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Maternal and Neonatal Near Miss and Associated Factors among Mother Who Gave Birth at Public Hospitals in Harar, Eastern Ethiopia

MSc Thesis

By

Natnael Kassa

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Harar, Ethiopia

Maternal and Neonatal near miss and associated factors among mother who gave birth at public hospitals in Harar, eastern Ethiopia

A Thesis Submitted to the school of Nursing and Midwifery, College of health and Medical Sciences School of Graduate studies

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In partial fulfillment of the requirements for the Degree of MASTER of Science in Maternity and Neonatal Health Nursing

Natnael Kassa Abera

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Harar, Ethiopia

APPROVAL SHEET

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BIOGRAPHICAL SKETCH

I was born in 1993 in Haramaya Bate, Eastern Ethiopia. I completed my primary and secondary school in Haramaya University Model School. I graduated BSc Degree in Midwifery Mizan-Tepi University in 2015. And after i graduated my BSc Degree, in 2015 i have been employed at Yirgalem General Hospital for one year and then transferred to Hiwot Fana Specialized University Hospital serving there until I joined the school of postgraduate studies in maternity and neonatal nursing in 2021.

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ABBREVIATIONS AND ACRONYMS

CS	Caesarean section
CSA	Central statically Agency
EDHS	Ethiopian demographic health survey
EHRIG	Ethiopian Hospital reform implementation Guide
HFSUH	Hiwot Fana Comprehensive Specialized University Hospital
HTN	Hypertension
JH	Jugel Hospital
LB	live births
MNNM	Maternal and Neonatal Near Miss
MNM	Maternal near miss
MMR	Maternal mortality ratio
NICU	Neonatal intensive care unit
NM	Near Miss
NM	Neonatal Mortality
NMR	Neonatal mortality ratio
NNM	Neonatal near miss
PROM	Pre-mature rapture of membrane
SDG	Sustainable development goal
SNNPR	South Nation Nationalities and Peoples Region

ABSTRACT

Background: Maternal and neonatal mortality is a major public health challenge in low-income countries. Yet for every death, there are many more mothers and new-born who suffer a life-threatening complication but survive. Maternal and neonatal near miss has been proposed as a tool for assessment of quality of maternal and neonatal care. Although many countries have made substantial progress on maternal and neonatal health condition, Ethiopia ranks among the top ten countries in terms of neonatal morbidity and mortality, and there is also limited research evidence on magnitude of maternal and neonatal near miss and associated factors in Harar, eastern Ethiopia.

Objective: To assess maternal and neonatal near miss and associated factors among women who gave birth at public hospitals in Harar, eastern Ethiopia from August 1- 30,-2023.

Methods: Institutional-based cross sectional study was conducted among randomly selected 423 mothers with their neonates in public Hospitals in Harari regional state. Data were collected using structured questionnaire for mothers and standard checklist for new-born. Collected data were entered into Epi-Data version 3.1 and exported into SPSS version 20 for cleaning and analysis. Binary and multiple logistic regressions was applied to compute the adjusted odds ratio (AOR) with 95 % confidence interval to examine association between explanatory and outcome variables. Significant association was declared using AOR at P-value less than or equal to 0.05.

Results: Proportion of maternal and neonatal near miss was found to be 9.2% and 22% respectively. The factors associated with maternal near miss were; obstetric hemorrhage [AOR:3.69,95%CI:1.09-2.46], preeclampsia/eclampsia [AOR:3.68;95%CI:1.55-8.74], maternal anemia[AOR:4.98,95%CI:1.245-19.91], maternal sepsis [AOR:3.17;95%CI:1.125-18.57], obstructed labor/Cephalo pelvic disproportion [AOR:3.319;95%CI:1.48-12.519], post-partum hemorrhage [AOR:3.55;95%CI:1.41-8.93] and referral linkage [AOR:2.78, 95%CI:1.29-5.96]. Similarly, obstetric hemorrhage[AOR:5.55,95%CI:1.99-15.47], preeclampsia/eclampsia [AOR:3.05;95%CI:1.432-6.294], premature rapture of membrane [AOR:2.85;95%CI:1.31-6.22], obstructed labor/Cephalo pelvic disproportion [AOR:5.58;95%CI:1.92-16.19], prolonged labor[AOR:4.7,95%CI:1.91-7.12], meconium stained amniotic fluid [AOR: 5.76, 95%CI: 1.71-19.44] NRFHRP [AOR: 3.60, 95%CI: 1.46-8.90], and referral linkage [AOR: 1.512, 95%CI: 1.928-6.464] were associated with neonatal near miss.

Conclusion: Maternal and neonatal near miss was found to be a significant public health challenge in eastern Ethiopia. Obstetric complication during current pregnancy, labor-delivery and postpartum period, referral cases and mode of delivery were associated with maternal and neonatal near miss which are preventable. Continue compressive maternal and neonatal care to avoid preventable causes of morbidity and organizing effective referral system in collaborating with various relevant stakeholders.

Key-word: Maternal and neonatal near miss, associated factors, public hospitals, eastern Ethiopia

1. INTRODUCTION

1.1 Background

Globally there was a 45% and 51% decrease in maternal and neonatal deaths respectively since 1990. However, there are still maternal and neonatal deaths from preventable causes and are still high in middle and low income countries (Abdollahpour, Miri, & Khadivzadeh, 2019). For every mother and neonate who dies, many others experience a near miss event that could have but did not result in death. Maternal near miss (MNM) is defined by the WHO as 'a woman who nearly died, but survived a complication during pregnancy, childbirth or within 42 days of termination of pregnancy' (Pileggi, Souza, Cecatti, & Faúndes, 2010).Analogous to maternal near miss, Neonatal near miss NNM is an emerging approach and is becoming a key indicator for assessing quality of neonatal care to reduce preventable neonatal morbidity and mortality. Neonatal near miss(NNM) defined as a newborn who presented a severe complication in the first 28 days of life almost died but survived during the neonatal period (Pileggi et al., 2010). NNM is three to eight times more frequent than neonatal deaths(Santos et al., 2015).

Maternal death is the most catastrophic end that could happen to a pregnant woman. The MNMz disease-specific criteria is proposed as obstructed labor (uterine rupture, impending rupture like prolonged labor with previous C.S.), hemorrhage (severe obstetric hemorrhage leading to shock, emergency hysterectomy, coagulation defects, and/or blood transfusion of at least one units), pregnancy-induced hypertension disorders (severe preeclampsia or eclampsia), sepsis (septic abortion, infections including hyper or hypothermia or a clear source of infection and clinical signs of septic shock), and severe anemia (including low hemoglobin <6 g/dl or clinical signs of severe anemia in women without hemorrhage)(Filippi et al., 2005; Say, Souza, & Pattinson, 2009; Witteveen et al., 2017)**.**

Although there is no commonly agreed identification criteria for NNM, consistd of two set of pragmatic criteria: ((Birth weight< 1750 g , Apgar score < 7 at 5 minutes and gestational age < 33 complete weeks) and management based (use of continuous positive air pressure (CPAP), use of vasoactive drugs, bag and mask ventilation, use of phototherapy, use of anticonvulsant drugs, respiratory distress, any intubation use of blood products ,use of steroids for the treatment of refractory hypoglycemia, surgery, use of antenatal steroid ,use of parenteral nutrition, identification of congenital malformation(Tola, Semahegn, Tiruye, & Tura, 2022).

One of the Millennium Development Goals set in 2000 by the member countries of the United Nations is to improve the health of women through multiple interventions, such as promoting access to family

planning services and emergency obstetric care by qualified and trained personnel. In this respect, women in low-income countries are especially vulnerable to dying from obstetric causes. The World Health Organization, through its "Global Strategy for Women´s, Children´s and Adolescents´ Health (2016-2030)," is analyzing relevant indicators and scores to improve the survival of newborns and pregnant women. Although the world has made substantial progress on these two issues, the decline in maternal and neonatal mortality has recently slowed down.

Globally, the NMR was decreased to 18 per 1000 live births and as indicated in many studies the main causes of neonatal deaths were preterm birth, intrapartum related complications, and sepsis(Hug, Alexander, You, & Alkema, 2019). In spite of developed nations, neonatal morbidity, and mortality rates remained high in resource-limited countries. It is projected that the number of survivors from a "neonatal near-miss" event is three to six times higher than the number of neonatal deaths(Santos et al., 2015).

Sub-Saharan Africa alone accounts for roughly 66% (201 000) to maternal death (Aduloju, Aduloju, & Ipinnimo, 2018). Ethiopia ranks among the top ten countries in terms of neonatal morbidity and mortality, with intrapartum complications accounting for 30% of cases, preterm birth complications accounting for 26% of cases, sepsis/tetanus accounting for 18% of cases, and congenital abnormalities accounting for 5% of cases (11%). Each year, over 100,000 newborns die in Ethiopia, and neonatal deaths account for 55% of all child deaths under the age of five. Findings reveal that the main direct causes of maternal death in Ethiopia include obstetric complications such as hemorrhage, obstructed labor/ruptured uterus, pregnancy-induced hypertension, puerperal sepsis, and unsafe abortion(EPHI, 2019).

1.2 Statement of the problem

Morbidity and mortality can be seen as a continuum. Maternal and neonatal health can be described as ranging from normal pregnancy mile and life-threatening complications, to death at the other end of the continuum that is also true for neonates. According to the perspective WHO, every pregnant woman and newborn should receive quality care throughout pregnancy, childbirth and the postnatal periods. In addition to this decreasing maternal and neonatal death is one of the continuum development pillars endorsed by global countries to downscale neonatal mortality below 12 per 1000 and maternal mortality below 70 per 100,000 live births for all countries by 2030(Singh, 2017).

Although maternal and neonatal death reduced nearly by half worldwide, there are still 800 deaths per day from highly preventable causes before, during, and after the time of childbirth(Abdollahpour et al., 2019).Annual neonatal mortality rates range from 0.9 to 44.2 deaths per 1,000 live births(Hug et al.,

2019).Maternal and neonatal death is numerically rare in high-income countries. But still south Asian, Latin American and sub-Saharan African face disproportionately higher maternal and neonatal deaths.

In a WHO survey of maternal and prenatal health in Latin America, for eight countries the mean proportional ratio of NMs was 34 per 1,000 deliveries(Alemu, Fuchs, Martin Vitale, & Abdalla Mohamed Salih, 2019). According to study conducted in northeastern Brazil from June 2015 to May 2016 that included all pregnant women there were around (13.3%) MNM cases and five maternal deaths (de Lima, Amorim, Buainain Kassar, & Katz, 2019). Another study in northeastern Brazil that included 1002 live births (LB) from June 2015 through May 2016, and identified that there was around (22%) NNM cases and 44 (4.4%) early neonatal deaths and 14 (1.4%) late neonatal deaths(de Lima, Katz, Kassar, & Amorim, 2018). South Asia had 25 neonatal deaths per 1,000 live births in 2018 and making up around 85% of all maternal-related deaths. And is a hub of the highest number of neonatal deaths along with sub-Saharan Africa(Goli, Nawal, Rammohan, Sekher, & Singh, 2018; Hug et al., 2019).

In developing countries, maternal and neonatal deaths are more common, scattered and sporadic in numerous health institutions. Developing countries account for approximately 99% (302,000) of global maternal deaths, and sub-Saharan Africa alone accounts for roughly 66% (201 000) to this death (Aduloju et al., 2018) and the same is true for neonates low- and middle-income countries account for huge newborn deaths as compared with a developed country and Ethiopia has contributed two-thirds of all neonatal mortality(Abebe et al., 2021).Moreover, in 2017-2019, the Quality of Care Network group supported by the WHO included more countries – such as Ethiopia, Ghana, India, Malawi, Nigeria, Tanzania and Uganda to accelerate action by adapting the WHO's standards for improving the quality of maternal and newborn care in health facilities at the country level, foster learning and generate evidence on quality of care through a learning platform, develop and support institutions and mechanisms that will ensure accountability for quality of care by designing a national accountability framework. The magnitude also varies among different countries and regions depending on the health care quality and availability.

According to 2011, 2016, and 2019 Ethiopia central statically Agency (CSA) report 31, 29, and 30 neonatal deaths had occurred per 1000 live births respectively, which illustrate a sluggish decline during the respective aforementioned years(CSA, 2016; DeFranco, Stamilio, Boslaugh, Gross, & Muglia, 2011).The pregnancy-related mortality ratio, in Ethiopia, is estimated to be approximately 412 death/100,000 live birth (CSA, 2016).In the early 1990s, Ethiopia was amongst countries with the highest MMR in the world and in 2008 (WHO, 2016), it was one of

six countries which together contributed about half of all maternal morbidity and deaths, worldwide.

In Ethiopia, currently all public Hospitals are participating in the quality of improvement initiative. At present it is estimated that 50%-70% of these standards are being regularly implemented by Hospitals with the standards relating to outpatient service, inpatient service and pharmacy service. Even those Hospitals reform implementation was practiced; still neonatal mortality and morbidity are high in Ethiopia(Health, 2015).

Decreasing maternal and neonatal death is one of the continuum development pillars endorsed by global countries to downscale neonatal mortality below 12 per 1000 and maternal mortality below 70 per 100,000 live births for all countries by 2030(Singh, 2017).Despite the pooled death reduction across various global countries, the pattern of reduction is not similar even across ecological child age groups and low-income countries where neonates are dying more than other cohorts. With the current trend of neonatal and maternal mortality rate, Ethiopia could not achieve the SDG target by 2030.

Despite the wider acceptance of NM as a concept, there is a paucity of information and the need for more studies in different settings was previously indicated. Studying NM in Ethiopia, where reduction in maternal and neonatal mortality is still slow, would generate data on important factors for maternal and neonatal survival(Belachew, Tewabe, & Dessie, 2022). In this study, we aim to assess the prevalence of MANNM and its associated factors among mother who gave birth at public hospitals in Harar Region, Eastern Ethiopia.

1.3 Significance of the Study

The findings of this study primarily used for Harari Region health Bureau and hospitals for planning appropriate policies, strategies directed towards decreasing the maternal and neonatal near miss and serve as the basis for enhancing the training of the health providers in delivering better health services. The findings of this study will also be used for health centers, clinics, stakeholders from government and nongovernmental organizations (NGOs), health care providers, clients and who works in delivery room and neonatal intensive care unit (NICU) to determine maternal and neonatal complications and associated factors. The knowledge of these study results will help to increase awareness among health care professionals, educators and researchers for the prevention and management of this problem in hospitals by providing important information.

1.4 Objectives

1.4.1. General Objective

To assess maternal and neonatal near miss and associated factor among mothers who gave birth at public hospitals in Harar town, Eastern Ethiopia August 01-30, 2023.

1.4.2. Specific Objectives

- To determine magnitude of maternal and neonatal near miss
- To identify factors associated with maternal and neonatal near miss

2. LITERATURE REVIEW

The following review of existing literature will cover a range of topics related to MNNM, including factors that associated with MNNM. The literature was collected by using search terms like maternal and neonatal near miss, associated factors of maternal and neonatal near miss in Ethiopia, Africa and worldwide by using search engines like Google scholars, PubMed, BMC, full pdf search, Hinari, and SCI-HUB.

2.1 Magnitude of Maternal and Neonatal near miss

A prospective cohort study was conducted at a high-risk maternity hospital in northeastern Brazil to investigate the association between socio-demographic and obstetric variables and delays in care with maternal near misses (MNMs). During the study period, 1002 live births (LBs) were recorded at the maternity hospital, resulting in an MNM ratio of 54.8/1000 LB (de Lima et al., 2019).

An institutional-based cross-sectional study conducted in India has shown that of 3581 deliveries, births and 5 maternal deaths, during the 15-month study period. Thirty-two women met the WHO criteria for MNM. MNM incidence rate (MNM IR) was 9.27/1000 live births (Reena & Radha, 2018). Similarly, a study conducted in China among 612,264 pregnant women revealed that There were 3208 MNM cases and 34 maternal deaths. The MNM incidence ratio was low at 5.9 per 1,000 live births(Ma et al., 2020).

A hospital-based cross-sectional study was conducted in Koshi Hospital, Morang district, Nepal One thousand respondents were recruited. The prevalence of NNM was 79 per 1,000 live births(Sushma, Norhayati, & Nik Hazlina, 2021). Another study was conducted in Northeastern Brazilthe incidence of NNM was 220/1000 LB(de Lima et al., 2018). Some of Studies conducted in africa likein Uganda showed that, among 2142 deliveries, 257(12%) still birth , 369(17%) neonatal death and 786(36.7%) neonatal near miss were observed(Nakimuli et al., 2015) and n Malawi 2010, there were approximately 17,700 newborn deaths, with prematurity, asphyxia and sepsis being the main causes of neonatal death(Colbourn et al., 2013).

A retrospective observational study conducted South Africa in 2014 among 19 222 live births, identified that 112 near-misses and 13 maternal deaths were identified. The MMR was 67.6 per 100 000 live births and the NMR 5.83 per 1 000 live births(Iwuh, Fawcus, & Schoeman, 2018).

Low-income countries, especially those in sub-Saharan Africa, continue to bear a disproportionate burden of maternal morbidity and mortality. A cross sectional study conducted in Ghana has reported that Maternal near-miss and maternal death incidence ratios were 34.2 and 7.4per 1000 live births, respectively(Oppong et al., 2019).

Sub-Saharan Africa had the highest NMR at 27 deaths per 1000 live births in 2017(Bryce, Victora, & Black, 2013).Sub-Saharan African countries including Ethiopia and other developing nations have constituent two-thirds of all neonatal mortality(Abebe et al., 2021).According to systematic review and meta-analysis done From 2010 to 2020 The pooled prevalence of NNM in Ethiopia was 14%(Osman et al., 2022).

Depending on the definitions applied, for every woman in Ethiopia who dies from pregnancy related causes, 12 to 21 others experience near miss(Gebrehiwot & Tewolde, 2014; Abera Kenay Tura et al., 2018).An Institution based cross sectional study was conducted from March 1, 2013 to August 30, 2013. During the study systematically selected 806 mothers who visited the maternal health care services at three Amhara Regional State Referral Hospitals. The study revealed the overall proportion of maternal near miss was 23.3 %(Dile & Seyum, 2015).An institution-based prospective cross-sectional study was carried out from February 6, 2017 to March 6, 2017, using the WHO criteria for maternal near-misses at the three randomly selected public hospitals located in Bench-Maji, Sheka, and Kaffa Zones of SNNPR, Southwest Ethiopia. There were 5530 live births, 210 maternal near-misses, 17 maternal deaths, and 364 maternal near-miss events. The overall proportion of maternal near-miss is 24.85%(Yemane & Tiruneh, 2020).

An institution based retrospective study was conducted from March 05 to 31, 2020 in two major private hospitals in Harar and Dire Dawa, eastern Ethiopia. 1173 live births were registered, resulting in an MNM ratio of 92.1 per 1000 live births(Tenaw, Assefa, Mulatu, & Tura, 2021).

According to systematic review and meta-analysis done From 2010 to 2020 The pooled prevalence of NNM in Ethiopia was 14%(Osman et al., 2022).

An institutional-based cross-sectional study was conducted in Jimma Zone, Southwest Ethiopia, 2020 the magnitude of neonatal near miss 26.7%(Wondimu, Balcha, Bacha, & Habte, 2021). Another facility based cross-sectional study design was conducted on 604 mothers who gave live neonates at Adare General Hospital and Hawassa University Comprehensive and Specialized Hospital from May 9, 2019 to June 7, 2019an overall proportion of NNM cases, 202 (33.4%)(Tekola, Baye, Amaje, & Tefera, 2021).

A facility-based cross-sectional study was employed in Eastern Ethiopia to assess magnitude of neonatal near miss. 401 mother–neonate pairs included in the study 126 neonates had at least one neonatal near miss event at discharge. Accordingly, 3 out of 10 neonates delivered in public hospitals developed NNM at discharge. The most frequent pragmatic criteria of NNM were low fifth minutes Apgar score (54.8%)

while use of parenteral antibiotics (61.9%) and cardiopulmonary resuscitation (61.9%) were the major NNM events as per the management-based criteria(Tola et al., 2022).

2.2 Factors Associated with Maternal and Neonatal Near Miss

2.2.1 Socio-demographic factors

According to nationwide hospital-based survey in Brazil greater incidence of MANNM was observed among women aged 35 years or over(Domingues, Dias, Schilithz, & Leal, 2016). A cross sectional study conducted from September 2014 to August 2015 in Madonna University Teaching Hospital Elele, Rivers State, Nigeria. Among the women with severe maternal outcome, 91.2%of them were currently married while 5/57(8.8%) were not married. Majority 96.5% were Christians while 2/57(3.5%) were Muslims. Sixty percent of the maternal death was in the age category of 20–24 years(Mbachu et al., 2017).
According to study conducted in Amhara rigion,Ethiopiamother`s occupational status, residence, husband educational status, mothers educational status, monthly income, type of the current pregnancy, distance fromhospital are associated with MANNM(Dile & Seyum, 2015).

2.2.2 Obstetric factors

MNM was associated with the absence of antenatal care , search for two or more services before admission to delivery care , obstetric complications , and type of birth: elective C-section and forceps (Domingues et al., 2016).The main conditions diagnosed in SMM cases in Cape town south Africa were: 67.5% with hypertensive disorders, 61.7% with severe management indicators, 15.4% with hemorrhagic disorders and 8.5% with other systemic disorders(Iwuh et al., 2018). Cross-sectional study with an embedded case–control study in three tertiary referral hospitals in southern Ghanamaternal near-miss and maternal death incidence ratios were 34.2 and 7.4 per 1000 live births, respectively with a maternal near-miss to mortality ratio of 4.6:1. Cause of near-miss was pre-eclampsia/eclampsia (41.0%), hemorrhage (12.2%), maternal sepsis (11.1%) and ruptured uterus (4.2%). A major factor associated with maternal near-miss was maternal fever within the 7 days before birth (Oppong et al., 2019).

According to study conducted in Amhara region has revealed that Ruptured uterus, Severe pre-eclampsia, Others, Sepsis, Severe post partum hemorrhage and Eclampsia are obstetric factors that are associated with MNM(Dile & Seyum, 2015).Another study was done in Nekemte towen Oromia region, Ethiopia Factors including multigravidity, lack of antenatal care, delays in accessing health facility and induction of labor were strongly associated with maternal near miss. Hypertension during pregnancy (40.9%) and obstetric hemorrhage (39.3%) were identified as the major causes of maternal near miss(Kumela, Tilahun, & Kifle, 2020).

In systemic review of neonatal near miss in 2015, Variables associated with neonatal death were birthweight < 1500 g, Apgar score <7 at 5 min of life, use of mechanical ventilation, preterm infants < 32 weeks and new-borns with congenital malformations and these variables were chosen as indicator of neonatal near missAAA2. Study in the survival of newborn infants born to mothers without severe complications was better than that of infants born to mothers with eclampsia, intrapartum hemorrhage or other complications requiring ICU admission(Anggondowati et al., 2017).

According to Study at maternity Hospital in North eastern Brazil 2018, showed that inadequate prenatal care and fetal malformation associated with NNM and older maternal age>35 years and a history of previous Cesarean section were protective factors for NNMAAA17. Another study in south of Brazil on determinants of levels and associated factors of neonatal near miss showed that there was no association among demographic, socioeconomic or maternal obstetric history with neonatal near miss morbidity. Delivery in a public hospital and cesarean section, live births at risk according to the City Program for Child Health care were increased the chance of neonatal near miss(G. A. Silva et al., 2017).

Some of study conducted in Africa like urban district hospital in Douala, Cameroon showed that factors associated with early neonatal mortality were low birth weight, hypothermia, Apgar score at 1 minute <7 and at 5 minutes <5, the absence of immediate cry at birth, resuscitation at birth, prematurity or preterm birth, neonatal asphyxia, acute respiratory distress syndrome. The causes of early death were prematurity, neonatal infection, neonatal asphyxia(Essomba et al., 2016). Another Study in Kenya revealed that most newborn deaths occur during the first week of life as a result of sepsis, birth asphyxia, birth injuries, prematurity and low birth weight, and birth defects(Yego et al., 2013).

Study in Jimma Zone, Southwest Ethiopia revealed that the status of neonatal mortality is high. The great majority of neonatal deaths occurred in the first week of life. Higher-level variables were found to be less important in determining neonatal mortality. Lower (individual) level variables were found to be important determinants of neonatal mortality. Birth order, ANC visits, place of delivery, prematurity, PROM, complication during labor, twin births, size of neonate at birth and neonatal care practices were identified as determinants of neonatal mortality. Birth asphyxia, neonatal infections and prematurity were identified as the leading causes of neonatal mortality accounting for more than 90%(Debelew, Afework, & Yalew, 2014). Another study in Jimma zone, southwest Ethiopia revealed that referral of mothers with complication from other facility for delivery service ,complication during labour-delivery, multiple pregnancy and having obstetric emergency were statistically associated with adverse birth outcome(Yeshialem, Abera, & Tesfay, 2019).

In Tigray region, Ethiopia, study showed that, prematurity was the leading cause of neonatal death. Prematurity and asphyxia caused most early neonatal deaths, with asphyxia and infection seen as predominant in late neonatal deaths. Early age at marriage, distance to care, and residence were associated with cause of neonatal deaths(Cherie & Mebratu, 2018).Another study in Dessie Referral Hospital ,north East Ethiopia ,revealed that ,hemoglobin less than 11gm/dl,Middle upper arm circumference less than 23cm, do not had antenatal care follow-up,have chronic medical illness, having current pregnancy complication and duration of labour more than 24 hours were statistically associated with adverse birth outcome(Cherie & Mebratu, 2018).

2.3 Conceptual Framework

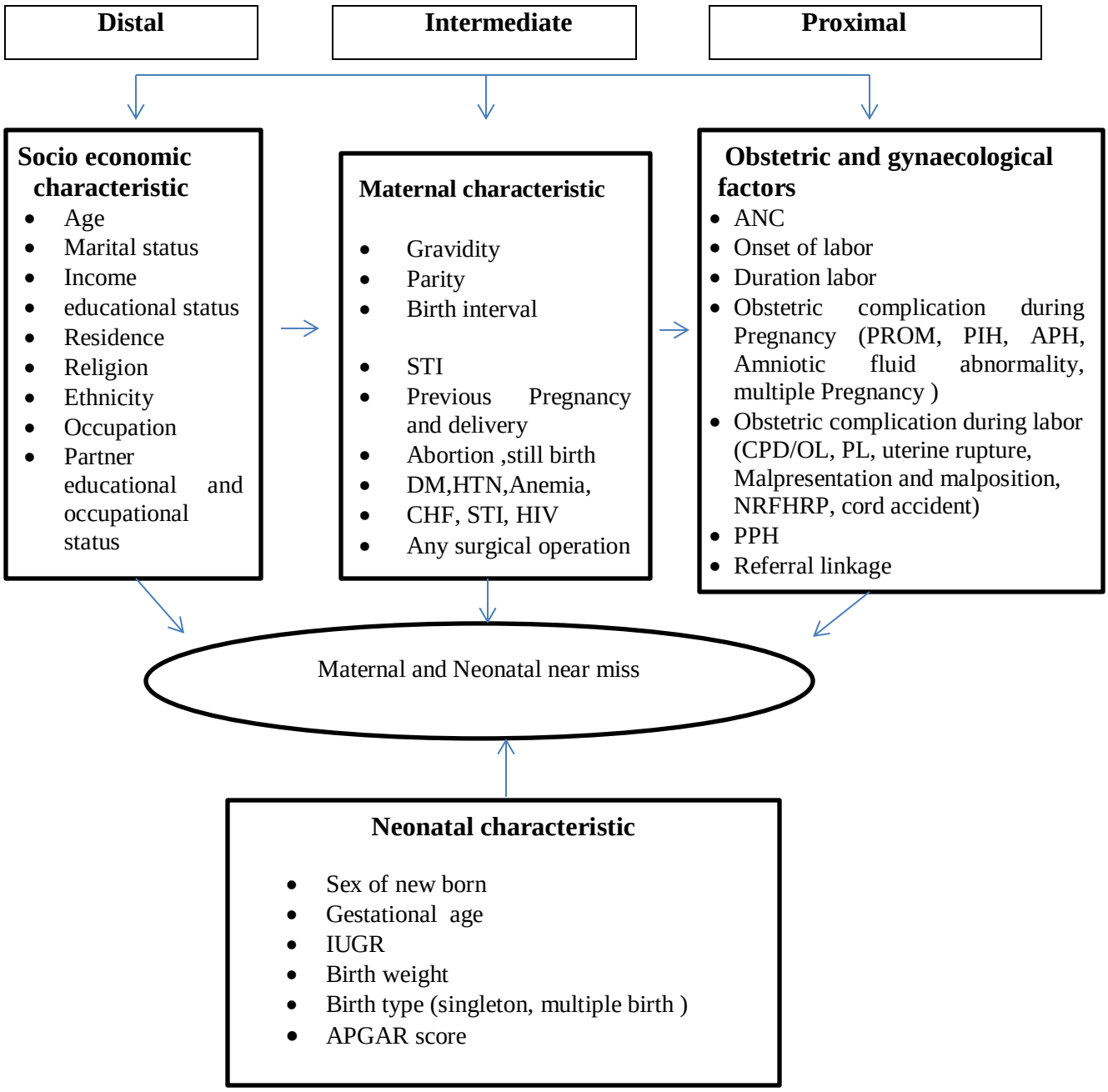

Figure 1: Conceptual framework of factors associated with maternal and neonatal near miss according to the original framework proposed by different literatures, Socio economic determinants, maternal factors, neonatal factors and obstetric and gynaecological factors are included(Santos et al., 2015)

3. METHOD AND MATERIALS

3.1. Study area and period

This study was conducted in public hospitals in Harar, Eastern Ethiopia. Harar is the capital city of Harar Region, located 526 km away from the capital city, Addis Ababa. According to CSA population projection from the 2007 census, the region has an estimated population of 263,656 in 2020/2021(Ababa & Commission, 2010). There are two public hospitals, one private hospital, one police hospital, eight health centers, 54 private clinics, and 24 health posts in the region—majority of which are located in Harar. The study was conducted in Hiwot Fana Comprehensive Specialized University Hospital (HFSUH) and Jugel hospital (JH). HFSUH is the tertiary hospital affiliated with Haramaya University while JH is a regional hospital located in the same town. Both hospitals provide maternal neonatal and child health services.

HFSUH obstetric ward have 62 beads, around 24 obstetric and gynecologist and 40 midwives and provides comprehensive specialized care for an average of 450 deliveries is attended in hospital per month. Generally, it is serving as a major referral centerfor more than 5 million people in Eastern Ethiopia.

The other public hospital was Jugel hospital (JH) in which the obstetric ward have around 25 beads,around two obstetric and gynacologist, three emergency surgeons and 37 midwives and there is an average of 200 deliveries per month in the hospital.

The study was conducted from August 01- 30 /2023 at public hospitals in Harar, Eastern Ethiopia.

3.2. Study Design

Institution-based cross-sectional study was conducted.

3.3. Population

3.3.1.

Source Population

All mothers with their live birth neonates at public hospitals in Harar town

3.3.2. Study Population

All mothers with their live birth neonates who gave birth at Harar town public hospitals from August 01 to- 30,-2023

3.4. Inclusion and Exclusion Criteria

3.4.1. Inclusion criteria

All mothers who delivered with their live births in both public hospitals.

3.4.2. Exclusion Criteria

Self-discharges or discharges against medical advice and mothers and neonates referred out and readmitted.

3.5. Sample size determination and sampling procedure

The sample size was calculated considering the specific objectives. The one with the largest sample size (n) was selected and considered as final sample size.

3.5.1. Sample size determination for 1st objective

Specific objective 1: single population proportion was used to determine sample size using the proportion of maternal near miss.

$$n = (Z_{\alpha/2})^2 p(1-P) = (1.96)^2 * 0.5(1-0.5) = 385$$

$$d^2 \qquad (0.05)^2$$

Where: - n= minimum sample size required for the study

Z= standard normal distribution (Z=1.96) with a confidence interval of 95%

P= assuming 50% of maternal near miss in

d=is a tolerable margin of error (d=0.05)

Specific objective 2:

Table 1:The minimum sample size for selected factors were computed using factors associated with neonatal near miss, significance level of 95 %, the margin of error 5% and power of 80% using open Epi info version 7.

Factors	Exposed	unexposed	CI	Power	Sample size	10%	Sample size	Reference
ANC	53.7%	25.8%	95%	80	110	11	121	(Tola et al., 2022)
APH	64.6%	25%	95%	80	58	6	64	(Tola et al., 2022)
Duratio n stay	37.3%	18.6%	95%	80	200	20	220	(Dile & Seyum, 2015)

The sample sizes for the 1st objective is greater than that of the second objective. If that is the case, the final sample size was come up by adding a non-response rate of 10% to the larger sample size from 1st objective which was 385. So, the final sample size for the study was 423.

3.5.2 Sampling Procedure and Sampling Techniques

According to the Hiwot Fana comprehensive specialized university hospital and Jugol hospital Health Management Information System (HMIS) reports, the average monthly number of delivering mothers is 450 and 200 respectively. After determining the total estimated number of delivering mothers receiving care for a single month then we allocated proportional sample size for each hospital. Finally, study subjects were selected using simple random sampling technique from the respective health facility and every eligible client coming to the facility has been included until the required sample size achieved. The total sample size for each institution was calculated by using the following formula;

Sample for each hospital = No of respondents from each hospital x final sample size

Total number of the source population

For HFSUH ni=450/650 *423 = 293 respondents was selected.

For JH ni=200/650 *423 =130 respondents was selected.

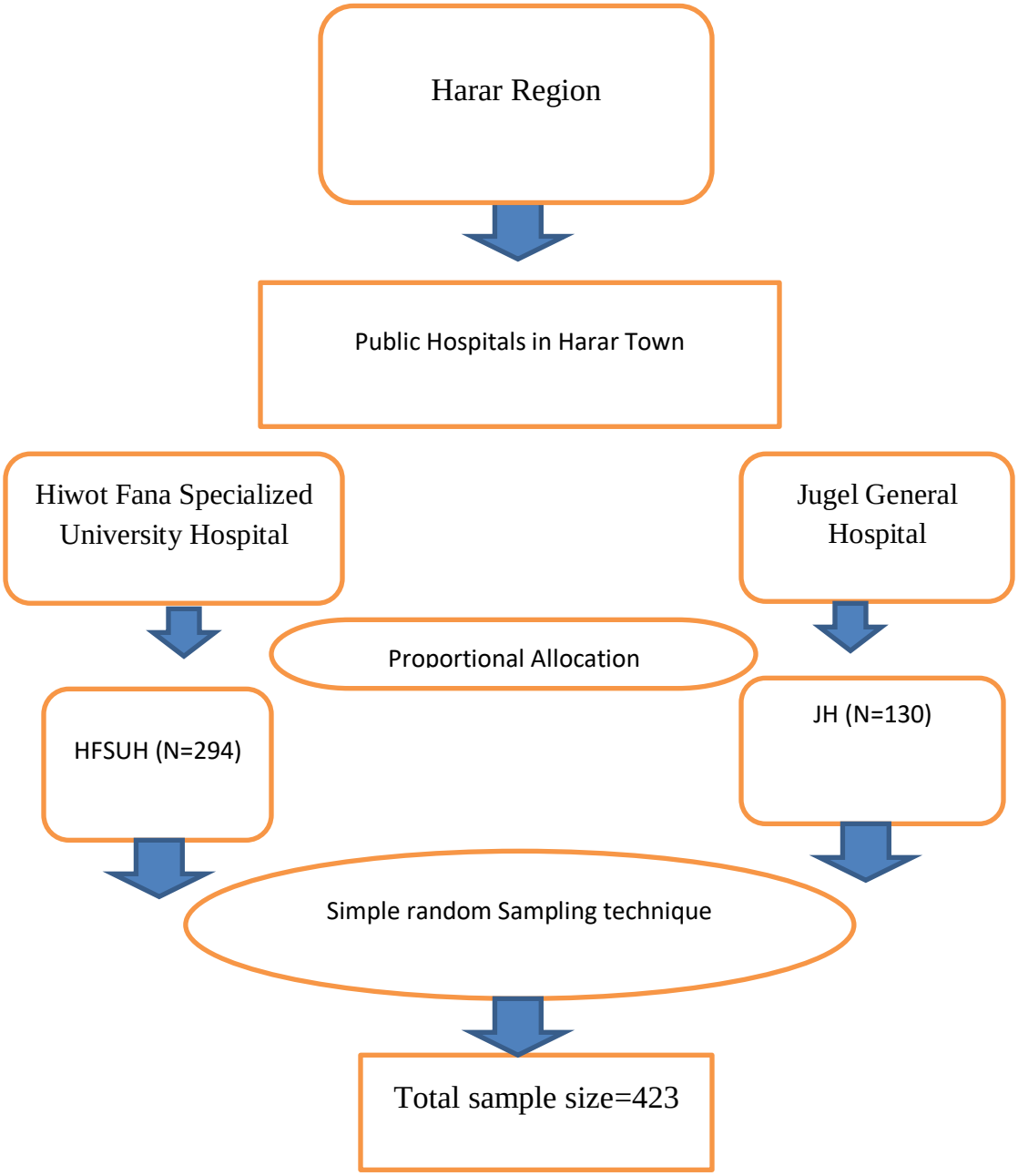

Figure 2: Schematic presentation of sampling procedure for maternal and neonatal near miss and associated factor among mother who gave birth at public health facilities Harari, in eastern Ethiopia

3.6 Data Collection Methods

3.6.1 Data Collection Tool

The data was collected by pretested and structured checklist. The checklist was adapted from different previous peer-reviewed published literatures to include associated factors. The questions were both open and close-ended interviewer-administered pre-tested structured questionnaire.

3.6.2 Data Collectors

Twelve BSc midwives were recruited from Harar town for data collection. Two BSc and two MSc midwives were also recruited for supervision of data collectors and the supervisors checked the collected data daily for completeness. The supervisors and data collectors were trained on the aim and relevance of the study.

3.6.3. Data Collection Procedure

The data was collected by using face to face interviewer-administered pre-tested structured questionnaire and maternal charts were also reviewed for clarity of diagnosis and intervention. After the interviewers gave explanation about the purpose of the research, mothers who were willing to participate and signed the informed consent were interviewed to obtain any information pertinent. Questionnaire contains both maternal and their live births data with known vital status at birth and pre-discharged time.

3.7. Study Variables

3.7.1. Dependent Variable

Maternal and neonatal near miss

3.7.2. Independent Variables

- ✓ Socio-demographic factors: age, residence, religion, marital status, income, ethnicity, occupation, educational status and partner educational and occupation status
- ✓ Obstetrics variables- Gravidity, parity, antenatal care follow-up, previous history of still birth , Post term Pregnancy, onset of labor, birth interval
  - ✓ Obstetric complication during current pregnancy (PROM, multiple pregnancy ,abnormal amniotic fluid volume, PIH, APH)and
  - Obstetric complication during labour-delivery (duration of labor, CPD/OL, PPH, PL, malposition, Malpresentation, NRFHRP, cord accident, mode of delivery)
  - Referral linkage
- ✓ Neonatal characteristic; sex of new born, APGAR score Birth weight, Gestational age , multiple delivery, IUGR
- ✓ Medical and surgical history including; HTN, DM, TB, anaemia, HIV, any surgical operation
- ✓ Gynaecological history; History of abortion, STI
- ✓ Health care service ; ANC, obstetric complication during pregnancy and labor-Delivery

3.8. Operational Definitions

MNM: A severe life-threatening obstetric complication necessitating an urgent medical intervention in order to prevent the likely death of the mother.

Maternal near miss cass will be considered if the mother faced at least one of the clinical,laboratory and management based sub-Saharan African criteria (Abera K Tura et al., 2017).

Clinical criteria	**Laboratory based criteria**	**Management based criteria**
Acute cyanosis	Oxygen saturation< 90% for >60 minutes	Hysterectomy following hemorrhage or infection
Gasping	Creatinine >_300umol or >_ 3.5mg/dl	Transfusion of >_ 2 units of blood
Respiratory rate >60 or <6min	Acute thrombocytopenia (<50000 platelets/ml)	Intubation and ventilation for >_60min not related to anesthesia
Shock	Loss of consciousness and ketoacids in urine	Cardio- pulmonary resuscitation
Oliguria nonresponsive to fluids or diuretics		Laparotomy other than caesarean section
Failure to form clots		
Loss of consciousness lasting >_ 12hr		
Cardiac arrest		
Stroke		
Uncontrollable fit/total paralysis		
Jaundice in the presence of pre-eclampsia		
Eclampsia		
Uterine rupture		
Sepsis or sever systemic infection		
Pulmonary edema		
Sever abortion complications		
Sever malaria		

NNM: any neonate identified with at least one of the following pragmatic or/and management criteria but survived either by chance or treatment(Santos et al., 2015).

- **Pragmatic and Management criteria;** markers of life-threatening conditions of the new born

Neonatal near miss cases will be considered if the new born faced at least one of the following criteria:

1. Birth weight < 2500gm
2. Gestational age < 37 weeks
3. 5^{th}-minute Apgar score < 7

4. New born resuscitated with bad and mask
5. Cardiopulmonary resuscitation (CPR)
6. Intubation
7. Nasal continuous positive airway pressure
8. Parenteral antibiotics
9. Use of parenteral nutrition
10. Vasoactive drugs
11. Phototherapy during the first 28 days
12. Anticonvulsants
13. Use of blood products
14. Use of steroids for the treatment of refractory hypoglycaemia
15. Surgical procedures
16. Use antenatal steroid

3.9. Data Quality Control

Before the actual data collection, translation of instrument was made from the English language to local Amharic language and back to the English language by different experts and two-day training was given to data collectors and supervisors. The questionnaire and data abstraction checklist were pretested on 5% of the sample size in Haremaya general hospital. Every questionnaire was checked for an error after data has been collected. Correction and modifications were made to the tool based on the result of the pretest. Collected data was checked for accuracy and completeness daily.

3.10. Data Processing and Analysis

Data were entered in to EpiData version 3.1and exported to SPSS version 20 for cleaning and analysis. Bivariate analysis was done for all explanatory variables in relation to maternal and neonatal near miss cases and variables with p-value < 0.25 in the bivariate analysis was selected for the multivariate logistic regression model for adjustment of confounding effect between explanatory variables. The assumptions for logistic regression such as; multi collinearity were checked by the standard error. Hosmer-Lemeshow test was used to check model fitness. Adjusted Odds ratio with 95 % confidence interval was computed and variables having P-value less than 0.05 in the multivariate logistic regression model was considered as determinant factors for cases of maternal and neonatal near miss. Descriptive statistics like frequencies and cross tabulations, graphical presentation such as tables were used to present the result findings.

3.11. Ethical Considerations

The study was approved by Haramaya University (HU), College of Medicine and Health sciences Institutional Health Research Ethics Review Committee (IHRERC). An official supportive letter was obtained from Haramaya University to Hiwot Fana Specialized university Hospital and Jugel Hospital. An informed, voluntary, written and signed consent was obtained from each facility after clearly informing them about the purpose, procedure risk and benefit of the study.

3.12. Dissemination of the study findings

First, the finding of this study will be presented to Haramaya University Collage of Health medical Science School of Nursing and Midwifery Department. Then the finding will be shared/submitted to Haramaya University, Harar Health Bureaus and the concerned hospitals. Besides, attempts will be made to present the study on scientific conferences and published it on scientific journals.

4. RESULTS

4.1 Socio-demographic characteristic

A total of 423 mothers with their live birth were interviewed with a response rate of 100%. Majority of mothers of newborn were in the age range of 20-34 years 393(92.9%) followed by 19(4.5%) in the age range of 15-19 with the mean age and standard deviation of 29 (± 5.4) years. 256(60.5%) and 167(39.5%) of mothers were from rural and urban area respectively.

Almost all of the mothers were currently in marital union 419(99.1%). Regarding to educational status, most of mothers cannot read and write 137(32.4 %) and around 110(26%) of mothers were attended primary education. Almost two third of mothers are house wife 297(70.2%) and 194(46 %) of partners engaged in agricultural work. While 126(30%) of mothers and 229(54.1%) of their partners were employed in Governmental, privet organization, merchant and daily labor (Table 2).

Table 2: Socio- demographic characteristics of pregnant women who gave birth at public hospitals in Harar, eastern Ethiopia from August 01 to- 30, -2023, (n=423)

Variables	**Mothers of (n=423)**
Age	
<20	19(4.5%)
20-35	393(92.9%)
>35	11(2.6%)
Residence	
Urban	167(39.5%)
Rural	256(60.5%)
Religion	
Orthodox	92(21.7%)
Muslim	317(74.9%)
Protestant	11(2.6%)
Other(Jova and catholic)	3(0.7%)
Marital status	
Single	1(0.2%)
Married	419(99.1%)
Widowed	1(0.2%)
Divorces	2(0.5%)
Maternal Educational	
Cannot read and write	137(32.4%)
Can read and write	115(27.2%)
One to eight	110(26%)
Nine to twelve	39(9.2%)
Diploma and above	22(5.2%)
Partner Educational	

Cannot read and write	135(31.9%)
Can read and write	84(19.9%)
One to eight	112(26.5%)
Nine to twelve	47(11.1%)
Diploma and above	45(10.6%)
Mothers Occupation	
House wife	297(70.2%)
Farming	22(5.2%)
Government employee	36(8.5%)
Non-Government employee	17(4%)
Merchant	44(10.4%)
Daily labor	5(1.2%)
Other	2(0.5%)
Partner Occupation	
Farming	194(45.9%)
Government employee	75(17.7%)
Non-Government employee	18(4.3%)
Merchant	108(25.5%)
Daily labor	27(6.4%)
Other	1(0.2%)

4.2 Obstetrics characteristic

Almost two third of mothers of newborn had ANC follow up, women who had ANC follow-up were 310(73.3%) and no ANC follow-up were 113(26.7%). proportion of MNM and NNM among mothers who had ANC follow-up is 25(64.1%) and 64(71.9%) respectively. Fifty three percent (53%) of mothers were multiparous, thirty percent (30.3%) were primiparous and the remaining almost fifty percent (15%) grand multiparous. The rate of maternal and neonatal near miss cases were observed in each parity category of the mother, high rate is observed in

multiparous women 21(54%) MNM and 52(58.4%) of NNM cases and almost 9(23%) of MNM and 21(23.6%) NNM cases were found in primiparous. 226(53.4%) of mothers of newborn were referred from other health institution, among them more than half 56(62.9%) of NNM was found and around 28(71.8%) has maternal near miss. Mother of new born faced obstetric complication during current pregnancy, labor-delivery and postpartum was, 133(31.4%), 158(37.4%) and 82(19.4%) respectively (Table 3).

Table 3: Obstetric characteristics of mothers of newborn who gave birth at public hospitals Harar, in eastern Ethiopia from August 01 to- 30, -2023, (n=423)

Variables	**Mothers of newborn(n=423)**	**Maternal near miss (n=39)**	**Neonatal near miss(n=89)**
Parity			
1	128(30.3%)	9(23%)	21(23.6%)
2-4	228(53.9%)	21(54%)	52(58.4%)
≥5	67(15.8%)	9(23%)	16(18%)
History of abortion			
Yes	64(15.1%)	8(20.5%)	16(18%)
no	359(84.9%)	31(79.5%)	73(82%)
History of still birth			
Yes	42(9.9%)	4(10.3%)	14(15.7%)
No	381(90.1%)	35(89.7%)	75(84.3%)
History of infant death			
Yes	13(3.1%)	1(2.6%)	4(4.5%)
No	410(96.9%)	38(97.4%)	85(95.5%)
ANC			
Yes	310(73.3%)	25(64.1%)	64(71.9%)
No	113(26.7%)	14(35.9%)	25(28.1%)
Mode of delivery			

SVD	291(68.8%)	24(61.5%)	50(56.2%)
C/S	97(22.9%)	9(23.1%)	26(29.2%)
Vacuum	35(8.3%)	6(15.4%)	13(14.6%)
Referral			
Ye	226(53.4%)	28(71.8%)	56(62.9%)
No	197(46.6%)	11(28.2%)	33(37.1%)
Onset of labor			
Spontaneous	374(88.4%)	20(51.3%)	63(70.9%)
Induced	39(9.2%)	18(46.2%)	22(24.7%)
Elective	10(2.4%)	1(2.6%)	4(4.4%)
Obstetric complication during pregnancy			
Yes	133(31.4%)	28(71.8%)	59(55.1%)
No	290(68.6%)	11(28.2%)	40(44.9%)
Obstetric complication labor			
Yes	158(37.4%)	35(89.7%)	70(78.7%)
No	263(62.6%)	4(10.3%)	19(21.3%)
Complication in postpartum			
Yes	82(19.4%)	16(41%)	21(23.6%)
No	341(80.6%)	23(59%)	68(76.4%)

4.3 Obstetric complications

From the total 133(31.4%) obstetric complications faced during current pregnancy; PROM, obstetric hemorrhage and preeclampsia/eclampsia accounts the higher proportion. Other low proportion obstetric events were multiple pregnancy and IUGR. Maternal and Neonatal near miss were more prevalence in mothers with preeclampsia /eclampsia, obstetric hemorrhage, Anemia, preterm labor, IUGR and multiple pregnancy.

Labor and delivery complications were noted for 158 (25.5%) of mothers of newborn. Identified obstetric problems in higher proportion were prolonged labor > 24hour, mal-presentation/mal-position, NRFHRP, obstructed Labor, Chorioamnionitis and preeclampsia/eclampsia. High prevalence of Maternal and neonatal near miss was faced in mothers of newborn with preeclampsia/eclampsia, uterine rupture, APH, Chorioamnionitis and obstructed labor.

Complications during postpartum period were seen on around 82(19.4%) mothers of the new born. More identified postpartum complication was PPH and postpartum sepsis that was 39(47.6%) and 35(42.6%) respectively. Additionally, maternal and neonatal near miss is more prevalent in mothers with PPH and postpartum sepsis (Table-4).

Table 4: Obstetric problems faced during current pregnancy, labor-delivery and postpartum period among mothers of the new born who gave birth at public hospital Harar, eastern Ethiopia from August 01 to- 30, -2023.

Variable	**Proportion of obstetric complication n (%)**	**Proportion of MNM rate in each category n (%)**	**Proportion of NNM rate in each category n (%)**
Obstetric complication during px(n=133)			
PROM	33(24.8%)	5(18.2%)	12(36.4)
Preeclampsia	31(23.3%)	3(9.7%)	9(29%)
Eclampsia	6(4.5%)	6(100%)	4(66.7%)
Obstetric hemorrhage	16(12%)	4(25.0%)	8(50%)
Sepsis or systemic infection	13(9.8%)	2(15.4%)	2(15.4%)
Preterm labor	5(3.8%)	-	5(100%)
Polyhydramnios	6(4.5%)	2(33.3%)	2(33.3%)
Oligohydramnios	7(5.3%)	2(28.6)	2(28.6%)
IUGR	3(2.3%)	-	3(100%)
Anemia	11(8.3%)	3(27.3%)	3(27.3%)

Multiple pregnancy	2(1.5%)	-	1(50%)
Obstetric complication during labor(n=158)			
Prolonged labor	20(12.7%)	5(12.7%)	10(50%)
Chorioamnionitis	6(3.8%)	2(33.3%)	4(66.7%)
Obstructed labor	11(7%)	4(36.4%)	7(63.6%)
CPD	5(3.2%)	-	1(20%)
Uterine rapture	4(2.5%)	4(100%)	4(100%)
NRFHB	21(13.3%)	1(4.8%)	9(42.9%)
Malpresentation	22(13.9%)	-	5(22.7%)
Malposition	20(12.7%)	-	3(15%)
Meconium	11(7%)	4(36.4%)	6(54.5%)
Preeclampsia	12(7.6%)	3(25%)	5(41.7%)
Eclampsia	6(3.8%)	6(100%)	5(83.3%)
Obstetric hemorrhage	15(9.5%)	3(20%)	7(46.7%)
Anemia	3(1.9%)	2(66.7%)	3(100%)
Other	2(1.3%)	1(50%)	1(50%)s
No complication(n=265)		4(1.5%)	19(7.2%)
Complication during postpartum(n=82)			
PPH	39(47.6%)	8(20.5%)	9(12.8%)
Preeclampsia	4(4.9%)	1(25%)	1(25%)
Puerperal sepsis	35(42.7%)	5(14.3%)	13(37.1%)
Anemia	4(4.9%)	2(50%)	2(50%)
No complication(n=341)		23(6.7%)	68(19.9%)

4.4 Characteristics maternal near miss cases

A total of 39 (9.2%) of mothers met Sub Saharan African maternal near miss criteria. Factors high rate were: transfusion > 2 units of blood, / preeclampsia/eclampsia, uterine rupture and sepsis or sever systemic infection. Other maternal near miss cases were due to laboratory based criteria's like creatinine ≥ 3.5mg/dl, Acute thrombocytopenia < 50000/ml and less frequent criteria were Uncontrolled fit or total paralysis, gasping, oliguria and stroke.(figure-3)

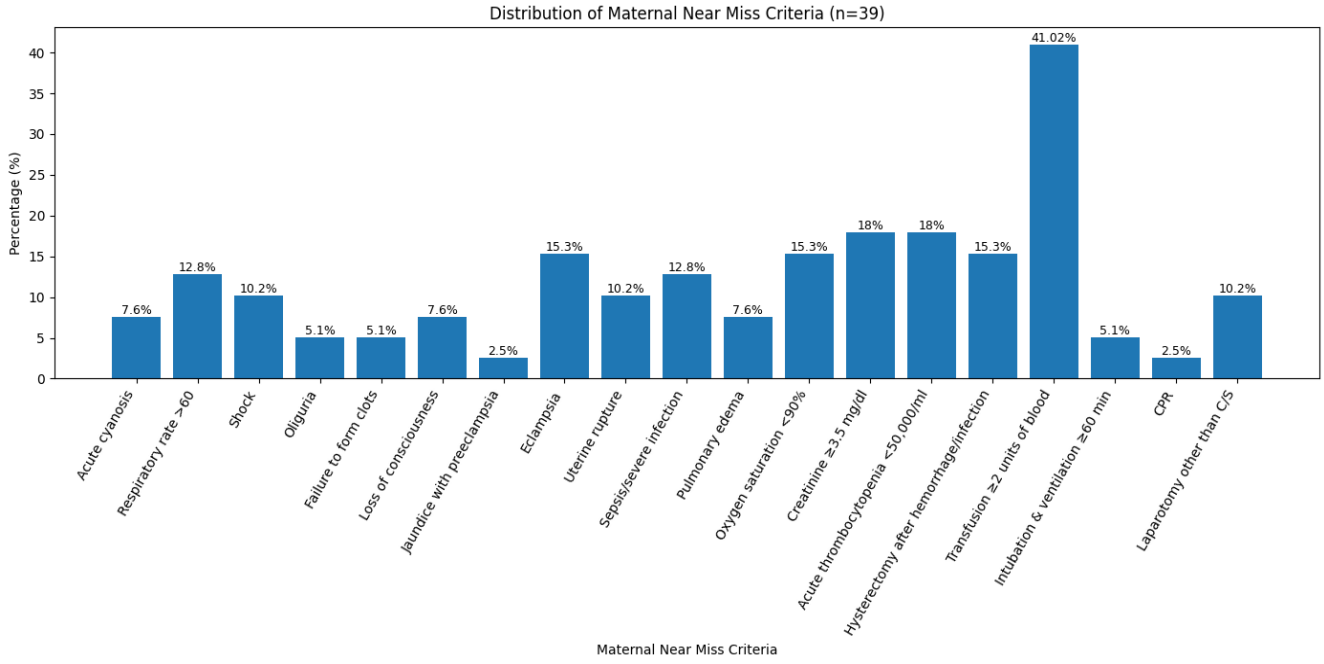

Figure 3: Clinical, laboratory and management based sub Saharan African maternal near miss criteria among mothers who gave birth at public hospital in Harar, eastern Ethiopia from August 01 to- 30, 2023.

4.5 Characteristic of neonatal near miss cases

A total of 89 live births were met the criteria of neonatal near miss. Among NNM criteria; fifth minute APGAR score <7 was the most commonly identified criteria, 80(90%) and 50(56.1%) of neonatal near miss cases were neonates with respiratory distress .Almost one third of NNM cases were resuscitated with bag and mask,24(27%). Less frequent management criteria were use of vasoactive drugs, use of steroids for the treatment of refractory hypoglycemia and use of antenatal steroids, anticonvulsant and phototherapy (figure-4).

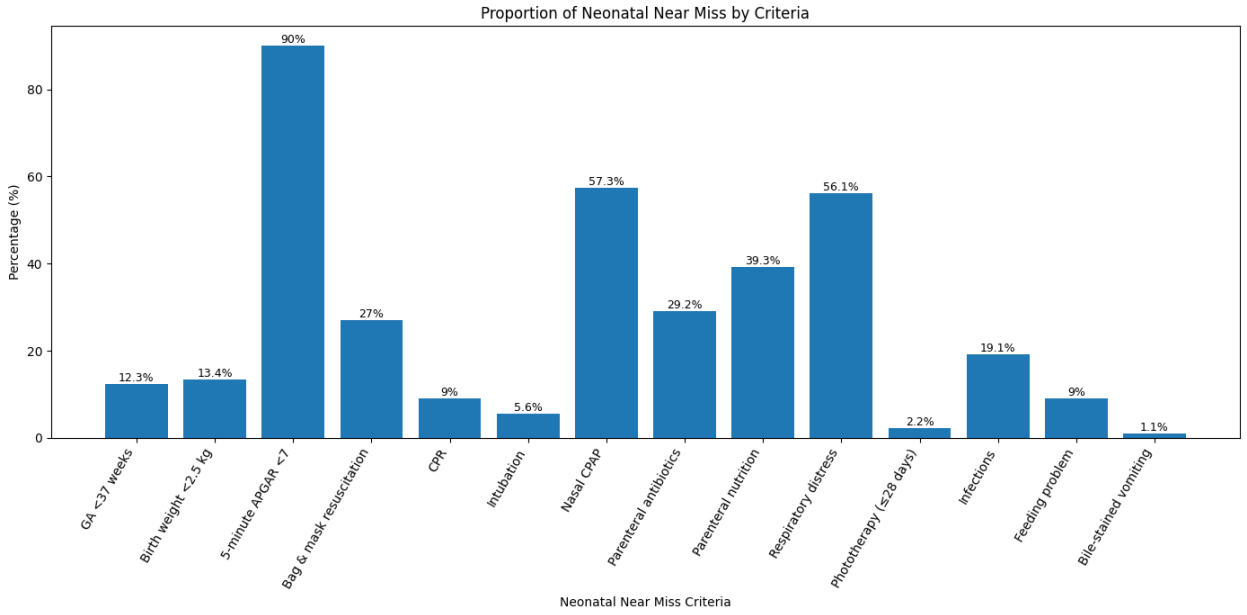

Figure 4: Pragmatic and Management neonatal near miss criteria among live births at public hospital Harar, eastern Ethiopia from August 01 to- 30, 2023(n-89).

4.6 Factors associated with Maternal and Neonatal Near Miss

4.6.1 Factors Associated with Maternal Near Miss

Variables that had a p-value<0.25 on bi-variable analysis were; parity, onset of labor, ANC follow up, referred mothers, mode of delivery, PROM, preeclampsia or eclampsia, obstetric hemorrhage, maternal infection, anemia¸ obstructed labor/CPD and PPH. In the multivariable logistic regression, only referred mothers, preeclampsia or Eclampsia, obstetric hemorrhage,

maternal infection, anemia¸ obstructed labor/CPD and PPH were statistically significant with MNM.

Mothers who were referred from other health institution had 2.7 [AOR=2.78, 95%CI: 1.29-5.96] times more likely to develop MNM as compared to non-referral cases. From obstetric complication during pregnancy, labor-delivery and postpartum; mothers who had preeclampsia/Eclampsia were 3.7 [AOR=3.68,95%CI: 1.548-8.739] times more likely to develop MNM than their counterparts. And mothers who faced obstetric hemorrhage were 3.8[AOR=3.89,95%CI: 1.092-12.461] times more likely to have MNM than mothers who had not faced obstetric hemorrhage. Furthermore, the odds of MNM was almost 5[AOR=4.979,95%CI: 1.245-19.91] times higher among mothers who had anemia than their counterparts and the odds of MNM among mother who had maternal infection were 3[AOR=3.17, 95%CI: 1.125-18.57]. Moreover, the odds of MNM among mothers who had obstructed labor/CPD during lab were 3[AOR=3.32, 95%CI: 1.48-12.52] times higher than their counterparts and mothers who had PPH were 3.6 [AOR=3.6,95%CI: 1.41-8.93] times more likely to develop MNM as compared to those did not have PPH (table 5).

Table 5: Multivariable analysis on maternal near miss and associated factors among mothers who gave birth at public hospitals in Harar town, eastern Ethiopia

Variables		**MNM**		**COR(95% CI)**	**AOR(95% CI)**
		YES	NO		
Parity	Primiparous	9	119	1	1
	Multiparous	21	207	1.341(1.159-3.024)	1.49(0.59-3.703)
	Grandmultiparous	9	58	2.052(1.77-5.44)	2.82(0.85-8.45)
Referral	Yes	28	198	2.39**(**1.157-4.940**)**	**2.78(1.29-5.96)**
	No	11	186	1	1
Onset of labor	Spontaneous	20	354	1	1
	Induced	18	21	2.171(1.796-11.902	1.63(0.713-7.94)
	Elective	1	9	1.857(1.237-16.295)	2.024(0.22-8.74)

Mode of delivery	SVD	24	267	1	1
	Vacuum	9	29	2.301(1.87-6.09)	1.63(0.53-5.1)
	C/S	6	88	1.238(1.101-2.540)	1.24(0.49-3.12)
Complication during pregnancy					
PROM	Yes	6	27	2.404(1.926-6.24)	1.96(0.303-3.05)
	No	33	357	1	1
Preeclampsia/Eclamsia	Yes	8	28	3.281 (1.378-7.810)	**3.677(1.548-8.739)**
	No	31	356	1	1
Obstetric hemorrhage	Yes	4	9	4.762 (1.395-16.254)	**3.689(1.092-12.461)**
	No	35	375	1	1
Sepsis or systemic infections	Yes	3	11	2.826 (1.754-10.595**)**	**3.17(1.125-18.57)**
	No	36	373	1	1
Anemia	Yes	3	8	3.917 (1.995-15.417)	**4.979(1.245-19.91)**
	No	36	376	1	1
Complication during labor and delivery					
Obstructed labor/CPD	Yes	4	12	3.543 (1.085-11.570)	**3.319(1.48-12.514)**
	No	35	372	1	1
Complication during postpartum					
PPH	Yes	8	31	2.939(1.244-6.942)	**3.549(1.41-8.932)**
	No	31	353	1	1

Significant at ***p<0.05 (referred mothers, preeclampsia/Eclampsia, obstetric hemorrhage, maternal infection, anemia¸ obstructed labor/CPD, PPH) **Acronomis-**(PROM, premature rupture of membrane; OL/CPD, obstructed lobar /cefalopelvic disproportion; SVD, Spontaneous vaginal delivery; C/S, Cesarean section delivery; PPH, Postpartum hemorrhage; COR, crude odds ratio; AOR, adjusted odds ratio; CI, confidence interval)

4.6.2 Factors Associated with Neonatal Near Miss

On Binary logistic regression model, socio-demographic variables of mothers of the newborn; residence, ethnicity, marital status, religion, maternal occupation, partner occupation and educational level and family size were not significantly associated with neonatal near miss.

Variables with P<0.25 in Binary logistic regression model were entered in to multiple logistic regression .Those variables were parity, maternal age and educational level, referral case, history of still birth, mode of delivery and obstetric problems during pregnancy, labor and deliver and postpartum.

Variables associated with neonatal near miss in multiple logistic regressions were; Mothers who were referred from other health facility are more likely to develop NMM as compared to mothers who are not referred from other health facilities (AOR=1.512,95% CI:1.928-2.468) and mother who delivered by vacuum(AOR=2.683,95% CI:1.260-5.713) and C/S (AOR=1.682,95% CI:1.973-2.907) were more like to develop NNM than those who had spontaneous vaginal delivery.

Obstetric complications during current pregnancy were; PROM (AOR=2.849,95% CI:1.305-6.218), Preclampsia/eclampsia (AOR=3.05,95%CI:1.435-6.294), Obstetric hemorrhage (AOR=5.548,95% CI:1.99-15.467) and other obstetric complications during current pregnancy (AOR=2.349, 95%CI: 1.203-4.584) were more likely to develop NNM as compared to mother without any obstetric complication during their pregnancy.

Obstetric complications during labor and delivery were; prolonged labour more than 24 hours were times more likely to develop NNM as compared to delivery within 24 hours of labour,(AOR=4.797, 95% CI=1.917-12), OL/CPD were 5 times more risky to develop NNM as coppered to normal labour, (AOR=5.578, 95% CI:1.921-16.19), NRFHRP were 3 times more likely to develop NNM as compared to those had normal range of fetal heart rate pattern (AOR=3.598,95% CI:1.455-8.895) and meconium stained amniotic fluid were 5 times more likely to develop NNM as compared to those had no meconium during labor and delivery(AOR=5.756, 95% CI:1.705-19.439). Other obstetric complications during labor and delivery were almost 3 times more likely to develop NNM as compared to their counter parts,(AOR=3.541,95% CI:2.098-5.977) (Table 6)

Table 6: Multivariable analysis on maternal near miss and associated factors among mothers who gave birth at public hospitals in Harar town, eastern Ethiopia

Variables		**NNM**		**COR(95% CI)**	**AOR(95% CI)**
		YES	NO		
Referral	Yes	56	170	1.637 (1.012-2.647)	1.512(1.928-2.464)
	No	33	164	1	1
Mode of delivery	SVD	50	241	1	1
	Vacuum	13	22	2.848(1.345-6.031)	2.683(1.260-5.713)

	C/S	26	71	1.765(1.026-3.037)	1.682(1.973-2.907)
Complication during pregnancy					
PROM	Yes	12	21	2.323 (1.095-4.926)	2.849(1.305-6.218)
	No	77	313	1	1
Preeclampsia/Eclamsia	Yes	13	24	2.209 (1.075-4.539)	3.05(1.435-6.294)
	No	76	310	1	1
Obstetric hemorrhage	Yes	8	8	4.025 (1.466-11.046)	5.548(1.99-15.467)
	No	81	326	1	1
Other complications during pregnancy	Yes	17	31	2.308 (1.211-4.398)	2.349(1.203-4.584)
	No	72	303	1	1
Complication during labor and delivery					
Obstructed labor/CPD	Yes	8	7	4.614 (1.626-13.94)	5.578(1.921-16.19)
	No	81	327	1	1
Prolonged labor	Yes	10	10	4.101 (1.65-10.193)	4.797(1.917-12)
	No	79	324	1	1
Meconium stained amniotic fluid	Yes	6	5	4.757 (1.417-15.97)	5.756(1.705-19.439)
	No	83	329	1	1
NRFHP	Yes	9	12	3.019 (1.229-7.41)	3.598(1.455-8.895)
	No	80	322	1	1
0ther labor and delivery complications	Yes	35	52	3.515(2.094-5.90)	3.541(2.098-5.977)
	No	54	282	1	1

- Other obstetric complications during pregnancy-preterm labor, maternal anemia and sepsis, Polyhydramnios, Oligohydramnios, IUGR and multiple pregnancies
- Other Obstetric complications during labor and delivery- preeclampsia and Eclampsia, uterine rupture, APH (placenta Previa and placenta abruption), malposition or malpresentation and Chorioamnionitis

5. DISCUSSTION

This study was conducted to determine the prevalence and factors associated with maternal and neonatal near miss in Harar town public hospitals, eastern Ethiopia, in order to reduce maternal and neonatal complications and deaths. 9.2% of the mothers met sub-Saharan African maternal near miss criteria and 21% live births met neonatal near miss criteria. This finding is consistent with the finding of study in conducted in India 2018 has shown that there were thirty-two women with MNM and study conducted northeastern Brazil 2018 at maternity Hospital for high risk pregnancy in which neonatal near miss rate was 22% (Reena & Radha, 2018) (de Lima et al., 2018).

The study highlights that maternal and neonatal near miss cases, high rate of sub-Saharan African maternal near miss criteria were: transfusion > 2 units of blood, preeclampsia and eclampsia, uterine rupture and sepsis or sever systemic infection and also high rate of neonatal near miss criteria were observed for respiratory distress 56.1%, mechanical ventilation 27% , gestational age less than 37completed week12.3%, birth weight <2.5kg 13.4%, 5 minute APGAR Score < 7 (90%), and use of parenteral antibiotics. This is in line with study conducted in three tertiary referral hospitals in southern Ghana 2019 to assess maternal near miss, SMM cases in Cape town south Africa 2018 and a systemic review on neonatal near miss, 2015 and studys in Brazil (Iwuh et al., 2018; Oppong et al., 2019; G. A. Silva et al., 2017).

In addition, the study showed that referral linkage, obstetric complication during their pregnancy and obstetric complication during labor and delivery were associated with both maternal and neonatal near miss while obstetric complication during postpartum associated with maternal and mode of delivery with neonatal near miss. Socio-demographic variables were not associated with maternal and neonatal near miss. This finding is similar with different studies (A. A. M. d. Silva et al., 2014).

Referral linkage was significantly associated with maternal and neonatal near miss. This finding was supported by study in Jimma university specialized Hospital , revealed that referral of mothers with complications from other facility for delivery service was more likely to have

adverse pregnancy outcomes than mothers who were not referred(Yeshialem et al., 2019). This is might be due to delay at home and health institution that cause maternal and fetal complication.

Obstetric complication during current pregnancy were showed statistically significant to maternal and neonatal near miss. Those complications were antepartum hemorrhage and high blood pressure increased the risk of maternal and neonatal near miss this finding is consistent with study done in three tertiary referral hospitals in southern Ghana 2019 to assess maternal near miss and southeast Brazil at six public health Hospital(Oppong et al., 2019; G. A. Silva et al., 2017). Survival of mothers and newborns without sever complications was better than that of mothers and new born with obstetric complications. Also premature rupture of membrane increased neonatal near miss almost 3 times as compared to their counter parts ,different studies revealed that premature rupture of membrane is increased significantly the risk of maternal, fetal and neonatal morbidity and mortality resulting from obstetric complications(Tola et al., 2022). Factors like Maternal anemia and sepsis increased maternal near miss by 5 and 3 times respectively and collectively; preterm labor, maternal anemia and sepsis, Polyhydramnios, Oligohydramnios, IUGR and multiple pregnancy were increased the risk of neonatal near miss by 3 fold(Dile & Seyum, 2015).

Obstetric complications during labor and delivery were strongly associated with maternal and neonatal near miss, of those complications; women with CPD and obstructed labor increased the risk of maternal near miss by 3 and neonatal near miss by 5 fold, while prolonged labor, meconium stained amniotic fluid and NRFHP increased the risk of NNM 4, 5 and 3 times. Other obstetric complications like malpresentation or malposition, uterine rupture and Chorioamnionitis were also collectively increased the risk neonatal near miss. This finding is supported by different studies done in Amhara region and Nekemte town Oromia region to assess MNM and also studies in Jimma University specialized Hospital and Dessie Referral Hospital to assess NNM (Dile & Seyum, 2015; Kumela et al., 2020; Yeshialem et al., 2019). Ethiopia showed that obstetric complication during current pregnancy and complication during labor and delivery were strongly associated with adverse maternal and birth outcomes(low birth weight ,preterm birth, low APGAR score and still birth)(Kumela et al., 2020) .

Furthermore, there was also factors that associated with only maternal or neonatal near miss, those variables were Obstetric complication during postpartum; PPH increased the risk of

maternal near miss by 3 folds and mode of delivery that means neonates that delivered by vacuum and C/S were more prone to neonatal near miss than those delivered by spontaneous vaginal delivery, this finding is line with studies conducted in Amhara region to assess MNM and study in south of Brazil on determinants of levels and associated factors of neonatal near miss(Dile & Seyum, 2015; G. A. Silva et al., 2017).

5.1 strength and limitation of the study

5.1.1 Strength

The strength of this study was the study used sub-Saharan African maternal near miss criteria to asses MNM and both pragmatic and management criteria to identify NNM. The study tries to asses additional important factors of maternal and neonatal near miss especially obstetrical factors in which that were not addressed by previous similar studies.

5.1.2 Limitations

The study was conducted only at public hospitals so; those who went to private facilities were missed. Additionally as the study was facility-based, it may not be good as a population-based study to generalize to the general population.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study reveald those maternal and neonatal near misses are still high in the study area. Obstetric complication during pregnancy including high blood pressure, obstructed labor due to cephalic pelvic disproportion and postpartum hemorrhage, modes of delivery, fetal distress proved with meconium stained stool,sepsis and anemia experience of mother associatedwith maternal and neonatal near miss. The presence of referral linkage and communication contribute the saving of the maternal and newborn life at time of near to death. These factors were found to be preventable to reduce maternal and neonatal near miss suffering.

6.2 Recommendations

To the public hospitals

- ✓ Strengthened referral linkage and creat effective referral communication and transportation strategies in collaboration with the concerned stakeholder
- ✓ Established compressive maternal and neonatal care center to avoid preventable maternal and neonatal morbidity and mortality
- ✓ Improve quality of care through increasing concultation system to avoid third service point delay
- ✓ Strengthened intensive care unit for maternal health department and NICU

To the health care providers

- ✓ Create women-friendly danger sign communication to women during antenatal care visit.
- ✓ Strengthen early detection and management of pregnancy and child birth related complication
- ✓ Take on time measurement on preventable easily identified obstetric complications.
- ✓ Give appropriate antibiotics and strengthen prenatal counselling to seek early.
- ✓ Build capacity of health care for early detection of pregnancy related morbidity that caused nearly miss

Women and her families

- ✓ Early initiation of antenatal care to detect pregnancy related complications

- ✓ Timely presentation for labour and delivery to avoid complications during labor and delivery

To future researchers;

- ✓ Advanced studies to identifying additional variable by using other study designs and including other institution

7. REFERENCES

Ababa, A., & Commission, P. C. (2010). The 2007 population and housing census of Ethiopia.

Abdollahpour, S., Miri, H. H., & Khadivzadeh, T. (2019). The global prevalence of maternal near miss: a systematic review and meta-analysis. *Health promotion perspectives, 9*(4), 255.

Abebe, H., Wasie, A., Yeshaneh, A., Shitu, S., Mose, A., Adane, D., . . . Gashu, M. (2021). Determinant factors of neonatal near miss among neonates in Gurage Zone Hospitals, Ethiopia: a case-control study. *Pediatric Health, Medicine and Therapeutics*, 129-139.

Aduloju, O. P., Aduloju, T., & Ipinnimo, O. M. (2018). Profile of maternal near miss and determinant factors in a teaching hospital, Southwestern Nigeria. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 7*(9), 3450-3458.

Alemu, F. M., Fuchs, M. C., Martin Vitale, T., & Abdalla Mohamed Salih, M. (2019). Severe maternal morbidity (near-miss) and its correlates in the world's newest nation: South Sudan. *International journal of women's health*, 177-190.

Anggondowati, T., El-Mohandes, A. A., Qomariyah, S. N., Kiely, M., Ryon, J. J., Gipson, R. F., . . . Wright, L. L. (2017). Maternal characteristics and obstetrical complications impact neonatal outcomes in Indonesia: a prospective study. *BMC pregnancy and childbirth, 17*(1), 1-12.

Belachew, A., Tewabe, T., & Dessie, G. (2022). Neonatal mortality and its association with antenatal care visits among live births in Ethiopia: a systematic review and meta-analysis. *The Journal of Maternal-Fetal & Neonatal Medicine, 35*(2), 348-355.

Bryce, J., Victora, C. G., & Black, R. E. (2013). The unfinished agenda in child survival. *The Lancet, 382*(9897), 1049-1059.

Cherie, N., & Mebratu, A. (2018). Adverse birth out comes and associated factors among delivered mothers in dessie referral hospital. *North East Ethiopia*, 1-6.

Colbourn, T., Nambiar, B., Bondo, A., Makwenda, C., Tsetekani, E., Makonda-Ridley, A., . . . Williams, C. (2013). Effects of quality improvement in health facilities and community mobilization through women's groups on maternal, neonatal and perinatal mortality in three districts of Malawi: MaiKhanda, a cluster randomized controlled effectiveness trial. *International health, 5*(3), 180-195.

CSA, I. (2016). Central Statistical Agency. Ethiopian Demographic and Health Survey 2016. In: Addis Ababa: CSA and ICF.

de Lima, T. H. B., Amorim, M. M., Buainain Kassar, S., & Katz, L. (2019). Maternal near miss determinants at a maternity hospital for high-risk pregnancy in northeastern Brazil: a prospective study. *BMC pregnancy and childbirth, 19*(1), 1-9.

de Lima, T. H. B., Katz, L., Kassar, S. B., & Amorim, M. M. (2018). Neonatal near miss determinants at a maternity hospital for high-risk pregnancy in Northeastern Brazil: a prospective study. *BMC pregnancy and childbirth, 18*(1), 1-8.

Debelew, G. T., Afework, M. F., & Yalew, A. W. (2014). Determinants and causes of neonatal mortality in Jimma zone, southwest Ethiopia: a multilevel analysis of prospective follow up study. *PloS one, 9*(9), e107184.

DeFranco, E., Stamilio, D., Boslaugh, S., Gross, G., & Muglia, L. (2011). Central Statistical Agency: Ethiopian Demographic and Health survey. Addis Ababa, Ethiopia: Central statistical agency; 2011. *American journal of obstetrics and gynecology, 197*(3), 264.

Dile, M., & Seyum, T. (2015). Proportion of maternal near misses and associated factors in referral hospitals of Amhara regional state, Northwest Ethiopia: institution based cross sectional study. *Gynecol Obstet (Sunnyvale), 5*(308), 2161-0932.1000.

Domingues, R. M. S. M., Dias, M. A. B., Schilithz, A. O. C., & Leal, M. d. C. (2016). Factors associated with maternal near miss in childbirth and the postpartum period: findings from the birth in Brazil National Survey, 2011–2012. *Reproductive health, 13*, 187-197.

EPHI, I. (2019). Ethiopian Public Health Institute (EPHI)[Ethiopia] and ICF. *Ethiopia Mini Demographic and Health Survey 2019: Key Indicators*.

Essomba, N. E., Koum, D. C. K., Moby, H., Halle, M. P. E., Ngaba, G. P., Nguedjam, M. M., & Coppieters, Y. (2016). Factors associated with early neonatal morbidity and mortyality in an urban district hospital in Douala, Cameroon. *International journal of latest research in science & technology, 5*(3), 43-49.

Filippi, V., Ronsmans, C., Gohou, V., Goufodji, S., Lardi, M., Sahel, A., . . . Brouwere, V. D. (2005). Maternity wards or emergency obstetric rooms? Incidence of near-miss events in African hospitals. *Acta obstetricia et gynecologica Scandinavica, 84*(1), 11-16.

Gebrehiwot, Y., & Tewolde, B. T. (2014). Improving maternity care in Ethiopia through facility based review of maternal deaths and near misses. *International Journal of Gynecology & Obstetrics, 127*, S29-S34.

Goli, S., Nawal, D., Rammohan, A., Sekher, T., & Singh, D. (2018). Decomposing the socioeconomic inequality in utilization of maternal health care services in selected countries of South Asia and sub-Saharan Africa. *Journal of biosocial science, 50*(6), 749-769.

Health, F. M. o. (2015). National strategy for newborn and child survival in Ethiopia (2015/16–2019/20). In: Addis Abeba Ethiopia.

Hug, L., Alexander, M., You, D., & Alkema, L. (2019). National, regional, and global levels and trends in neonatal mortality between 1990 and 2017, with scenario-based projections to 2030: a systematic analysis. *The Lancet Global Health, 7*(6), e710-e720.

Iwuh, I., Fawcus, S., & Schoeman, L. (2018). Maternal near-miss audit in the Metro West maternity service, Cape Town, South Africa: a retrospective observational study. *South African Medical Journal, 108*(3), 171-175.

Kumela, L., Tilahun, T., & Kifle, D. (2020). Determinants of maternal near miss in Western Ethiopia. *Ethiopian journal of health sciences, 30*(2).

Ma, Y., Zhang, L., Wang, X., Qiu, L., Hesketh, T., & Wang, X. (2020). Low incidence of maternal near-miss in Zhejiang, a developed Chinese province: a cross-sectional study using the WHO approach. *Clinical Epidemiology*, 405-414.

Mbachu, I. I., Ezeama, C., Osuagwu, K., Umeononihu, O. S., Obiannika, C., & Ezeama, N. (2017). A cross sectional study of maternal near miss and mortality at a rural tertiary centre in southern nigeria. *BMC pregnancy and childbirth, 17*(1), 1-8.

Nakimuli, A., Mbalinda, S. N., Nabirye, R. C., Kakaire, O., Nakubulwa, S., Osinde, M. O., . . . Kaye, D. K. (2015). Still births, neonatal deaths and neonatal near miss cases attributable to severe obstetric complications: a prospective cohort study in two referral hospitals in Uganda. *BMC pediatrics, 15*, 1-8.

Oppong, S. A., Bakari, A., Bell, A. J., Bockarie, Y., Adu, J. A., Turpin, C. A., . . . Moyer, C. A. (2019). Incidence, causes and correlates of maternal near-miss morbidity: a multi-centre cross-sectional study. *BJOG: An International Journal of Obstetrics & Gynaecology, 126*(6), 755-762.

Osman, M. O., Nour, T. Y., Ibrahim, A. M., Aden, M. A., Nur, A. M., Roble, A. K., & Abate, K. H. (2022). Epidemiology of neonatal near miss in Ethiopia: a systematic review and meta-analysis. *International Journal of Africa Nursing Sciences*, 100422.

Pileggi, C., Souza, J. P., Cecatti, J. G., & Faúndes, A. (2010). Neonatal near miss approach in the 2005 WHO Global Survey Brazil. *Jornal de pediatria, 86*(1), 21-26.

Reena, R., & Radha, K. (2018). Factors associated with maternal near miss: A study from Kerala. *Indian journal of public health, 62*(1), 58.

Santos, J. P., Pileggi-Castro, C., Camelo, J. S., Silva, A. A., Duran, P., Serruya, S. J., & Cecatti, J. G. (2015). Neonatal near miss: a systematic review. *BMC pregnancy and childbirth, 15*(1), 1-10.

Say, L., Souza, J. P., & Pattinson, R. C. (2009). Maternal near miss–towards a standard tool for monitoring quality of maternal health care. *Best practice & research Clinical obstetrics & gynaecology, 23*(3), 287-296.

Silva, A. A. M. d., Leite, Á. J. M., Lamy, Z. C., Moreira, M. E. L., Gurgel, R. Q., Cunha, A. J. L. A. d., & Leal, M. d. C. (2014). Neonatal near miss in the Birth in Brazil survey. *Cadernos de saude publica, 30*, S182-S191.

Silva, G. A., Rosa, K. A., Saguier, E. S. F., Henning, E., Mucha, F., & Franco, S. C. (2017). A populational based study on the prevalence of neonatal near miss in a city located in the South of Brazil: prevalence and associated factors. *Revista Brasileira de Saúde Materno Infantil, 17*, 159-167.

Singh, S. K. (2017). India's National Health Policy 2017 and 2030 Agenda for Sustainable Development. *Kuala Lumpur: United Nations University-International Institute for Global Health (https://iigh. unu. edu/publications/blog/indias-national-health-policy-2017-and-2030-agenda-for-sustainabledevelopment. html)*.

Sushma, R., Norhayati, M. N., & Nik Hazlina, N. H. (2021). Prevalence of neonatal near miss and associated factors in Nepal: a cross-sectional study. *BMC pregnancy and childbirth, 21*(1), 422.

Tekola, A. F., Baye, G., Amaje, E., & Tefera, K. (2021). Neonatal near misses and associated factors among mother's who give a live neonate at Hawassa City governmental hospitals, 2019: a facility based cross-sectional study design. *BMC pregnancy and childbirth, 21*(1), 1-9.

Tenaw, S. G., Assefa, N., Mulatu, T., & Tura, A. K. (2021). Maternal near miss among women admitted in major private hospitals in eastern Ethiopia: a retrospective study. *BMC pregnancy and childbirth, 21*(1), 1-9.

Tola, M. A., Semahegn, A., Tiruye, G., & Tura, A. K. (2022). Magnitude of neonatal near miss in public hospitals in Eastern Ethiopia: A cross-sectional study. *SAGE Open Medicine, 10*, 20503121221108926.

Tura, A. K., Stekelenburg, J., Scherjon, S. A., Zwart, J., van den Akker, T., van Roosmalen, J., & Gordijn, S. J. (2017). Adaptation of the WHO maternal near miss tool for use in sub–Saharan Africa: an International Delphi study. *BMC pregnancy and childbirth, 17*, 1-10.

Tura, A. K., Zwart, J., Van Roosmalen, J., Stekelenburg, J., Van Den Akker, T., & Scherjon, S. (2018). Severe maternal outcomes in eastern Ethiopia: application of the adapted maternal near miss tool. *PloS one, 13*(11), e0207350.

Witteveen, T., Bezstarosti, H., de Koning, I., Nelissen, E., Bloemenkamp, K. W., van Roosmalen, J., & van den Akker, T. (2017). Validating the WHO maternal near miss tool: comparing high-and low-resource settings. *BMC pregnancy and childbirth, 17*, 1-9.

Wondimu, M., Balcha, F., Bacha, G., & Habte, A. (2021). The magnitude of neonatal near miss and associated factors among live births in public hospitals of Jimma Zone, Southwest Ethiopia, 2020: A facility-based cross-sectional study. *PloS one, 16*(5), e0251609.

Yego, F., Stewart Williams, J., Byles, J., Nyongesa, P., Aruasa, W., & D'Este, C. (2013). A retrospective analysis of maternal and neonatal mortality at a teaching and referral hospital in Kenya. *Reproductive health, 10*, 1-8.

Yemane, Y., & Tiruneh, F. (2020). Incidence-proportion of maternal near-misses and associated factors in Southwest Ethiopia: a prospective cross-sectional study. *International journal of women's health*, 1125-1134.

Yeshialem, E., Abera, M., & Tesfay, A. (2019). Determinants of adverse pregnancy outcomes among mothers who gave birth from jan 1-dec 31/2015 in jimma university specialized hospital, case control study, 2016. *Ethiopian Journal of Reproductive Health, 11*(1), 10-10.

8. ANNEXES

8.1. Information Sheet and Informed Voluntary Consent Form for Head of Public Hospitals

My name is (Natnael kassa). I am the Principal Investigator of the study to be conducted in this Hospital. I am studying for my Master's degree in Maternity and Neonatal Nursing at Haramaya University, College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and your institution being selected as the study setting.

1. **The Study/Project Title**:

   Maternal and neonatal near miss and associated factor among mother who gave birth at public hospitals Harari, in eastern Ethiopia

2. **Purpose/aim of the study:**

   The findings of this study will be used as evidence and input for health institution to plan health activities, intervention programs, expand and implement training programs to improve the prevalence and association factors of Maternal and neonatal near miss in the study area. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a master's degree program in Maternity and Neonatal Nursing for the principal investigator based on the findings from public health facilities Harari, eastern Ethiopia.

3. **Procedure and Duration:**

The data collectors will interviewee the participants using a questionnaire to provide pertinent data that is helpful for the study. There are 45 questions to answer where the data collectors will fill the questionnaire by interviewing the participants. The interview will take about 30 minutes, so the data collectors kindly request the participants to spare their time for the interview.

4. **Risks and Benefits:**

The risk of being participating in this is very minimal. But few minutes from participants time. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the institutions and health planners.

5. **Confidentiality**:

The information that the participants provided will be kept confidential. There will be no information that will identify the participants in particular. The findings of the study will be general for the study community and will not reflect anything particular of individual persons. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research.

6. **Rights:**

Participation in this study is fully voluntary. The participants have the right to declare to participate or not to participate in this study. You have the right to permit or not for this study. If you decide to permit the study, you have the right to terminate the study at any time if you consider something related to the study is wrong.

7. Contact Address:

If there are any questions or enquires any time about the study or procedures, please contact in this address.

Principal investigator: Natnael Kassa, Cell Phone: +251-949576978 E-mail: natnaelk343@gmail.com, Contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O. Box 235, Harar)

8. Declaration of Informed Voluntary Consent

I have read the participant information sheet. I have clearly understood the purpose of the research, the procedure, risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I had the opportunity to ask questions for things that may have been unclear. I informed that participants have the right to withdraw from the study at any time or not to answer any question that they do not want. I was also informed that the Hospital has the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the hospital's premises. Therefore, I declare my voluntary consent on behalf of (_____) management to allow this study to be conducted in the Health Hospital with my initials (Signature) as indicated below.

Name and Signature of head of the Hospital: _____Date _____

Name and Signature of Data Collector: _____Date _____

Thank you for your cooperation!!!

8.2. English Version Participant Information Sheet and Voluntary Consent Form For Participants ≥18 Years old

My name is (_____). I am working as a data collector for the study being conducted in this hospital by Natnael Kassa (BSc) who is studying for his Master's degree in Maternity and Neonatal Nursing at Haramaya University, College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and being selected as the study participant.

1. **The Study/Project Title:**

   Maternal and neonatal near miss and associated factor among mother who gave birth at public health facilities Harari, in eastern Ethiopia

2. **Purpose/aim of the study:**

   The findings of this study will be used as evidence and input for health institution to plan on health activities, intervention programs, expand and implement training programs to improve the prevalence and association factors maternal and neonatal near miss in the study area. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a master's degree program in Maternity and Neonatal Nursing for the principal investigator based on the findings from public hospital in Harar, eastern Ethiopia.

3. **Procedure and Duration:**

I will be interviewing you using a questionnaire to provide me with pertinent data that is helpful for the study. There are 45 questions to answer where I will fill the questionnaire by interviewing you. The interview will take about 30 minutes, so I kindly request you to spare me this time for the interview.

4. **Risks and Benefits:**

The risk of being participating in this study is very minimal. But few minutes for interviewing. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the institutions and health planners.

5. **Confidentiality**:

The information that you provided will be kept confidentially. There will be no information that will identify the participant in particular. The findings of the study will be general for the study community and will not reflect anything particularly of the individual person. The questioner will be coded to exclude showing names. No reference in oral or written reports that could link participant to research.

6. **Rights:**

Participant for the study is fully voluntary. You have the right to declare to participate or not for this study. If you decide to participate in the study, you have the right to terminate the study at any time if you consider something related to the study is wrong

7. **Contact Address:**

If there are any questions or enquires any time about the study or procedures, please contact please contact and speak to (Principal investigator: Natneal Kassa ,

Cell Phone: +251-949576978 E-mail: natnaelk343@gmail.com, Contact address of the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O. Box 235, Harar).

8. **Declaration of Informed Voluntary Consent**:

I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my initials (signature).

Name and signature of participant:_____ Date _____

Name and signature of Data Collector:_____ Date _____

8.3 Participant Information Sheet and Voluntary Consent Form For Parents/Guardians Of Participants <18 Years Old

My name is (_____). I am working as a data collector for the study being conducted in this hospital by Natnael Kassa (BSc) who is studying for his Master's degree in Maternity and Neonatal Nursing at Haramaya University, College of Health and Medical Sciences. Your neonate is randomly selected to be participant in this study. I kindly request you to lend me your attention to explain you about the study and the neonate participation.

1. **The Study/Project Title:**

   Maternal and neonatal near miss and associated factor among mother who gave birth at public health facilities Harari, in eastern Ethiopia

2. **Purpose/aim of the study:**

   The findings of this study will be used as evidence and input for health institution to plan on health activities, intervention programs, expand and implement training programs to improve the prevalence and association factors maternal and neonatal near miss in the study area. Moreover, the aim of this study is to write a thesis as a partial requirement for the fulfillment of a master's degree program in Maternity and Neonatal Nursing for the principal investigator based on the findings from public hospital in Harar, eastern Ethiopia.

3. **Procedure and Duration:**

   I will be interviewing your daughter/wife and about her neonate using a questionnaire to provide me with pertinent data that is helpful for the study. There are 45 questions to

answer where I will fill the questionnaire by interviewing her. The interview will take about 30 minutes, so I kindly request you to permit your daughter for the interview.

4. Risks and Benefits:

The risk of being participating your daughter and her child in this study is very minimal. But few minutes for interviewing. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the institutions and health planners.

5. **Confidentiality**:

The information that your daughter/wife will be kept confidential. There will be no information that will identify her in particular. The findings of the study will be general for the study community and will not reflect anything particularly of the individual person. The questioner will be coded to exclude showing names. No reference in oral or written reports that could link participant to research.

6. Rights:

Participation for the study is fully voluntary. You have the right to declare to allow your daughter/wife to be involved in this study or not. If you would allow them for this study, you have the right to withdraw them from the study at any time and this will not label them for any loss of benefits which your daughter/her neonate otherwise are entitled. Your daughter/wife does not have to answer any question that she does not as well.

7. Contact Address:

If there are any questions or enquires any time about the study or procedures, please contact please contact and speak to (Principal investigator: Natneal Kassa , Cell Phone: +251-949576978 E-mail: natnaelk343@gmail.com, Contact address of

the responsible Institutional Health Research Ethics Review Committee (IHRERC) at office phone 0254662011 or P.O. Box 235, Harar).

8. **Declaration of Informed Voluntary Consent**:

I have read/ was read to me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw my daughter and her from the study at any time or not to answer any question that my daughter does not want. Therefore, I declare my voluntary consent to allow my daughter to participate (be involved) in this study with my initials (signature).

Signature of parent/legal guardian: _____ Date: _____

Signature of Data Collector:_____ Date: _____

8.4 Amharic Version Participant Information Sheet and Voluntary Consent Form For Participants < 18 Years old

የጥናቱ ተሳታፊዎች መረጃ መስጫና ፈቃደኝነት መጠየቂያቅፅ (በአማርኛ)

የተሳታፊዎች መረጃ

መግቢያ: ስሜ.....እባላለሁ። አሁን እየሰራሁኝ ያለሁት በዚህ የጤና ተቋም በማህበረሰብ ላይ ለሚደረገው ጥናት መረጃ ሰብሳቢ ሆኜ አቶ ናትናኤል ካሳ በሐረማያ ዩኒቨርሲቲ በእናቶችና ጨቅላ ህጻናት ነርሲንግ በማስተርስ ዲግሪ ለመመረቂያ የሚሆን ጥናት ለማካሔድ ነው። ልጃዎ በዚህ ጥናት ተሳታፊ እንዲሆን ተመርጠዋል:: ልጃዎ/ ባለቤቶ ተሳታፊ ለሚሆነበት ጥናት በተመለከተ ማብራሪያ እንድሰጥዎት የተወሰነ ጊዜ እንዲሰጡኝ በአክብሮት እጠይቃለሁ።

1. **የጥናቱርዕስ**

   በምስራቅ ኢትዮጵያ በሐረሪ ክልል ዉስጥ በሚገኙ ሆስፒታል በወላድ እናቶች እና ጨቅላ ህፃናት ለሞት ሀፋፍ የደረሱ እና ተያያዥ ምክንያቶች ነው፤፤

2. **የጥናቱአላማ**

   ከጥናቱ የሚገኘው ውጤት በዞኑ ውስጥ ለሚገኙ ጤና ተቋማትና ጤና ባለሙያዎች፣ ሌሎች ለሚመለከታቸዉ ባለድርሻ አካላትና ድርጅቶች ለችግሩ ትኩረት እንዲሰጡና መፍትሄ እንዲያፈላልጉ የበኩሉን ይወጣል ተብሎ ይታሰባል። መሰረታዊ አላማዉ የሁለተኛ ዲግሪዉን በእናቶች እና ጨቅላ ህጻናት እንክብካቤ ትምህርት ለሚማረዉ ተማሪ አቶ ናትናኤል ካሳ የመመረቂያ ጥናታዊ ጽሁፍ ለማዘጋጀት ነው::

3. **የመጠይቁ አካሄድ እና የሚፈጀዉ ጊዜ**

   ለጥናቱ የሚያገለግሉና መረጃ ሊሰጡ የሚችሉ ጥያቄዎች ተዘጋጅተዋል እነዚህ ጥያቄዎች ጠቅላላ 45 ሲሆኑ በቃለ ምልልስ ጥያቄዎቹን ለመመለስ በግምት 30 ደቂቃ ይፈጃል። ስለዚህ አሁንም በድጋሚ የልጃዎን/ የባለቤቶን ጊዜ እንዲሰጡኝ በአክብሮት እጠይቃለሁ።

4. **የጥናቱ ጥቅም እና ጉዳት**

ይህ ጥናት ከጊዜዎ ላይ 35 ደቂቃ ከመውሰድ ውጭ በእርስዎም ሆነ በልጅዎ ላይ ጉዳት አያመጣም። በዚህጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ክፍያ የለም። ነገርግን የዚህ ጥናት ውጤት ለከተማዉ ጤና ጽ/ቤትና እቅድ አውጭ የመንግስት አካላት ጠቃሚ መረጃ ሊሰጥ ይችላል።

5. **ሚስጢራዊነት**

የሚሰጡን መረጃ ሁሉ ምስጢርነቱ የተጠበቀነው። ለዚሁም ልጃዎን/ ባለቤቶን የሚገልጽ ምንም ነገር የለም። የጥናቱ ውጤት በግለሰብ ሳይሆን ለሁሉም ህዝብ ነው። ጥያቄው መለያ ምልክት አለው ፤ስም የሚገጽ ነገር የለውም እናም ስለተሳታፊዎች የሚገልጽ የቃልም ይሁን የጽሁፍ በጥናቱ ውስጥ የለም።

6. **በጥናቱያለዎትመብት**

በዚህ ጥናት ልጃዎን/ ባለቤቶን ለመሳተፍ የእስዎ ሙሉ ፈቃደኝነት ያስፈልጋል። በዚህ ጥናት ልጃዎን/ ባለቤቶን የማሳተፍ ወይም ያለማሳተፍ ሙሉ መብትም አለዎት። ላለማሳተፍ ከፈለጉ ደግሞ በማንኛውም ጊዜ በመሀል ልጃዎን/ ባለቤቶን ከጥናቱ ማግለል(ማቋረጥ) ይችላሉ። ካቋረጥኩኝ ጥቅም ይጎልብኛል ብለው አያስቡ። ልጃዎ/ ባለቤቶ መመለስ የማይፈልጉትን ማንኛውም ጥያቄ አለመመለስ መብት ነው።

አድራሻ፡ ስለጥናቱ አካሄድ ወይም ስለጥናቱ መጠይቅ ወይም ደግሞ ጥናቱን በተመለከተ ማንኛውም ጥያቄ ካሎት የሚከተሉትን አድራሻ ይጠቀሙ።

(ዋና አቶ ናትናኤል ካሳ
ኢሜል:natnaelk343@gemail.com፤ስልክቁጥር፡+251949576978፤የተቋምምርምርስነምግባርናክትትልኮሚቴስልክ : 0254662011 ወይምፖ.ሳ.ቁ 235 ሀረር)

7. **ከላይበቀረበዉየግንዛቤማስጨበጫመሰረትየጥናቱተሳታፊለመሆንየሙሉፈቃደኝነት ማረጋገጫ**

የተሳታፊውን መረጃ ፎርም አንብቤዋለሁ ወይም ተነቦልኛል። የጥናቱ ዓላማ፤ ያለውን ጉዳትና ጥቅም ፤ምስጢር አጠባበቅ የመሳተፍ እና ያለመሳተፍ መብት እንዲሁም ችግር ካለ ከማን ጋር መገናኘት እንዳለብኝ ሁሉ ተገልጾልኛል፤ ጥያቄ ካለኝ ደግሞ እንድጠይቅ እድል ተሰጥቶኝ በመሀል ደግሞ ልጃዎን/ ባለቤቶን ጥናቱን ለማስቆም ከፈለጉ በማንኛውም ጊዜ ከጥናቱ /ከተሳታፊነት/ መስውጣት እንደምችል በመጨረሻም መመለስ የማልፈልገውን ጥያቄ አለመመለስ መብቱ እንዳለኝ ከተረዳሁኝ በኋላ በሙሉ ፈቃደኝነት በዚህ ጥናት ለመሳተፍ የወሰንኩኝ መሆኔን ከዚህ በታች በተቀመጠው ፊርማዬ አረጋግጣለሁ።

የወላጅ/ ባለቤት ፊርማ …….. ቀን……
የመረጃ ሰብሳቢ ስም/ፊርማ …… ቀን……

ስለትብብርዎከልብእናመሰግናለን።

8.5 Afan Oromo Version Participant Information Sheet and Voluntary Consent Form For Participants < 18 Years Old

Maqaan koo_____. Qorannoo hospitaala/ kilinika kana keessatti gaggeeffamaa jiruuf Naatinael kaassaa Haramayaa, Kolleejjii Saayinsii Fayyaa fi Meedikaalaatti Digrii Mastersii barachaa jirtuuf daataa walitti qabaa ta'ee hojjechaa jira. Mucaan/ haati manaa kee qorannoo kana irratti hirmaataa akka taatuuf akka tasaa filatamti. Waa'ee qo'annichaa fi hirmaannaa daa'imaa/ haadha manaa akka isiniif ibsuuf xiyyeeffannoo keessan akka naaf liqeessitan kabajaan isin gaafadha

1. Mataduree qorannichaa

Haadhaa fii daaima anii duaaf saaxilaamanii kan haffaan fii raakowaan kanaaf saaxilaan hadhawaan daaumsaa geeggeessaanii hospitaala moottumaa naannoo Hararii, baha Ethiopia 2023.

2. kaayyoo qorannichaa

Haadhaa fii daaima duaaf saaxilaamanii kan haffaan fii raakowaan kanaaf saaxilaan madaaluuf.

3. Akkaataa adeemsa qoranicha

Daataa barbaachisaa qorannichaaf gargaaru naaf kennuudhaaf gaaffilee fayyadamuun daa'ima/ haadha manaa keessan gaaffii fi deebii nan taasisa. Gaaffiiwwan 45 deebii kan qaban yoo ta'u, gaaffiifi deebii gara daqiiqaa 30 kan fudhatu waan ta'eef, yeroo kana mucaa/ haadha manaa keessan gaaffii fi deebii gochuuf akka na qusattan kabajaan isin gaafadha.

4. Miidhaa fi faayidaa

Balaan qorannoo kana keessatti daa'ima/ haadha manaa keessaniif hirmaachuu baay'ee xiqqaadha; garuu yeroo kee irraa daqiiqaa muraasa qofa fudhachuudhaan. Qorannoon kun hirmaachuuf kaffaltiin kallattiin hin jiraatu ture. Garuu argannoon qorannoo kanarraa argamu karoorsitoota fayyaa naannoo sanaaf odeeffannoo barbaachisaa ta'e mul'isuu mala.

5. Iccitii eeguu

Odeeffannoon isin nuuf kennitan iccitii ta'a. Odeeffannoon addatti si adda baasu hin jiraatu. Argannoon qorannichaa ummata qorannichaaf waliigalaa kan ta'u yoo ta'u, namoota dhuunfaa irratti waan addaa kan hin calaqqisiifne ta'a. Gaaffiin maqaa agarsiisu akka hin dabalamneef koodii ni kennama. Gabaasa afaaniin ykn barreeffamaan hirmaattoota qorannicha waliin walqabsiisuu danda'u keessatti eeruun hin kennamu.

6. Mirga hirmaataa

Qorannoon kun hirmaannaan guutummaatti fedhii ofiitiin kan raawwatamudha. Qo'annoo kana irratti hirmaachuu fi dhiisuu kee labsuuf mirga qabda. Yoo hirmaachuuf murteessite yeroo barbaaddetti qorannicha keessaa ba'uuf mirga qabda kunis faayidaa karaa biraatiin argachuuf mirga qabdu kamiyyuu akka si hin mallatteeffamne. Gaaffii deebii kennuu hin barbaanne kamiyyuu deebisuun si hin barbaachisu.

7. Teessoo quunnamtii

Waa'ee qorannichaas ta'e hojimaata yeroo kamittuu gaaffiin ykn yaanni yoo jiraate teesso armaan gadii kanaan yeroo barbaadanitti nu argachu ni dandeessu.

Abbaa qorannoo: Naatinael kaassaa

Lakk.bilbila: 0949576978

Email-address: natnaelk343@gmail.com

Haramaya University Kolleejjii fayyaa fi wal'aansaa

Lakk.wajjira- 0254662011 or Lakk.posta- 235, Harar. Kanaan bilbiluun argachu dandeessan.

8. Walii galtee

Waraqaa odeeffannoo hirmaattotaa dubbiseera/ naaf dubbifameera. Kaayyoo qorannichaa, hojimaata, balaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu fi teessoo quunnamtii gaaffii kamiyyuu sirriitti hubadheera. Wantoota ifa hin taane ta'uu danda'aniif gaaffii akkan gaafadhu carraan naaf kennameera. Mucaa koo ykn haadha manaa koo yeroo kamiyyuu qo'annoo keessaa baasuu ykn gaaffii ani hin barbaanne kamiyyuu deebisuuf mirga akkan qabu naaf himameera. Kanaaf, mucaan koo ykn haati manaa koo qorannoo kana irratti akka hirmaatu (hirmaattu) qubee jalqabaa (mallattoo) kootiin hayyama fedhii kootiin labsa.

Mallattoo hirmaataa: _____ Guyyaa: _____

Mallattoo warraa/guddistuu seeraa:_____ Guyyaa: _____

Maqaa fi mallattoo Walitti qabaa Daataa:_____ Guyyaa: _____

8.6 Amharic Version Participant Information Sheet and Voluntary Consent Form For Participants ≥18 Years old

የጥናቱ ተሳታፊዎች መረጃ መስጫና ፈቃደኝነት መጠየቂያቅፅ (በአማርኛ)

የተሳታፊዎች መረጃ

እንደምን አሉ! ስሜ----------እባላለሁ። በሐረማያ ዩኒቨርሲቲ፤ ሐረር ጤና እና ህክምና ሳይንስ ኮሌጅ የሁለተኛ ዲግሪውን የሚያጠናው አቶ ናትናኤል ካሳ ለሚያደርገዉ ምርምር በመረጃ ሰብሳቢነት እሰራለሁ። ስለሆነም ስለ ጥናቱ የተወሰነ ማብራሪያ ተሰጥቶዎት የጥናቱ ተሳታፊ ይሆኑ ዘንድ ትኩረትዎን ሰጥተዉ በጥሞና እንዲከታተሉ በትህትና እጠይቃለሁ።

8. የጥናቱርዕስ

በምስራቅ ኢትዮጵያ በሐረሪ ክልል ዉስጥ በሚገኙ ሆስፒታል በወላድ እናቶች እና ጨቅላ ህፃናት ለሞት ሀፋፍ የደረሱ እና ተያያዥ ምክንያቶች ነው፤፤

9. የጥናቱአላማ

ከጥናቱ የሚገኘው ውጤት በዞኑ ውስጥ ለሚገኙ ጤና ተቋማትና ጤና ባለሙያዎች፣ ሌሎች ለሚመለከታቸዉ ባለድርሻ አካላትና ድርጅቶች ለችግሩ ትኩረት እንዲሰጡና መፍትሄ እንዲያፈላልጉ የበኩሉን ይወጣል ተብሎ ይታሰባል። መሰረታዊ አላማዉ የሁለተኛ ዲግሪዉን በእናቶች እና ጨቅላ ህጻናት እንክብካቤ ትምህርት ለሚማረዉ ተማሪ አቶ ናትናኤል ካሳ የመመረቂያ ጥናታዊ ጽሁፍ ለማዘጋጀት ነው::

10. የመጠይቁ አካሄድ እና የሚፈጀዉ ጊዜ

ለጥናቱ አስፈላጊውን መረጃ ለማግኘት መጠይቅ በመጠቀም ቃለ-መጠይቅ አደርግልዎታለሁ። መጠይቁ **35** ጥያቄዎችን የያዘ ሲሆን እርስዎን በመጠየቅ ይሞላል። መጠይቁ በአማካኝ 35 ደቂቃይ ወስዳል። ስለሆነም ይቺን ጊዜካለዎት ጊዜ ቀንሰዉ ለመጠይቁ ይፈቅዱልኝ ዘንድ በትህትና እጠይቅዎታለዉ።

11. የጥናቱ ጥቅም እና ጉዳት

ይህ ጥናት ከጊዜዎ ላይ 35 ደቂቃ ከመውሰድ ውጭ በእርስዎም ሆነ በልጅዎ ላይ ጉዳት አያመጣም። በዚህጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ክፍያ የለም። ነገርግን የዚህ ጥናት ውጤት ለከተማዉ ጤና ጽ/ቤትና እቅድ አውጭ የመንግስት አካላት ጠቃሚ መረጃ ሊሰጥ ይችላል።

12. ሚስጢራዊነት

የሚሰጡንመረጃሚስጥራዊነትየሚጠበቅሲሆንእንደግለሰብተለይቶየሚወሰድመረጃየለም።የ ጥናቱውጤትየህብረተሰቡንአጠቃላይሁኔታእንጂየአንድንግለሰብምንምነገርአያንጸባርቅም።የተ ሳታፉዎችንስምላለማሳየትለመጠይቆቻችንየራሳችንንቁጥርሰጥተናቸዋል።የጥናቱተሳታፉዎችን ከምርምሩጋርበማጣቀስየሚሰጥየቃልምይሁንየጹሁፍሪፖርትየለም።

13. በጥናቱያለዎትመብት

በዚህጥናትውስጥመሳተፍሙሉበሙሉበፈቃደኝነትላይየተመሰረተሲሆንበጥናቱለመሳተፍምሆ ነላለመሳተፍየመወሰንመብትአለዎት።በፈለጉትጊዜከጥናቱመውጣትይችላሉ።ይህንበማድረግዎ ምማግኘትየሚገባዎትንጥቅምአያስቀርብዎትም።በጥናቱወይንምበመረጃአሰባሰቡዙሪያጥያቄ ወይምያልተብራራነገርካለበሚከተለውአድራሻያግኙን (ዋና**አቶናትናኤል ካሳ**ኢሜል: natnaelk343@gemail.com፤ስልክቁጥር፡+251949576978፤የተቋምምርምርስነምግባርናክትት ልኮሚቴስልክ: 0254662011 ወይምፖ.ሳ.ቁ 235 ሀረር)

14. ከላይበቀረበዉየግንዛቤማስጨበጫመሰረትየጥናቱተሳታፊለመሆንየሙሉፈቃደኝነት ማረጋገጫ

የተሳታፊዎችንመረጃወረቀትአንብቤዋለሁ/ተነብቦልኛል።የጥናቱንአላማ፣ክንዋኔ፣ጥቅምናጉዳት፣ ሚስጥራዊነት፣መብትእናለማንኛውምጥያቄየተሰጠውንየመገኛአድራሻበደንብተረድቼዋለሁ። ግልፅያልሆነጥያቄካለኝእንድጠይቅእድልተሰጥቶኛል።በፈለግሁትጊዜከጥናቱመውጣትእንደምች ልእንዲሁምመመለስየማልፈልገውንጥያቄመመለስእንደሌለብኝተነግሮኛል።ሰለዚህበዚህጥናትለ መሳተፍያለኝንፈቃደኝነትከዚህቀጥሎበፊርማዬአረጋግጣለሁ።

የተሳታፊስምእናፊርማ _____ ቀን _____

የመረጃሰብሳቢስምእናፊርማ _____ ቀን _____

ስለትብብርዎከልብእናመሰግናለን።

8.7. Afan Oromo Version of Participant Information sheet and informed voluntary consent form /Waraqaa odeeffannoo hirmaattota hayyama gaafachuu.

Maqaan koo obbo/aadde _____jedhama; Qorannoo Hospitaala kana keessatti Naatinael kaassaa (BSc)n gaggeeffamaa jiruuf ragaa walitti qabaa ta'ee hojjechaa jira. Waa'ee qorannichaa fi hirmaataa qorannichaa ta'ee filatamuu akkan isiniif ibsuuf xiyyeeffannoo keessan akka naaf liqeessitan kabajaan isin gaafadha.

1. Mataduree qorannichaa

Haadhaa fii daaima anii duaaf saaxilaamanii kan haffaan fii raakowaan kanaaf saaxilaan hadhawaan daaumsaa geeggeessaanii hospitaala moottumaa naannoo Hararii, baha Ethiopia 2023.

2. kaayyoo qorannichaa

Haadhaa fii daaima duaaf saaxilaamanii kan haffaan fii raakowaan kanaaf saaxilaan madaaluuf.

3. Akkaataa adeemsa qoranicha

Daataa barbaachisaa ta’ee fi qorannichaaf gargaaru naaf kennuudhaaf gaaffilee fayyadamee isin gaafadha. Gaaffii fi deebii gara daqiiqaa 30 waan fudhatuuf yeroo kana gaaffii fi deebii kanaaf akka na qusattan kabajaan isin gaafadha.

4. Miidhaa fi faayidaa

Miidhaa qorannoo kana irratti hirmaachuu baayyee xiqqaadha, garuu yeroo keessan irraa daqiiqaa muraasa qofa fudhachuudha. Qorannoon kun hirmaachuuf kaffaltiin kallattiin hin jiraatu ture. Garuu argannoon qorannoo kanarraa argamu karoorsitoota fayyaa naannoo sanaaf odeeffannoo barbaachisaa ta’e mul’isuu mala.

5. Iccitii eeguu

Odeeffannoon isin nuuf kennitan iccitii ta'a. Odeeffannoon addatti si adda baasu hin jiraatu. Argannoon qorannichaa ummata qorannichaaf waliigalaa kan ta’u yoo ta’u, namoota dhuunfaa irratti waan addaa kan hin calaqqisiifne ta’a. Gaaffiin maqaa agarsiisu akka hin dabalamneef koodii ni kennama. Gabaasa afaaniin ykn barreeffamaan hirmaattoota qorannicha waliin walqabsiisuu danda’u keessatti eeruun hin kennamu.

6. Mirga hirmaataa

Qorannoon kun hirmaannaan guutummaatti fedhii ofiitiin kan raawwatamudha. Qo’annoo kana irratti hirmaachuu fi dhiisuu kee labsuuf mirga qabda. Yoo hirmaachuuf murteessite yeroo barbaaddetti qorannicha keessaa ba’uuf mirga qabda kunis faayidaa karaa biraatiin argachuuf mirga qabdu kamiyyuu akka si hin mallatteeffamne. Gaaffii deebii kennuu hin barbaanne kamiyyuu deebisuun si hin barbaachisu.

7. Teessoo quunnamtii

Waa’ee qorannichaas ta’e hojimaata yeroo kamittuu gaaffiin ykn yaanni yoo jiraate teesso armaan gadii kanaan yeroo barbaadanitti nu argachu ni dandeessu.

Abbaa qorannoo: Naatinael kaassaa

Lakk.bilbila: 0949576978

Email-address: natnaelk343@gmail.com

Haramaya University Kolleejjii fayyaa fi wal'aansaa

Lakk.wajjira- 0254662011 or Lakk.posta- 235, Harar. Kanaan bilbiluun argachu dandeessan.

8. Walii galtee

Walii galtee waa'een haala hirmaannaa qoranno erga naaf dubbifame booda kaayyoon qorannaa, bu'aan qorannaa, miidhaan qorannoon qabu, haalli eegumsa iciitii, mirgi hirmaachu fi hirmaachu dhiisuu fi tessoon naaf ibsame jira. Gaafii yoon qabaadhe gaafachuuf carraan naaf kenname jira, gidduttis dhiisuuyoo barbaade yeroo barbaadetti hirmaachuu dhiisuu akkan dandahu gatii deebisuu kan hin barbaachifne tahuu mirga guutuu akka qabu erga hubadhee booda fedhii guutuun qorannoo kana irratti hirmaachuu kan murtesse tahu kiyya maqaa fi mallattoo kiyyaan mirkaneessa.

Maqaa fi mallattoo odefannoo kennaa: _____ _____ Date _____

Maqaa fi mallattoo odefannoo funaanaa: _____ _____ Date _____

Tumsa keessaniif galatoomaa!!

8.8 English Version Questionnaire

HARAMAYA UNIVERSITY

POST GRADUATE STUDY PROGRAM

Dear Respondents

This questionnaire is prepared to assess the prevalence and factors associated with maternal and neonatal near miss among mother who gave birth at public hospitals Harari, eastern Ethiopia 2023.

The assessment is made for the partial fulfillment of MSc Degree in Maternity and Neonatal Nursing. The questionnaire contains both closed and open ended questions and will be interviewed. You are therefore kindly requested to provide genuine response to the questions. The information you provide is confidential and is used only for the purpose of this study. If you have any question, don't hesitate to ask the data collector. Your cooperation and participation until the completion of the interview is very necessary for the successful completion of the assessment.

Thank you in advance for your cooperation!!!

Interview Record for Quantitative Data

Questionnaire ID : ----------

Name of health institution_____

Date of interview in Ethiopian Calendar (dd/mm/yy) _____/_____/_____

Interviewer's Name_____ code_____ signature_____

Supervisor's Name _____code_____ signature_____

Result of interview: 1. Completed ◯ 2. Partially completed ◯

Part one: Maternal characteristic

Table one – Socio- Demographic and economic characteristics

S. No	Question	Response	Code
101	How old are you?	----------in year	
102	Where is your resident?	1. Urban 2. Rural	
103	What is your Religion	1. Orthodox 2. Muslim 3. Protestant 4. If other specify---------	
104	What is your Ethnicity?	1. Amhara 2. Oromo 3. Harari 4. Tigray 5. Gurage 6.If other specify----------	
105	What is your Marital status?	1. Single 2. Married 3. Widowed 4. Divorces	
106	What is your level of education?	1. cannot read and write 2. Can read and write 3. 1-8th class 4. 9-12th class 5. diploma and above	
107	What is your partner level of education?	1. cannot read and write 2. Can read and write	

		3. 1-8th class 4. 9-12th class 5. diploma and above	
108	What is your Occupation?	1. House wife 2. Farming 3. Governmental Employee 4. Non-Governmental Employee 5. Merchant 6. Daily laborer 7. if Other Specify----------	
109	What is your partner Occupation?	1. Farming 2. Governmental Employee 3. Non-Governmental Employee 4. Merchant 5. Daily laborer 6. if other Specify----------	
110	How much distances do you travel to this facility?	1. in kilometre by car 2. in hour by foot	
111	How much your Monthly income?	……in birr ……	
112	How many your family sizes?	----------	

Table 2: obstetrics and gynecology factors

201	How many times you become pregnant (gravida)?	….in number	
202	How many times you gave birth after 28 weeks of pregnancy (parity)?	….in number	
202	Have you ever experienced miscarriage/abortion before 28 weeks of gestational age?	1. Yes 2. No	
204	Have you ever history of still birth?	1. Yes 2. No	
205	Have you ever history of Infant death?	1. Yes 2. No	
206	Have you been ANC follow-up visit in your current pregnancy?	1. Yes 2. No	If Ans. -- No skip to Q 209
207	If yes to question (206) --- how many times you had?		
208	Are you advised complication danger signs of	1. Yes	

	pregnancy and prepare to birth on your ANC follow up?	2. No	
209	What was the mode of delivery	1. SVD 2. Vacuum 3. forceps 4. C/S 5. Distractive	
210	Do you have history of obstetric complication in your current pregnancy?	1. Yes 2. No	
211	If your answer is yes to Q 210, what types of complication you faced? (possible to select more than one answer)	1. PROM 2. PIH 3. Polyhaydraminous 4. Oligohaydraminous 5. APH 6. IUGR 7. If others specify ----------	
212	Are you referral from other health institution?	1. Yes 2. No	
213	Did you have history of obstetric complication during labor?	1. Yes 2. No	
214	If your answer is yes to Q 213, what was the complication? (possible to select more than one answer)	1. Prolonged labor 2. Obstructed labor 3. Cephalo-pelvic disproportion (CPD) 4. NRFHRP 5. Malpresentation 6. Malposition 7. PIH 8. APH 9. Anemia 10. If others specify ----------	
215	What was the Onset of labor?	1. Spontaneous 2. Induced 3. Elective	
216	Did you have history of obstetric complication in post-partum period?	1. Yes 2. No	
217	If your answer is yes to Q 216, what was the complication?	1. PPH 2. PIH 3. Puerperal sepsis 4. Anemia 5. Brest engorgement 6. If other specify ---	

218	Have you history of STI?	1. Yes 2. No	

Table 3: Maternal medical factors

301	Have you history of Anemia?	1. Yes 2. No	
302	Have you history of chronic hyper tension?	1. Yes 2. No	
303	Have you history of DM?	1. Yes 2. No	
304	Have you history of renal failure?	1. Yes 2. No	
305	Have your history of cardiac problem?	1. Yes 2. No	
306	What is your HIV positive?	1. yes 2. no	
307	Have you any surgical history?	1. yes 2. no	
308	Have you history of asthma?	1. yes 2. no	
309	Have you history of malaria?	1. yes 2. no	
310	If any other medical history specifies?	…… ……	

Table 4: Sub Saharan African maternal near criteria

	Clinical criteria		
401	Acute cyanosis	1. Yes 2. No	
402	Gasping	1.Yes 2.No	
403	Respiratory rate >60 or <6min	1.Yes 2.No	
404	Shock	1.Yes	

		2.No	
405	Oliguria nonresponsive to fluids or diuretics	1.Yes 2.No	
406	Failure to form clots	1.Yes 2No	
407	Loss of consciousness lasting >_ 12hr	1.Yes 2.No	
408	Cardiac arrest	1.Yes 2.No	
409	Stroke	1.Yes 2.No	
410	Uncontrollable fit/total paralysis	1.Yes 2.No	
411	Jaundice in the presence of pre- eclampsia	1.Yes 2.No	
412	Eclampsia	1.Yes 2.No	
413	Uterine rupture	1.Yes 2.No	
414	Sepsis or sever systemic infection	1.Yes 2.No	
415	Pulmonary edema Sever abortion complications	1.Yes 2.No	
416	Sever malaria	1.Yes 2.No	

	Laboratory based criteria		
417	Oxygen saturation< 90% for >60 minutes	1.Yes 2.No	
418	Creatinine >_300umol or >_ 3.5mg/dl	1.Yes 2.No	
419	Acute thrombocytopenia (<50000 platelets/ml)	1.Yes 2.No	
420	Loss of consciousness and ketoacids in urine	1.Yes 2.No	
	Management based criteria		
421	Hysterectomy following hemorrhage or infection	1.Yes 2.No	
422	Transfusion of >_ 2 units of blood	1.Yes 2.No	
423	Intubation and ventilation for >_60min not related to anesthesia	1.Yes 2.No	
424	Cardio- pulmonary resuscitation	1.Yes 2.No	
425	Laparotomy other than caesarean section	1.Yes 2.No	

Part two: neonatal check list

Table 5: check list for neonatal characteristic

501	Neonatal health status at discharge?	1. Alive 2. Neonatal death	
502	Birth status	1. Single 2. Twin 3. Tirplate and above	
503	Birth interval between the current birth and the last birth if applicable?	----------	
504	Sex of new born	1. Male 2. Female	
505	Weight of new born	……..in gram	
506	APGAR score of the new born in 1st and 5th minutes respectively	…….	
507	Gestational age of new born in weeks	……	
508	Resuscitated with bad and mask	1. Yes 2. No	
509	Cardiopulmonary resuscitation (CPR)	1. Yes 2. No	
510	Intubation	1. Yes 2. No	
511	Nasal continuous positive airway pressure	1. Yes 2. No	
512	Parenteral antibiotic therapy	1. Yes 2. No	
513	Use of parenteral nutrition	1. Yes 2. No	
514	Vasoactive drugs	1. Yes 2. No	

515	Phototherapy within 28 day of life	1. Yes 2. No	
516	Use of anticonvulsants	1. Yes 2. No	
517	Use of blood products	1. Yes 2. No	
518	Use of steroids for the treatment of refractory hypoglycaemia	1. Yes 2. No	
519	Surgery	1. Yes 2. No	
520	Antenatal steroids	1. Yes 2. No	

Thank You Very Much!!

8.9 Amharic Version Questionnaire

ሐረማያዩኒቨርሲቲ

የድህረምረቃፕሮግራም

ውድተሳታፊዎቻችን

ይህመጠይቅየተዘጋጀውበምስራቅ ኢትዮጵያ በሐረሪ ክልል ዉስጥበሚገኙሆስፒታልበወላድእናቶች እና ጨቅላ ህፃናት ለሞት ሀፋፍ የደረሱ እና ተያያዥ ምክንያቶች ነው፤፤

ይህጥናትበዋናነትለማስተርስዲግሪመመረቂያየማሟያጥናታዊጽሁፍለማዘጋጀትነው።ለጥናቱአስፈላጊውንመረጃለ ማግኘትመጠይቁየያዛቸውንጥያቄዎችበመጠቀምቃለ-
መጠይቅአደርግልዎታለሁ።ትክክለኛየሆነመልስእንዲሰጡኝእጠይቅዎታለሁ።የእርስዎትብብርናተሳትፎእሰከመጨረ ሻውድረስመቀጠልለመረጃውመሰብሰብበጣምአስፈላጊነው።

ስለትብብርዎከልብእናመሰግናለን።።

የቃለምልልሱመረጃዎችመጠየቂያናመመዝገቢያቅፅ

የመጠይቁኮድ/መለያ _____ የጤናተቋሙዓይነት _____

የጤናተቋሙስም_____

መጠይቁየተካሄደበትቀን (እ.ኢ.አ) _____/_____/_____

የጠያቂውስም_____ መለያ_____ ፊርማ_____

የተቆጣጣሪውስም_____ መለያ_____ ፊርማ_____

መጠይቁ: 1. የተሟላ  2. ያልተሟላ 

ክፍልአንድ፡የማህበራዊእናየአኗኗርመረጃ

ተ.ቁ ጥ ር	ጥያቄ	ምላሽ	ኮ ድ
101	ዕድሜዎስንትነው?	---------- በአመት	
102	የሚኖሪበትበታየትነዉ ?	1. ከተማ 2. ገጠር	
103	ሃይማኖትምንድንነው.?	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ሌላ (ይግለጹ)	
104	የየትኛዉብሄረሰብተወላጅ ነዎት ?	1. ሐረሪ 2. አማራ 3. ጉራጌ 4. ኦሮሞ 5. ትግራይ 6. ሌላ (ይግለጹ)	
105	የጋብቻሁኔታዎምንድነው?	1. ያላገባች 2. ያገባች 3. ባልየሞተባት 4. ባልየፈታች	
106	የትምህርትደረጃዎምንድነ ው?	1. ማንበብእናመጻፍየማይችል 2. ማንበብናመጻፍየሚችል	

		3. 1-8ኛደረጃተጠናቅቋል 4. 9- 12ኛደረጃተጠናቅቋል 5. ከዚያበላይ	
107	የትዳርአጋርዎየትምህርትደረጃምንድንነው?	1. ማንበብእናመጻፍየማይችል 2. ማንበብናመጻፍየሚችል 3. 1-8 ክፍልያጠናቀቀ 4. 9- 12ኛደረጃተጠናቅቋል 5. ከዚያበላይ	
108	ስራሽምንድንነው?	1. ቤትእመቤት 2. ብርና 3. መንግስትሠራተኛ 4. ግልሠራተኛ 5. ጋዴ 6. ቀንሰራተኛ 7. ላ (ይግለጹ) ……	
109	የትዳርአጋርዎየስራሁኔታምንድንነው?	1. ብርና 2. መንግስትሰራተኛ 3. ግልሠራተኛ 4. ጋዴ 5. ቀንሰራተኛ 6. ላ (ይግለጹ)…….	
110	ከቤትዎእስከዚህሆስፒታል ድረስምንያህልርቀትይጓዛሉ?	1. በኪሎሜትር 2. በሰዓት	
111	የወርገቢዎምንያህልነው?	1. ..... በብር 2. ……...በኩንታልየህልአይነት	
112	የቤተሰቦችዎብዛትስንትነው?	----------	

ሠንጠረዥ 2: የማህጸንና ጽንስ ተየያዥ ጉዳዮች

201	ምንያህልጊዜነፍሰጡርሆነሻል ---- (ግራቪዳ)?	.....ቁጥር	
202	ስንትልጅወልደሻል(ከ7 ወርበላይየቆየእርግዝና)----(ፓሪቲ) ?	..... ቁጥር	
203	አስወርዶሽያዉቃል ?	1. …….አዎን 2. ……,.የለም	
204	በማህጸንዉስጥሞቶየተወለደህጻንገጥሞሽያዉቃል ?	1. …አዎን 2. ..…የለም	
205	ከዚህበፊትወልደሽየምታዉቂከሆነከአሁንበፊትየተወለደዉመቸነበር ?	……...…… ….	
206	በአሁኑየእርግዝናወቅትየነፍሰጡርክትትልአድርገሽነበር ?	1. ….....አዎን 2. ……የለም	
207	ለጥያቄቁጥር (206) መልስዎአዎከሆነ ---ምንያህልጊዜክትትልአደረጉ ?	----------	
208	ለወሊድዝግጅትናበምጥናበወሊድግዜተያይዘዉስለሚከሰቱችግሮችየምክርአገልግሎትአግተዋል?	1. .....አዎን 2. .....የለም	
209	የአሁኑንልጅሽንበምንአይነትመንገድነዉየወለድሽዉ?	1. ……በማህጸን 2. ……በቫኪዩም 3. ……በፎርሴፕስ 4. ……ኦፕረሽን 5. ……...በመሳሪያበመቆራረጥ	
210	አሁንበነበረዉየእርግዝናወቅትከርግዝናጋርየተያያዘችግርአጋጥምዎትነበር ?	1. …….አዎን 2. …….የለም	

211	መልስዎለጥያቄ 210አዎከሆነ, ምንአይነትችግሮችያጋጥምዎነበር?	1. ድሞየንጥሽትዉሃመፍሰስ 2. ርግዝናጋርየተገናኘ የደምግፍት 3. ንጥሽትዉሃመብዛት 4. ንጥሽትዉሃማነስ 5. ወሊድበፊትየደምመፍሰስ 6. ድገት መቀጨጭ 7. ላከሆነይጥቀሱ…… ……	
212	በሪፈርነዉየመጡ ?	1. …….አዎን 2. …….የለም	
213	በአሁኑወሊድጊዜከወሊድጋርየተገናኘችግርገጥ ምሆትነበርነበረ?	1. …….አዎን 2. ……የለም	
214	መልስዎለጥያቄቁጥር 212 አዎከሆነ, የገጠምዎትችግርምንነበር?	---------- ---------- -----	
215	የምጡአጀማመርእንዴትነበር?	1. ….በተፈጥሮ 2. …በምጥመድኃኒት	
216	በአሁኑወሊድጊዜከወሊድበኃላየተገናኘችግርገጥ ምሆትነበር ?	1. .....አዎ 2. ……የለም	
217	መልስዎለጥያቄቁጥር 216አዎከሆነ, የገጠምዎትችግርምንነበር?	1. ከወሊድበኃላየደምመፍሰስ 2. ከርግዝናጋርየተገናኘየደምግፍት 3. Puerperal sepsis 4.	

		የደምማነሰ 5. የጡትእብጠት 6. ሊላከሆነይጥቀሱ……	
218	የአባለዘርበሽታይዞሽያዉቃል?	1. .....አዎ 2. ……የለም	

ሠንጠረዥ 3: የናቶች የዉስጥ ደዌ በሽታ

301	የደምማነስህመምገጥሞሽያቃል?	1. አዎ 2. የለም	
302	የቄየየደምግፊትአለብሽ ?	1. አዎ 2. የለም	
303	የስኪርህመምአሞሽያዉቃል?	1. አዎ 2. የለም	
304	ከኩላሊትጋርየተገናኘችግርገጥምዎትያዉቃል ?	1. አዎ 2. የለም	
305	ከልብጋርየተገናገኘችግርገጥምዎትያዉቃል ?	1. አዎ 2. የለም	
306	የኤችአይቪቫይረስበደምዎዉስጥአለ?	1. አዎ 2. የለም	
307	እርስዎቀዶጥገናተደርጎልዎልያዉቃል ?	1. አዎ 2. የለም	
308	የአስምበሽታአምዎትያዉቃል?	1. አዎ 2. የለም	

ሰንጠረዥ 4፡ ከሳሀራ በታች ያሉ የአፍሪካ አገሮች የእናቶች የሞት አፋፍ ላይ ያሉትን መለከያ ቅድመ ሁኔታ

ተ/ቁ	የክሊኒካል ቅድመ ሁኔታ	መልስ አዎ/አይ	
401	አኪዩት ሲያኖስስ	1. አዎ 2. አይ	
402	ስቅታ	1. አዎ 2. አይ	
403	የአተነፋፈስ ፍጥነት ›60/‹ 60 ደቂቃ	1. አዎ 2. አይ	

404	ራስን መሳት	1. አዎ 2. አይ	
405	የሽንት ማነስ ፈሳሽ ተሰጥቶ የማይስተካከል	1. አዎ 2. አይ	
406	የደም መረጋት አለመኖር	1. አዎ 2. አይ	
407	ራስን መርሳት ቦታን ጊዘን ጨምሮ › 12 ሰዓት	1. አዎ 2. አይ	
408	የልብ ምት መቆም	1. አዎ 2. አይ	
409	ወደ ጭንቅላት ደም መፍሰስ	1. አዎ 2. አይ	
410	ከመጠን በላይ የሆነ የሰውነተ አለመታዘዝ	1. አዎ 2. አይ	
411	በእርግዝና ወቅት የሚከሰት ደም ግፊት እና የተለያዩ የሰውነት አካላት (አይን፣ ጥፍር) የመሳሰሉት ቢጫ መሆን	1. አዎ 2. አይ	
412	አደገኛና ራስን እስከመርሳት የሚያደርስ የደም ግፊት በእርግዝና ወቅት	1. አዎ 2. አይ	
413	የማህፀን መፈንዳት/መበጣጠስ	1. አዎ 2. አይ	
414	ሴፕሲስ ወይም ከፍተኛ የሆነ ኢንፌክሽን	1. አዎ 2. አይ	
415	የሳንባ አካባቢ እብጠት ከፍተኛ የውርጃ ጣጣዎች	1. አዎ 2. አይ	
416	ከፍተኛ የወባ በሽታ	1. አዎ 2. አይ	
	የላብራቶሪ ቅድመ ሁኔታዎች		
417	የአተነፋፈስ ፍጥነት ‹90 % ለ 60 ደቂቃ	1. አዎ 2. አይ	
418	ክሬቲኒን ‹ 300µmol	1. አዎ 2. አይ	
419	ጊዜያዊ የፕላቲሌት መብዛት	1. አዎ 2. አይ	
420	ራስን መርሳት እና በሽንት ውስጥ የኬቶን አሲድ መኖር	1. አዎ 2. አይ	
	የመቆጣጠር ቅድመ ሁኔታዎች	1. አዎ 2. አይ	
421	የማህፀን ነቀላ ከፍተኛ የደም መፍሰስ	1. አዎ	

	ካጋጠመ በኋላ	2. አይ	
422	የደም መተካት ቢያንስ › 5 ዩኒት ደም	1. አዎ 2. አይ	
423	የመተንፈሻ አካልን መጠራረግ እና በመተንፈሻ ማሽን የታገዘ የአተነፋፈስ እርዳታ ለ60 ደቂቃ ከሰመመን መድሀኒት ያልተያያዘ	1. አዎ 2. አይ	
424	የልብ ምትን እና የመተንፈሻ አካላትን ወደ ተግባር መመለስ	1. አዎ 2. አይ	
425	የሆድን ከፍቶ ማየት ማህፀን ከመቅደድ ቀድሞ	1. አዎ 2. አይ	

ክፍልሁለት: የህጻናትን መረጃ በተመለከተ መጠይቅ ሠንጠረዥ

501	የዉልደትሁኔታ ?	1. አንድ 2. መንትያ 3. ሶስትናከዚያበላይ	
502	ከሆስፒታልበሚዎጡበትወቅትየነበረዉየህጻንሁኔታ	1. በሂዎትያለ 2. በሂወትከተወለደበ ኃላየሞተ	
503	ከዚህበፍትወልደሽየምታዉቂከሆነአሁኑንበተወለደዉናእናከ ዚህበፍትበተወለደዉመካከልምንያህልግዜነዉ		
504	የህጻንጾታ	1. ወንድ 2. ሴት	
505	የህጻንከብደት	…….. በግራም	
506	የAPGARውጤትበመጀመሪያዉ 1 እናበ 5 ደቂቃውስጥያለዉዉጤት	.....	
507	የጽንሱእድሜበሳምንትስንትነበር	.....	
508	ህጻኑአክስጅንተሰጦታል	1. አዎን 2. አልተሰጠዉም	
509	የልብእናየሳንባመነቃቃትስራተሰርቶለታል(CPR)	1. አዎን 2. አልተደረገለትም	
510	ኢንኩቤሽን	1. አዎን 2. አልተደረገለትም	
511	በአፍንጫውቀጣይነትያለዉየአየርመተንፈሻግፊትተደርጎለ ትነበር	1. አዎን 2. አልተደረገለትም	
512	አንቲባዮቲክሕክምናአግኝታል	1. አዎን 2. አልተደረገለትም	

513	በአፍንጫበሚደረግቱቦምግብእንዲመገብተደርጋል	1. አዎን 2. አልተደረገለትም	
514	ቫዞአክቲቭመድኃኒትተሰጥታል	1. አዎን 2. አልተሰጠዉም	
515	በተወለደበ28 ቀንውስጥየፎቶቴራፒህክምናተደርጎለታል	1. አዎን 2. አልተደረገለትም	
516	እራስንከመሳትየሚከላከልመድኃኒትተሰቶታል	1. አዎን 2. አልተሰጠዉም	
517	የደምልገሳተደርጎለታል	1. አዎን 2. አልተሰጠዉም	
518	መድኃኒትለሃይፓግላይሰሚክህክምናተብሎተሰጥታል	1. አዎን 2. አልተሰጠዉም	
517	ቀዶጥገናተደርጎለትል	1. አዎን 2. አልተደረገለትም	
518	የቅድመወሊድስቴሮይድለእናትዮዎተሰጣት	1. አዎን 2. አልተሰጣትም	

8.10 Afan oromo Version Questionnaire

YUNIVARSIITII HARAMAYAA

SAGANTAA BARNOOTA Eebbifamtoota Boodaa

Kabajamtoota Deebii kennitoota

Gaaffiin kun kan qophaa'e haadholii hospitaalota mootummaatti da'an biratti babal'inaafi sababoota dhiyeenya haadholii fi daa'imman da'umsa boodaa waliin walqabatan madaaluuf Harari, baha Ethiopia 2023.

Madaalliin kun kan godhamu Digirii MSc Narsii Da'umsaa fi Da'umsa Daa'imaatiin gartokkoon guutuuf. Gaaffiin kun gaaffilee cufamanii fi banaa kan of keessaa qabu yoo ta'u, af-gaaffiin ni taasifama. Kanaaf gaaffiiwwan dhiyaataniif deebii dhugaa akka kennitan kabajaan isin gaafanna. Odeeffannoon isin kennitan iccitii kan ta'ee fi kaayyoo qorannoo kanaa qofaaf kan ooludha. Gaaffii yoo qabaattan nama daataa walitti qabu gaafachuu irraa duubatti hin jedhinaa. Madaallichi milkaa'inaan akka xumuramuuf tumsi fi hirmaannaan keessan hanga xumura af-gaaffii baay'ee barbaachisaadha.

Tumsa keessaniif dursinee galatoomaa!!!

Galmee Af-gaaffii Ragaa Baay'inaan

ID gaaffii : ---------- Gosa dhaabbata fayyaa _____

Maqaa dhaabbata fayyaa _____ .

Guyyaa af-gaaffii Kaalaandarii Itiyoophiyaa (dd /mm/ yy) _____/_____/_____ .

Maqaa Gaaffii fi Deebii_____ koodii_____ mallattoo_____ .

Maqaa Suppervaayizaraa _____koodii_____ mallattoo_____ .

Bu’aa af-gaaffii : 1. Xumurame 2.  

Gartokkoon xumurame

Kutaa tokkoffaa: Amala haadha

Gabatee tokko – Amaloota hawaas- Dimoogiraafii fi dinagdee

S. Lakk	Gaaffii	Deebii	Koodii
101	Umuriin kee meeqa?	----------waggaa keessatti	
102	Jiraataan keessan eessa jira?	1. Magaalaa 2. Baadiyyaa	
103	Amantiin keessan maali	1. Ortodoksii 2. Muslima 3. Pirootestaantii 4. Yoo biroo ibsu--------- .	
104	Sabummaan keessan maali?	1. Amaaraa 2. Afaan Oromoo 3. Hararii 4. Tigraay 5. Gurage 6.Yoo biroo ibsu---------- .	
105	Haalli Gaa'elaa keessan maali?	1. Qeenxee 2. Kan fuudhe 3. Dubartii abbaan manaa irraa du'e 4. Hiikkaa wal hiikuu	
106	Sadarkaan barnootaa keessan maali?	1. dubbisuu fi barreessuu hin danda’u 2. Dubbisuu fi barreessuu ni danda’a 3. Kutaa 1-8 ffaa 4. kutaa 9-12 ffaa 5. dippiloomaa fi isaa ol	
107	Sadarkaan barnootaa hiriyaa keetii maali?	1. dubbisuu fi barreessuu hin danda’u 2. Dubbisuu fi barreessuu ni danda’a 3. Kutaa 1-8ffaa 4. Kutaa 9-12ffaa 5. dippiloomaa fi isaa ol	

108	Hojiin keessan maali?	1. Haadha manaa manaa 2. Qonna 3. Hojjetaa Mootummaa 4. Hojjetaa Mootummaa Hin Taane 5. Daldalaa 6. Hojjetaa guyyaa guyyaa 7. yoo Kan biroo Ifa godhate---------- .	
109	Hiriyaan kee Hojiin maali?	1. Qonna 2. Hojjetaa Mootummaa 3. Hojjetaa Mootummaa Hin Taane 4. Daldalaa 5. Hojjetaa guyyaa guyyaa 6. yoo biroo Ifa---------- .	
110	Fageenya meeqa deemta gara dhaabbata kanaa?	1. kiiloo meetiraan konkolaataadhaan 2. sa'aatii miilaan deemuun	
111	Galiin Ji'aa keessan meeqa?	.....birriin	
112	Haalli maatii keessanii meeqa?	----------	

Gabatee 2: sababoota da'umsaa fi dubartootaa

201	Yeroo meeqa ulfoofte (gravida)?	....lakkoofsaan	
202	Ulfa (parity) torban 28 booda yeroo meeqa deesse?	....lakkoofsaan	
202	Umurii ulfaa torban 28 dura ulfi bahuu/ulfa baasuu si mudatee beektaa?	1. Eeyyee 2. Lakki	
204	Seenaa du'ee dhalachuu qabdaa?	1. Eeyyee 2. Lakki	
205	Seenaa du'a Daa'immanii qabaattanii beektuu?	1. Eeyyee 2. Lakki	
206	Ulfa amma keessa jirtu keessatti daawwannaa hordoffii ANC turtee?	1. Eeyyee 2. Lakki	Yoo Deebii. --Gara G 209tti darbuu hin qabu
207	Yoo eeyyee ta'e gaaffii (206) --- yeroo meeqa qabda		

	turte?		
208	Mallattoolee balaa walxaxiinsa ulfaa gorfamanii fi hordoffii ANC keessan irratti da'uuf qophaa'aa jirtuu?	1. Eeyyee 2. Lakki	
209	Haalli kenniinsa maal ture	1. SVD jedhamuun beekama 2. Duwwaa 3. forceps jedhamuun beekama 4. C/S 5. Yaada namaa kan jeequ	
210	Ulfa amma keessa jirtu keessatti seenaa rakkoo dahumsaa qabdaa?	1. Eeyyee 2. Lakki	
211	Gaaffii 210f deebiin kee eeyyee yoo ta'e, gosoota walxaxiinsa akkamii si mudate? (deebii tokkoo ol filachuun ni danda'ama)	1. PROM 2. PIH 3. Polyhaydraminous kan ta'e 4. Oligohaydraminous kan jedhu 5. APH 6. IUGR 7. Yoo warri kaan ibsan --------- .	
212	Dhaabbata fayyaa biroo irraa rifaralaa ta'aa?	1. Eeyyee 2. Lakki	
213	Yeroo dahumsaa seenaa rakkoo dahumsaa si mudate qabdaa?	1. Eeyyee 2. Lakki	
214	Gaaffii 213f deebiin kee eeyyee yoo ta'e, walxaxiinsi maal ture? (deebii tokkoo ol filachuun ni danda'ama)	1. Da'umsa yeroo dheeraa 2. Hojii ciniinsuu danqame 3. Walmadaaluu dhabuu mataa fi qaama saalaa (CPD) . 4. NRFHRP jedhamuun beekama 5. Malpresentation 6. Malposition 7. PIH 8. APH 9. Hir'ina dhiigaa 10. Yoo warri kaan	

		ibsan ---------- --------- .	
215	Jalqabni dahumsaa maal ture?	1. Osoo itti hin yaadamin 2. Induced ta'e 3. Filannoo	
216	Yeroo dahumsa boodaa keessatti seenaa rakkoo dahumsaa qabdaa?	1. Eeyyee 2. Lakki	
217	Gaaffii 216f deebiin kee eeyyee yoo ta'e, walxaxiinsi maal ture?	1. PPH 2. PIH 3. Seepsii da'umsaa 4. Hir'ina dhiigaa 5. Brest engorgement jedhamuun beekama 6. Yoo biroo ibsu ---- ---------- .	
218	Seenaa dhukkuba STI qabduu?	1. Eeyyee 2. Lakki	

Gabatee 3 : Qabxiilee yaalaa haadholii

301	Hir'ina dhiigaa qabduu ?	1. Eeyyee 2. Lakki	
302	Seenaa dhiibbaa dhiigaa yeroo dheeraa qabdaa?	1. Eeyyee 2. Lakki	
303	Seenaa DM qabduu?	1. Eeyyee 2. Lakki	
304	Seenaa dadhabina kalee qabduu?	1. Eeyyee 2. Lakki	
305	Seenaa rakkoo onnee qabduu?	1. Eeyyee 2. Lakki	
306	HIVn keessan maali?	1. Eeyyee 2. Lakki	
307	Seenaa baqaqsanii hodhuu qabduu?	1. Eeyyee 2. Lakki	
308	Seenaa dhukkuba asmii qabduu?	1. Eeyyee 2. Lakki	
309	Seenaa dhukkuba busaa qabduu?	1. Eeyyee 2. Lakki	
410	Seenaan yaalaa kan biraa yoo ibse?	....	

Kutaa lammaffaa: tarree sakatta'iinsa daa'immanii

Gabatee 4 : tarree sakatta'iinsa amala daa'imman reefuu

401	Haala fayyaa daa'immanii yeroo gadhiifaman?	1. Jiraataa 2. Du'a daa'imman reefuu dhalatan	
402	Haala dhalootaa	1. Qeenxee 2. Lamaan 3. Tirplate fi sanaa ol	
403	Yeroon dhalootaa dhaloota ammaa fi da'umsa dhumaa gidduu jiru yoo barbaachisaa ta'e?	----------	
404	Walqunnamtii saalaa daa'imman reefuu dhalatan	1. Dhiira 2. Dhalaa	
405	Ulfaatina daa'ima reefuu dhalate	.....giraama keessatti	
406	Qabxii APGAR daa'imman reefuu dhalatan daqiiqaa 1 ffaa fi 5ffaa keessatti	.....	
407	Umuriin ulfaa daa'imman reefuu dhalatan torbanitti	.....	
408	Hamaa fi haguuggii fuulaa waliin deebisee jiraachise	1. Eeyyee 2. Lakki	
409	Duubatti deebisuu onnee fi sombaa (CPR) .	1. Eeyyee 2. Lakki	
410	Intuubashinii (Intubation) gochuu	1. Eeyyee 2. Lakki	
411	Dhiibbaa ujummoo qilleensaa pozaatiivii hidhii walitti fufiinsa qabu	1. Eeyyee 2. Lakki	
412	Yaala antibaayootikii garaa keessaa	1. Eeyyee 2. Lakki	
413	Fayyadama soorata garaa keessaa	1. Eeyyee 2. Lakki	
414	Qorichoota vaazoactive	1. Eeyyee 2. Lakki	
415	Jireenya guyyaa 28 keessatti foototeraapii	1. Eeyyee 2. Lakki	
416	Fayyadama qoricha farra garaachaa	1. Eeyyee 2. Lakki	
417	Fayyadama oomishaalee dhiigaa	1. Eeyyee 2. Lakki	
418	Fayyadama isteeroyidii wal'aansa dhibee	1. Eeyyee	

	sukkaaraa hir'isuu hin danda'amneef	2. Lakki	
419	Baqaqsanii yaaluu	1. Eeyyee 2. Lakki	
420	Istirooyidii dahumsa duraa	1. Eeyyee 2. Lakki	

8.11: Curriculum Vitae

1. **Personal Information**

Full Name: Natnael Kassa Abera
Date of Birth: Jun 23, 1985
Place of Birth: Haremaya, East Harerga , Oromia Region, Ethiopia.
Sex: Male
Marital Status: Single
Nationality: Ethiopian
Contact Address: Tel +251949576978
P.O. Box: Haremaya University, Ethiopia
E-mail:natnaelk343@gmail.com

2. Educational Background

Level of Education
Universities and /or Schools
Year Awards
Higher Education Mizan-Tepi University
2005- 2008E.C
BSc. in Midwife
Preparatory Education
Chilalo Preparatory and Secondary School
2003-2004E.C
Grade 11-12
Secondary Education Yirgalem Preparatory and Secondary School
2000-2002E.C Grade 9-10
Primary Education Haremaya university model School
1989-1999
Grade 1-8

3.

La

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Language

Sp

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Re

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W

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Li

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English

Ex

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Ex

cellent

Ex

cellent

Ex

cellent
Amharic

Ex

cellent

Ex

cellent

Ex

cellent

Ex

cellent
Oromic Excellent Excellent Very good Excellent
4.

Q

ualification
I have graduated from Mizan-Tepi University in Generic BSc Midwifery in 2015 G.C .
5.

W

ork experiences
I have five year work experience at Harar HFSUH since 2009-2014 E.C.
6.

Tr

ainings received
I have taken training and certified with;
ii. ART
iii. BEMONC

iv. HTC and post-partum FP

7.

St

atistical Software

I am familiar with a number of statistical software packages. Some of them are Microsoft Word, Excel, Power Point, Access, SPSS, Epi-data and Epi-Info.

8.

H

obbies

-

Re

ading various books

-

Li

stening spiritual songs and visiting historical places

-

W

atching movies, Listening NEWS

-

Se

arching web site information

9.

Re

ferences

Dr Redwan Ahmed, assisitant professor of Gyn/obs &lecturer of UH (0910043632
Dr Biftu geda(MscN,Phd) in HFSUH (0911760850)
Sr sable mengistu Msc nurse in HFSUH (0910072855