely to have low birth-weight babies. So are women who were undernourished during their own childhood (Black, 2013)

Majority of mothers (53.3%) had never used a contraceptive method, followed by 43.3% of mother that had ever used a contraceptive method, while 1(3.3%) of mother reported to have conceived while she was using contraceptive method at time of conception. There is considerably low level of contraceptive consumption among mothers that had lost a neonate. Implying that the births of such neonates were not properly planned similarly to Titaley's finding that consistently show a relationship between short birth interval and heightened neonatal mortality risk (Titaley, 2008). This could have resulted into poor antenatal care utilisation, and

poor consultation regarding neonatal care that could have costed neonates, lives. There is higher pregnancy interval and child births intervals among mother that do not fully utilise family planning methods. This leads to cervical and uterine incompetence, infections during pregnancies, and labour complications that result into neonatal distress during labour, aspiration, these results into respiratory problems and infections that results to neonatal deaths. This is also similarly to UBOS 2007 that Uganda has the fifth highest total fertility rate in Africa at an average of 6.6 births per woman.(UBOS, 2007) This results in shorter birth intervals, and greater risk of new-born death. The UDHS 2006 reported the highest NMR (40 per 1,000 live births) among babies whose previous birth interval was less than two years. (UBOS, 2007)

Majority (33.3%) of mothers who had lost a neonate had conceived that neonate after 13-18 months following previous pregnancy. This was followed by those that conceived 19-24 months (20.8%), while those that conceived after >24 months and those that conceived 6-12 months following previous pregnancy were (16.6%) and (16.6%) respectively. A vast number of mothers had conceived a neonate that died had conceived it 13-18 months from other pregnancies, it's well known that close pregnancy intervals are related to pregnancy complications and neonatal death that results from poor maternal health due to successive loss of nutrients in fetal support, labour related complications that results into poor neonatal healths and deaths. This is similarly to Arokiasamy (2008), DaVanzo (2008) findings in a 20-year longitudinal study of 145 000 pregnancy outcomes from an experimental setting in Matlab, Bangladesh found that preceding inter-birth intervals of less than 24 months were associated with significantly higher risks of early neonatal mortality

(DaVanzo,2008). Analyses of DHS data from the developing world, controlling for potential confounders, indicated that neonatal mortality decreases by approximately 40% for preceding birth intervals of 3 years or more, compared with intervals of less than 2 years. A preceding birth interval of less than 2 years was reported to carry a 2.8 times higher risk of dying among neonates in Indonesia (Arokiasamy, 2008).

Majority of mothers that had lost a neonate (26.6%) had had two ANC visits, while only a few (20.0%) had had four ANC visits. Antenatal visiting among mothers that had lost a neonate was very low compared to standard requirement of at least four visits during pregnancy. This implies that there was no much time of contact between these mothers and their health care providers for both screening for risk factors that require early intervention for better neonates' outcome, and education of mothers regarding essential new borne care similarly to UBOS 2007 report that Poor utilisation of health services, including failure to attend Antenatal Care (ANC) and delays in seeking care at health facilities during labour were contributing to new-born deaths.

Majority of mother that lost a neonate (60%) had never heard about essential new borne care (ENC) while only 40% had ever heard about ENC. There was a considerable low knowledge regarding essential new borne care among mothers, yet every new borne is entitles to essential new borne care that involves warmth, infection prevention, initiation to breast feeding, aseptic cord care among many others. Hence likelihood of knowledge gaps among these mothers regarding new borne care. This could have resulted to early bathing of neonates that cause hypothermia, poor cord care that results into sepsis, delayed initiation of breast

feeding that result into hypoglycaemia among others, all factors that result into neonatal deaths. The finding is contrary to Waiswa et al (2010) that concluded that this Uganda's strategy for controlling neonatal deaths aims at sensitizing mothers on a range of care practices and empower them with knowledge to identify danger signs so as to seek appropriate care in time (Waiswa et al 2010)

5.1.3 Neonatal factors

Male neonates formed majority (56.6%) of the neonates that died, while female neonates were only 43.4% of the neonates that had died. There is no clear direct link between neonatal deaths and male sex neonates; hence the cause of disproportionality among the neonates that died is unclear. However, there some risky cultural practices that expose male neonates to sepsis that their female counterparts like septic circumcision practices, poor cord care rituals, among others that result into neonatal deaths. This is similarly to UBOS 2007 that in Uganda, new-born mortality levels seem to be 1.8 times higher among male than female children. Differences in mortality rates for male and female children being highest during the neonatal period. (UBOS, 2007)

Majority (50%) of neonates that died were term neonates of 37-40 weeks. This was followed by preterm neonates (33.3%) aged 28-37 weeks, while a few (6.6%) were post term. Term neonates have fully developed respiratory and temperature regulatory systems to allow them independent terrestrial survival hence rarely die under normal good health care circumstances. It is unfortunate that they were the majority that died. This implies that they developed illnesses and other challenges during delivery and after delivery. This could possibly due to the fact that most of them were delivered from homes under poor hygiene, developed illnesses that

required medical attention, being basically from rural settings delayed to get medical attention that resulted into deaths among these that would have otherwise not died. This is contrary to UNICEF 2012 that the global distribution of neonatal deaths, by cause was, Preterm birth complications 34%, (UNICEF, 2012) preterm births were slightly low compared to global estimation at 34%, however, it's not the leading cause of neonatal deaths in KIU-TH as foresighted by UNICEF.

Normal births weight babies were the majority (46.6%) followed low births weight (LBW) babies (40.0%) while a few (13.3%) were large babies. This could be because, majority of borne babies are usually normal weight babies. There is a considerable number of low births weight babies that died, LBW babies are usually challenged by temperature regulation hence loss much heat and die of hypothermia contrary to SOWM's finding that found that key causes for high first-day death rates in sub-Saharan Africa and south Asia include: high numbers of preterm births and of low birth weight babies (SOWM, 2013),

Majority of neonates that died (36.6%) had cyanosis, followed by those who were health and those that were unable to cry (30%) and (30%) respectively while only 6.6% had congenital malformations. These that died cyanosed could have had respiratory challenges that resulted to altered breathing mechanism, hypoxia that resulted to cyanosis leading to death due to oxygen deficit similarly to MOH (2013) that Birth asphyxia was among the commonest causes of the neonatal deaths. Other causes accounted for a large proportion as well. (MOH 2013)

Neonates who were normal and health that died in neonatal age and those that did not cry at births were also considerably many all equalling (30%) and 30 % respectively. Those that were normal could have died from sudden unexpected

neonatal death (SUEND) that is mostly attributed to internal malformations, hypothermia, hypoglycaemia that results into (SUEND) similarly to WHO 2013 that concluded that Sudden Unexpected Early Neonatal Deaths (SUEND) is an increasingly recognised problem. Risk factors include unsupervised skin-to-skin contact, inexperienced mothers and mothers being left unsupervised in the immediate postnatal period. (WHO 2010) while those that failed to cry after birth could have had fatal distress during labour, aspiration, hypoglycaemia and births injuries and parturition related difficulties resulting from delayed decision making in referral and intervention during monitoring of labour that resulted into deaths.

Majority of neonates that died (60.0%) had high grade fever; those that had difficulty in breathing were (43.3%) while 6.6% failed to pass meconium before they died. High grade fevers are associated to neonatal septicaemia and other localised infections like cord infection and aspiration that result into bacteraemia, septicaemia resulting into inflammatory responses that raise body temperature in defence. Hence these neonates could have died due to infections which are primarily from poor hygiene during delivery as majority of them were delivered outside hospital facility in septic environment by unskilled attendants similarly to Eman et al 2015 that found out that Deaths among majority neonates being 45.9% due to sepsis and neonatal mortality rate for proven sepsis being 51% if early onset (Eman et al 2015).

From death reports as were told by mothers from health care providers, 30% of neonates died of infections, 23.3% were due to respiratory failure, while hypothermia and hypoglycaemia were 20% and 13.3% respectively. These infections could have resulted from environment of delivery during home

deliveries, neonatal care practices like poor cord care that introduce infections on umbilicus of neonate, aspiration due to lack of bulb syringes in home settings among others. The finding is contrary to UNICEF 2012 Report that found out that According to UNICEF, the global distribution of neonatal deaths, by cause by 2012 was as follows, Preterm birth complications 34%, Intra-partum-related complications 24%, Sepsis/meningitis 12%, Pneumonia 10%, congenital abnormalities 9%, Tetanus 2%, Diarrhoea 2% and others accounting for 6% of neonatal deaths causes (UNICEF, 2012)

Respiratory failure rated highly among causes of neonatal deaths. These could be basically resulting from prematurity, delayed decision making that result into distress, lack of labour monitoring charts and may be little knowledge on labour monitoring regarding maternal and neonatal distress. Similarly to WHO (2008) that the common causes of neonatal deaths in Uganda include birth asphyxia, infections and complications of preterm birth, especially in the high number of deliveries that take place without skilled attendance (MOH, 2008)

5.1.4 Hospital factors

Majority of the neonates (56.6%) that died from facility had been delivered from home, while only 43.4% had been hospital deliveries. This implies that neonates borne from homes under the care of relatives and TBAs have lesser chances for survival compared to those delivered within KIU-TH and those referred from other health facilities for neonatal care. This could be because, neonate borne under home deliveries are borne within untidy environments, by non-aseptic techniques from unskilled and untrained labour that exposes them to infections and other complications. Those with minor complication that require simple urgent attention

delay to get this help due to lack of equipment like resuscitation equipments and phototherapy machines, therefore in case of such simple neonatal disorders, they remain unattended to, developing into larger problems like aspiration resulting into respiratory distress syndrome, pneumonia, severe jaundice and hyper-bilirubinemia that results into neonatal deaths as also reported by MPDR (2013) that Delay in seeking Help is contributes to high neonatal mortality rates (MPDR,2013)

Majority of the neonates that died had been delivered through SVD (56.6%) followed by assisted vaginal delivery (33.3%) while those delivered by caesarean section were only 10%. This could be because; most of them having been delivered from homes under TBAs and relatives could not have used any other means. In case of distress and other risks, labour had to be left as if it is progressing normally even when foetuses or their mothers were distresses. As a result, these neonates could have been borne with distress, births injuries and internal haemorrhages from such injuries. With rural setting where there is no resuscitation, where there is no intramuscular vitamin K, these disorders which could be immediately addressed in health facility remain unattended to resulting into deaths of neonates. This is similarly to Waiswa et al (2013) that in eastern Uganda, There were low levels of coverage of new-born care practices among rural communities

On the other hand, neonates that had been delivered by doctors were least among those that died; this could be direct proportionality of labour attendance by doctors to mothers. However, mothers under skilled labour during delivery are properly monitored, in case of any risk, they are refers for higher skilled delivery techniques and caesarean section in case of distress. Neonates borne by caesarean section are not exposed to births traumas, distresses hence less likely to die from complications

that could have resulted from these bypassed risks similarly to mothers, contrary to Mohamed's that However, simple and low-cost interventions, such as community-based neonatal care packages supporting clean birth practices, early detection of illness through use of clinical algorithms (Mohammed 2010).

Majority of neonates that died had been delivered by TBAs and relatives (56.6%), 20% were delivered by nurses, while only 10% of neonates that died were delivered by doctors. These are unskilled, and some lack basic training regarding neonatal care as in risk prevention and infection prevention. As a result, these neonates are exposed to injuries, infections and hypothermia which results to internal haemorrhages, neonatal sepsis, hypothermia and other related complications that lead to neonatal deaths. This is similarly to MOH 2008 finding that. More new-born deaths occur at home, among the rural poor. Underlying causes of death are related to poor access and utilisation of health services during pregnancy and childbirth, especially the high number of deliveries that take place without skilled attendance (MOH, 2008)

All of mothers (100%) of mother that had lost a neonate admitted that there was no any ENC protocol in postnatal ward and in neonatal care unit. Mothers even when delivered within the facility or referred to facility from lower facilities and homes into KIU-TH, lack protocols regarding neonatal care. These are expected to be an integral partner in neonatal care even while inside the hospital hence are expected to receive guidelines on how to care for these neonates. But without guide on how to give their care, they still do native ways of neonatal care that include immediate bathing leading to hypothermia, separation from the mother, poor cord care that results into infections, giving drinking water instead of initiating colostrums feeding

resulting into aspiration and hypoglycaemia, all these results into risks that are potential causes of neonatal deaths. Availing these protocols to family members and other care takers could help reduce neonatal mortality contrary to Gogia, (2010) that Empowering families and communities to practice safe new-born care practices, to recognize danger signs and early care seeking can help save new-born lives. Community health workers (CHWs) have been used in several low-income settings to sensitize and educate households on a range of health issues and events (Gogia, 2010). And contrary to Waiswa(2010) that found out that In Uganda, the CHW strategy also known as the Village health Team (VHT) strategy has been adopted by the ministry of health to improve new-born care practices within the communities among other functions (Waiswa et al 2010).

5.2 Conclusion from the study findings

The study titled factors associated with neonatal mortality at KIU-TH involved 30 mothers that had lost a neonate within KIU-TH during time of data collection; they involved those that had delivered from KIU-TH, and those that came seeking neonatal health care from outside as admissions from home, or referral in from other facilities into KIU-TH neonatal care unit. The study assessed demographic characteristics, maternal factors, neonatal factors and hospital factors associated to neonatal mortality. The results were as follows.

Neonatal mortality was associated to the following demographic characteristics. Young age from 19-24, prime Para mothers, low levels of formal education ranging from none to primary level, living in rural areas, and low social economic status commonly among peasants.

Maternal factors were as follows, Health of mothers during pregnancy did not greatly determine the survival of neonates as majority of neonates that died (63.3%); their mothers were healthy during pregnancy. Low conception interval of less than 24 months following previous pregnancy and among low utilization of contraceptives was greatly associated to neonatal deaths. Mothers that had visited ANC for 2(two) or less than 2(two) visits were more likely to have their neonate die compared to their counterparts of more than two visits. Having not heard about ENC was greatly associated to neonatal deaths than mothers that had heard about it.

Mortality was more associated to male neonates than their female counter parts. Term neonates were the majority that died due to post parturition challenges, whereas being pre-term neonates (28-37) weeks also carried a great risk. Low births weight consisted of great risk for neonatal mortality (40.0%). Babies born with asphyxia with cyanosis were more likely to die than non-cyanosed counterparts. Vast numbers of neonates that died were due to infections associated with high grade fevers, followed with neonates that had compromised respiratory functioning. Neonates that were delivered from home and referred to KIU-TH were more likely to die than their counterparts borne within KIU-TH, or those referred in from other health units. SVD delivered babies died more than those delivered by caesarean section, babies delivered by TBAs and relatives and referred in after births died more compared to those delivered by health workers that is, nurses, doctors, and midwives. Lack of protocols on neonatal care on postnatal unit and neonatal sides of care contributed greatly to neonatal deaths as mothers who are part of neonatal care were not guided on quality of care they were supposed to offer to neonates.

5.3 Recommendations from the study findings

To community utilizing health services in KIU-TH

I recommend that early marriages and early sexual intercourse that results into teenage pregnancies and young mothers be strongly avoided to reduce the risks of neonates that die due to complications that arise from young age mothers' labour.

I recommend that girl child education be re- emphasized to increase general knowledge regarding neonatal care, and decision making power of mothers regarding place of delivery and quality of care to their neonates to increase neonatal survival.

I recommend that the community actively utilize birth control methods to improve to longer interval time between pregnancies thereby increasing chances of neonatal survival, encourage their women to visit ANC at least 4 Times during pregnancy for early screening and referral of potential risks that could result into neonatal deaths.

To Management of KIU-TH

I recommend that essential new borne care protocols be availed in all avenues where mothers with neonates can essentially access and utilize them to increase their knowledge on neonatal care thereby increasing chances of neonatal survival.

I recommend that infection prevention, and other essential new borne care routine practices be implemented to eliminate neonatal mortalities related to infection and other poor neonatal care practices.

To Bushenyi District health department

I recommend that community health mobilization be emphasized focusing on importance of mothers to deliver from hospital under trained personnel's. This is to

avoid poor and septic environments associated with home based deliveries and improve on early intervention in health care in case a neonate is borne with any neonatal complications.

To the government of Uganda through ministry of health

I recommend infrastructure development into rural areas of Bushenyi district to health services for easy accessibility by rural communities, embarking on domiciliary care to facilitate safe deliveries to mothers within their homes under skilled labour that is less associated with infections and other complications.

5.4 Implication to nursing practice.

To the nursing practice

I recommend that domiciliary care be empowered in all communities of Uganda so that mothers within and outside the health facilities deliver within skilled knowledgeable hands to prevent poor practices associated with infections, hypothermia and hypoglycaemia thereby increasing neonatal survival.

Nursing proper screening of infection and respiratory syndromes be made to all neonates admitted from home deliveries to health facility for care in order to rule them out early, early treatment and other intervention there by reducing neonatal death associate to these.

To nursing education

Nursing education should emphasize on infection prevention in rural setting and essential new borne care in order to equip trainees with knowledge to positively impact communities to utilization of ANC, essential new borne care and its related benefits that include neonatal survival.

To nursing research

Nursing researchers should make a comprehensive study on factors influencing high prevalence of infections among home delivered neonates in order to come up with evidence based health education to community on how to avoid infections even in home setting.

REFERENCES

- Arokiasamy P, Gautam A: Neonatal mortality in the empowered action group states of India: trends and determinants. *J Biosoc Sci.* 2008, 40 (2): 183-201.
- Black RE, Victora CG, Walker SP (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *Lancet* 2013; 382: 427–51.
- Care in developing countries: a systematic review of the literature. *Hum Resource Health*, Department of Human Kinetics & Health Education, University of Calabar, Calabar, Nigeria. Dogba M and Fournier P. 2009 6; 7:7. Human resources and the quality of emergency obstetric
- Cleland J (2012), Conde-Agudelo A, Peterson H, Contraception and health. *Lancet* 2012; 380: 149–56.
- DaVanzo J, Hale L, Razzaque A, Rahman M: The effects of pregnancy spacing on infant and child mortality in Matlab, Bangladesh: how they vary by the type of pregnancy outcome that began the interval. *Popul Stud (Camb)*. 2008, 62 (2): 131-54. 10.1080/00324720802022089.
- Gogia S, Sachdev HS. Home visits by community health workers to prevent neonatal deaths in developing countries: a systematic review. *Bull World Health Organ.* 2010; 88:658–666B. doi: 10.2471/BLT.09.069369
- Health M of: Situation Analysis of Newborn Health in Uganda: Current Status and Opportunities to Improve Care and Survival. Kampala: Government of Uganda.
- Save the Chil Carlo W A, Ambalavanan N, Behman R E, H B Jenson, Kiliegman RM, Stanton B F, StGeme JW, Schor NF, eds. *Nelson textbook of Pediatrics* 20th edition. Philadelphia PA Elsevier; 2016 chapter 105.

Indicators Report, Kampala

Jennifer A Callaghan-Koru, Abiy Seifu, Maya Tholandi, Joseph de Graft-Johnson, Ephrem Daniel, Barbara ,Rawlins, Bogale Worku, and Abdullah H Baqui(Newborn care practices at home and in health facilities in 4 regions of Ethiopia) DOI: 10.1186/1471-2431-13-198.

Lawn JE, Kerber K, Enweronu-Laryea C, Massee Bateman O. Newborn survival in low resource settings--are we delivering? BJOG. 2009; 116 Suppl: 49–59. doi: 10.1111/j.1471-0528.2009.02328.x. [PubMed] [Cross Ref]

Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, et al. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. Lancet. 2012; 379:2151–2161. doi: 10.1016/S0140-6736(12)60560-1. [PubMed] [Cross Ref]

Macassa G, Hallqvist J, and Lynch JW: Inequalities in child mortality in sub-Saharan Africa: A social epidemiologic framework. Afr J Health Sci. 2011, 18 (1–2): 14-26.

Matthews Z. World health report 2005: make every mother and child count. World Health. 2005; 33:409–11. [PubMed]

Mbonye AK, Sentongo M, Mukasa GK, Byaruhanga R, Sentumbwe-Mugisa O, Waiswa P, et al. Newborn survival in Uganda: a decade of change and future implications. Health Policy Plan. 2012; 27(suppl 3):iii104–iii117. doi: 10.1093/heapol/czs045. [PubMed] [Cross Ref]

Ministry of Health (2008), Situation analysis of new-born health in Uganda: current status and opportunities to improve care and survival. Kampala: Government of Uganda. Save the Children, UNICEF, WHO; 2008.

MOH (2010) Promoting People's Health to Enhance Socio-economic Development
HEALTH SECTOR STRATEGIC & INVESTMENT PLAN

MPDR (2013), "Why did they die?" MOH, reviewing the evidence to save tomorrow's mothers and babies, Maternal and Perinatal Death Review Uganda 2012/13

Pattinson R, Kerber K, Buchmann E,(2010). Stillbirths: how can health systems deliver for mothers and babies? Lancet 2011; 377: 1610–23.

PMNCH(2011), a global review of the key interventions related to reproductive, maternal, new-born and child health: essential interventions, commodities and guidelines. Geneva:

http://www.who.int/pmnch/topics/part_publications/essential_interventions_18_01_2012.pdf

Sara L N, (2011), Reduction of Maternal and New-born Mortality in Uganda, FIGO saving mothers and new-borns project in Uganda:

Save the Children (2013). Surviving the first day: State of the World's, London, UK: Save the Children International, 2013.
<http://www.savethechildrenweb.org/SOWM-2013>

Save the Children org (2014), ending newborn deaths, ensuring every baby survives, St John's Lane London EC1M 4AR UK.

Shaikh (2012) S, Shaikh AH, Shaikh SAH, Frequency of obstructed labor in teenage pregnancy. NJOG, 2012, (3): 37–40.

Sharma V, Katz J, Mullany LC, Khatry SK, LeClerq SC, Shrestha SR, Darmstadt GL, Tielsch JM: Young maternal age and the risk of neonatal mortality in rural

Nepal. Arch PediatrAdolesc Med. 2008, 162 (9): 828-35.
10.1001/archpedi.162.9.828.

SOWM (2013), Save the Children, Surviving the first day: State of the World's Mothers 2013. London, UK: Save the Children International, 2013.<http://www.savethechildrenweb.org/>

Titaley CR, Dibley M, Agho K, Roberts CL, Hall J: Determinants of neonatal mortality in Indonesia. BMC Public Health. 2008, 8: 232-10.1186/1471-2458-8-232.

UBOS (2007), Macro International Inc. Uganda Demographic and Health Survey 2006. Calverton, Maryland: UBOS and Macro International Inc, 2007.

Uganda Bureau of Statistics, 2017, Uganda Demographic and Health Survey 2016, Key Eman M, RabieShehab el-dn,Mohamed M, Eldel El-sokky, Mohamed R B,Ramadan H (2015) Epidemiology of neonatal sepsis and implicated pathogens. *Biomed Research International*. Volume 2015(2015) article ID 509484 pp 11.available at. <http://dx.doi.org/10.1155/2015/509484>. Research article.

UNICEF (2008), Situation analysis of new-born health in Uganda: current status and opportunities to improve care and survival. Kampala: Government of Uganda. Save the Children, UNICEF, WHO; 2008.

UNICEF (2008), Situation analysis of new-born health in Uganda: current status and opportunities to improve care and survival. Kampala: Government of Uganda. Save the Children, UNICEF, WHO; 2008.

UNICEF (2010), Progress for children: achieving the MDGs with equity. New York:http://www.unicef.org/protection/Progress_for_Children-No.9_EN_081710.pdf

UNICEF (2012), Committing to Child Survival: A promise renewed – progress report 2013

Waiswa P, Kallander K, Peterson S, Tomson G, Pariyo GW. Using the three delays model to understand why newborn babies die in eastern Uganda. *Trop Med Int Health*. 2010; 15:964–972. doi: 10.1111/j.1365-3156.2010.02557.x. [PubMed] [Cross Ref]

Waiswa, Stefan Peterson, Goran Tomson and, George W Pariyo Poor newborn care practices a population based survey in eastern Uganda Peter Contributed equally *BMC Pregnancy and Childbirth* 2010 **10:9** DOI: 10.1186/1471-2393-10-9

Whitaker K (2012), Is Sierra Leone right to ban traditional birth attendants? *The Guardian*, 2012. <http://www.theguardian.com/global-development/poverty-matters/2012/jan/17/traditional-birth-attendants-sierra-leone> (accessed 17 January 2014).

WHO (2009). baby-friendly hospital initiative revised, updated and expanded for integrated care. Revised edition of original BFHI guidelines developed 1992. © World health organization and UNICEF 2009 section 1.1 page 3.

WHO(2011). who.int/pmnch/topics/part_publications/2011_pmnch_report/en/index4.html

WHO (2014), Adolescent pregnancy, http://www.who.int/maternal_child_adolescent/topics/maternal/adolescent_pregnancy/en/ (accessed January 2014)

WHO, (2015) Neonatal mortality rate, Global Health Observatory (GHO) data
World Health Organization (WHO) Trends in Maternal Mortality: 1990 to 2008
Estimates Developed by WHO, UNICEF, UNFPA and The World Bank. 2010

Yared MekonnenEmail author, BirukTensou, Daniel S Telake, TedbabeDegefie
and AbebaBekele (2013), Neonatal mortality in Ethiopia: trends and determinants,
BMC Public Health 201313:483 DOI: 10.1186/1471-2458-13-483

APPENDICES

Appendix I: Informed Consent Form

Greetings to you, I am **TUMUKUNDE MERAB**, a student of Kampala International University (KIU-WC),

I sympathise with you through all challenges related to the situation you are currently going through. May God strengthen and encourage you.

I am carrying out a research on the “*factors associated to neonatal mortality in Kampala international university teaching hospital*” I am requesting for your participation in this research, so please kindly with honesty and faithfulness, Give in the right information/answers in the questions that are in the questionnaire. I promise that this information will be **kept confidential** and only be used for **academic** purposes.

Besides, the participation is **voluntary** and your cooperation in answering these questions is highly appreciated.

I agree to answer the questions because I have read and understood the concept.

Signature/thumb print.....

Date...../...../.....

Witness.....

Date...../...../.....

Appendix II: Questionnaire

Section A: Social demographic characteristics.

1 Tick single answer per choice corresponding to your status.

characteristic	
Age	
<19	
19-24	
25-29	
30-34	
>34	
Parity	
1	
2-3	
4-6	
>6	
level of education	

None	
primary	
secondary	
tertiary	
residence	
rural	
urban	
occupation	
Civil servant	
Business woman	
Peasant.	
Student.	

Section B. Maternal factors affecting neonatal mortality in KIU-TH.

2. Tick right of the answer corresponding to your status.

Health status during pregnancy.	
health through	
ill in first 1 st or 2 nd trimester	
Ill health in 3 rd trimester.	
contraception use	
ever used	
never used	
was using	
interval between previous pregnancy and this of neonate that died	
<6 months	
6-12 months	
13-18 months	
19-24 months	
>24 months	
ANC during pregnancy	
Visited once(1)	
visited twice(2)	
visited thrice(3)	
visited four times(4)	
Visited > 4 times.	
Knowledge on ENC(essential new borne care)	
ever heard about ENC	
Never heard about ENC	

Section C. Neonatal factors

3 **Tick** right as corresponds to the neonate.

neonatal factor	
sex	
male	
female	
gestational age(weeks)	
<28 weeks	
28 but <37 weeks	
37-40 weeks	
>40 weeks	
birth weight	
<2.5	
2.5-3.5	
>3.5	
condition at birth	
normal and healthy	
had malformation	
was unable to cry	
cyanosed	
jaundiced	

Signs and symptoms before death	
High grade fever	
red umbilicus	
difficulty in breathing	
failure to pass meconium	
failure to breastfeed	
others	
Cause of deaths as from doctors reports to mothers	
Infections	
hypoglycaemia	
hypothermia	
malformation	
respiratory failure	
others	

Section D: Facility related factors.

4 **TICK** right in accordance to your experience during delivery health care seeking in this hospital or outside it.

Place of delivery	
Home	
Facility.	
Mode of delivery	
SVD	
AVD	
C/S	
Person that delivered	
doctor	
nurse	
midwife	
TBA/relative	
did you see any essential new borne care protocol in facility?	
Yes	
Did not see.	

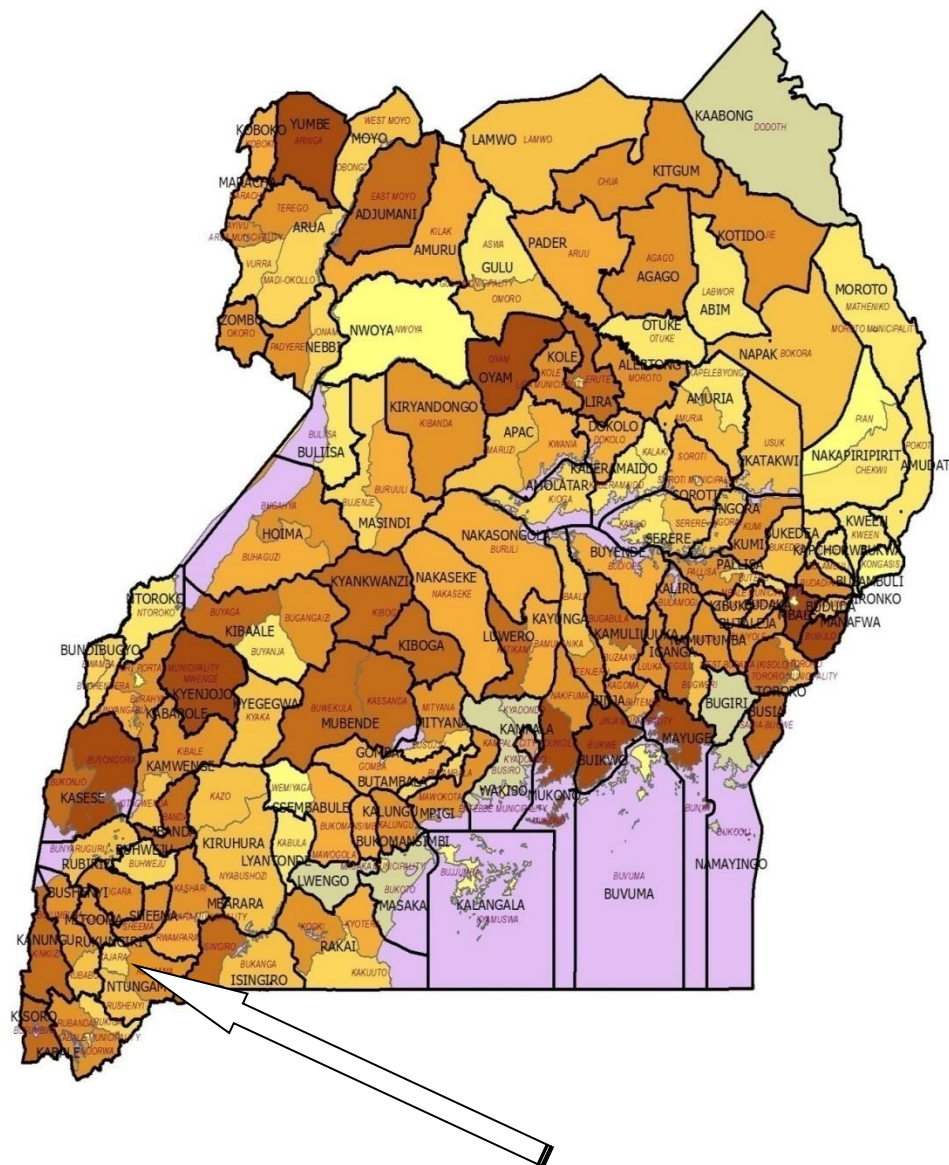
Thank you very much for your un divided commitment in giving information.

END

Appendix III. SCANNED LETTER FOR AUTHORIZATION



APPENDIX IV: A MAP OF UGANDA SHOWING LOCATION OF BUSHENYI DISTRICT WHERE KIU-TH HOSPITAL IS LOCATED



Location of bushenyi district where KIU-TH is found.

**APPENDIX V: MAP OF BUSHENYI DISTRICT WHERE KIU-TH
HOSPITAL IS LOCATED.**



Location of KIU-TH.