ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF NURSING AND MIDWIFERY
DEPARTMENT OF NURSING

KNOWLEDGE OF NEONATAL DANGER SIGNS AND ASSOCIATED FACTORS AMONG EARLY POST-NATAL CARE MOTHRES IN SELECTED PUBLIC HOSPITALS OF ADDIS ABABA, ETHIOPIA, 2024

BY: YORDANOS BOGALE (BSc)

A THESIS SUBMITTED TO THE SCHOOL OF NURSING AND MIDWIFERY, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN NEONATAL NURSING.

MAY, 2024

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF NURSING AND MIDWIFERY

DEPARTMENT OF NURSING

KNOWLEDGE OF NEONATAL DANGER SIGNS AND ASSOCIATED FACTORS AMONG EARLY POST-NATAL CARE MOTHRES IN SELECTED PUBLIC HOSPITALS OF ADDIS ABABA, ETHIOPIA, 2024

BY: YORDANOS BOGALE (BSc)

MAJOR ADVISOR: S/R FIKRTEMARIAM ABEBE(RN, MSC N, ASSISTANT PROFESSOR)

CO-ADVISOR: MR.ZELEKE ARGAW (RN, MSC N, ASSISTANT PROFESSOR)

MAY, 2024

ADDIS ABABA, ETHIOPIA

APPROVAL SHEET
ADDS ABABA UNIVERSITY
COLLEGE HEALTH SCIENCES SCHOOL OF NURSING AND MIDWIFERYDEPARTMENT OF NURSING, MASTER OF SCIENCE IN NEONATAL NURSING

I, the undersigned MSc student, declare that I have submitted my original work on knowledge of neonatal danger signs and associated factors among early post-natal care mothres in selected public hospitals of Addis Ababa, Ethiopia, 2024 prepared by Yordanos Bogale satisfies the university's regulations and adheres to the accepted standards of originality and quality required for the Degree of Master of Sciences in Neonatal Nursing.

Submitted by:

Yordanos Bogale _____ _____

Name of student Signature Date

This thesis work has been submitted for examination with my approval as an advisor.

Approved by:

1. **Fikirtemariam Abebe (RN, MSc N)** _____ _____

   Name of Major Advisor Signature Date

2. **Zeleke Argaw (RN, MSc N)** _____ _____

   Name of Co-Advisor Signature Date

APPROVAL BY THE BOARD OF EXAMINATION

This thesis by **Yordanos Bogale** accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of masters of Science in Neonatal Nursing.

INTERNAL EXAMINER:

Aklil Hailu Beyene (RN, BScN, MScN)	_____	_____	_____
Assistant professor,	RANK	SIGNITURE	DATE
NAME			

RESEARCH ADVISORS:

Fikirtemariam Abebe (RN, MSc N)	_____	_____	_____
NAME	RANK	SIGNITURE	DATE
Zeleke Argaw (RN, MSc N)	_____	_____	_____
NAME	RANK	SIGNITURE	DATE

DEPARTMENT HEAD

_____	_____	_____	_____
NAME	RANK	SIGNITURE	DATE

STATEMENT OF DECLARATION

By my signature below, I declare and affirm that this thesis is my own work. I have followed all ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I affirm that I have cited and referenced all sources used in this document. Every effort has been made to avoid plagiarism in the preparation of this thesis.

This thesis is submitted in partial fulfillment of the requirement for a graduate degree from the Addis Ababa University at College of Health Sciences, School of Nursing and Midwifery department of Nursing . The thesis is deposited in the Addis AbabaUniversity Digital Library and is made available to local, national and international scientific community. I solemnly declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

Brief quotations from this thesis may be used without special permission provided that accurate and complete acknowledgement of the source is made. Requests for permission for extended quotations from, or reproduction of, this thesis in whole or in part may be granted by the Head of the Department or all advisers of the theses when in his or her judgment the proposed use of the material is in the interest of scholarship and publication. In all other instances, however, permission must be obtained from the author of the thesis.

STUDENT NAME: Yordanos Bogale (BSc) **Signature:** _____ **Date:** _____

RESEARCH ADVISORS:

Fikirtemariam Abebe	(RN,MScN)	_____	_____
NAME	**RANK**	**SIGNITURE**	**DATE**
Zeleke Argaw	(RN,MScN)	_____	_____
NAME	**RANK**	**SIGNITURE**	**DATE**

ACKNOWLEDGMENTS

First, I would like to thank my almighty GOD for all of the things in my life. Next I would like to express my gratitude to Addis Ababa University, College of Health Sciences, Department of Nursing for giving me the opportunity to undertake this study and St. Paul's Hospital Millennium Medical College for sponsoring my master's degree studies.

Second, from the beginning to present, I would like to express special thanks to my Principal Advisor sister Fikrtemariam Abebe and Co-Advisors Mr. Zeleke Argaw for their unreserved encouragement for the development of this thesis.

Finally I would also like to expand my deepest gratitude to postnatal units and coordinators of the chosen public hospitals in Addis Ababa city, the data collectors, their supervisors, the study participants, and the Addis Ababa heath office.

ACRONYMS AND ABBREVIATIONS

ANC	Antenatal Care
AAU	Addis Ababa university
EDHS	Ethiopia Demographic and Health Survey
EPI	Expanded Programme on Immunization
ETB	Ethiopian Birr
HCPs	Health care professionals
IMR	Infant Mortality Rate
LMICs	Low and Middle Income Countries
NDS	Neonatal Danger Sign
PNC	Post Natal Care
SPSS	Statistical Package for Social Science
TASH	Tikur Anbessa Specialized Hospital
UNICEF	United Nation International Children's Emergency Fund

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background: Neonates are more likely to show subtle signs of illness. Neonatal danger signs indicate newborns are at high risk of illness and death. Mothers are the first to notice even the smallest changes in newborns; they identify them and treat them at an early age. Mothers must be knowledgeable about neonatal danger signs to guarantee the quality of life for their newborns.

Objective: To assess the knowledge on neonatal danger signs and associated factors among early post-natal care mothers in public hospitals of Addis Ababa, Ethiopia, 2024

Methods and Materials: An institutional-based cross-sectional study design was carried out among 360 early post-natal mothers who gave birth in selected public hospitals from February 19 to March 19, 2024. The data were coded, cleaned, and then exported from Kobo Collector application to Statistical Package for Social Science (SPSS) version 27 for analysis. Binary logistic regression was used to identify statistically significant independent variables, and dependent variables with a p-value of <0.25 was enter in to multivariable logistic regression analysis for controlling confounders. In multivariable logistic regression analysis, a p-value of <0.05 with a 95% confidence interval (CI) for the odds ratio was used to determine the significance of the association.

Result: Out of 360 mothers 41.4% had good knowledge about neonatal danger sign. Counseling about neonatal danger sign after delivery (AOR: 7.576, 95% CI: 3.174 to 18.086), awareness of neonatal danger signs (AOR: 2.812, 95% CI: 1.035 to 7.644), individuals with primary level education (AOR:3.807, 95% CI: 1.048 to 13.835), secondary level education (AOR: 4.741, 95% CI: 1.351to 16.638), college education (AOR: 7.43, 95% CI: 2.087 to 26.455), and ANC follow-up (AOR: 3.699, 95% CI: 1.113 to 12.297), were identified as significant predictors of mothers knowledge about neonatal danger sign .

Conclusion: The study reveals that counseling about neonatal danger signs after delivery, maternal awareness of these signs, and maternal education levels are significant predictors of early neonatal danger sign awareness among mothers in Addis Ababa selected public hospitals. **Recommendation**: Enhancing maternal knowledge on neonatal danger signs is crucial for early intervention and reducing neonatal mortality.

Key words: neonate, neonatal danger sign, early postnatal mothers, knowledge.

CHAPTER ONE: - INTRODUCTION

1.1. Background

The term neonatal period is determined up to the first 28 days of life, and this period is a risky time for neonates and also during this time, they start breastfeeding and bonding with their parents, and many birth or congenital defects are primarily noted, their health has a significant impact on their lives and future health (1). Many neonatal danger signs that can result in death are visible to newborns during this time, and recognizing these signs early on can help improve the chances of a newborn's survival (2).A newborn's risk of disease and death is increased when they exhibit neonatal danger signs. The World Health Organization (WHO) lists the following as indicators of a sick neonate: inability to breastfeed or poor breastfeeding quality; convulsions; rapid breathing (two counts of 60 breaths or more in a minute); high temperature (37.5°C or more); very low temperature (35.4°C or less); persistent vomiting; yellowish discoloration of eyes, palms, or sole; irritability; movement only when stimulated or no movement at all; and Other studies have indicated that a neonate should be cautious of signs of local infection, such as redness or pus draining from the umbilicus, skin boils, or pus draining from the eyes (3). The majority of neonatal deaths are caused by birth defects, infections, asphyxia (the inability to breathe at birth), and perineal complications related to the intrapartum period (4). Different studies have shown that a large number of newborn deaths linked to neonatal danger signs can be easily avoided with straightforward, good interventions given to mothers regarding their awareness of neonatal danger signs before, during, and after delivery (5, 6).

Mothers are the first to notice the smallest changes in newborns; they identify them and treat them at an early age. Mothers must be knowledgeable about neonatal danger signs to guarantee the quality of life for their newborns (7, 8). Neonates are presented at hospitals with non-specific symptoms and signs of severe illness. These signs and symptoms might appear after delivery, when the neonate present to hospital or develop during the hospital stay (9).

Newborns who experienced danger signs after delivery were two times more likely to die compared to those who never experienced any danger signs (10).

1.2 STATEMENT OF THE PROBLEM

The World Health Organization (WHO) information sheet states that 5.3 million deaths of children under five occurred worldwide in 2021, with nearly 2.4 million of those deaths occurring in the first month of life. This means that 6,400 neonatal deaths occur every day after the age of one due to mothers' failure to recognize neonatal danger signs and to seek care before the child reaches five. The estimated number of deaths per 1,000 in 2021 was 10 (11).

In 2019, there was the highest rate of neonatal mortality—27 deaths per 1,000 live births—in Sub-Saharan Africa, followed by 24 deaths per 1,000 live births in Central and Southern Asia. The likelihood of a child dying in the first month of life is ten times higher in sub-Saharan Africa or southern Asia than in a high-income country (12).

The recent report of the Ethiopian Demographic and Health Survey (EDHS) showed that there are 33 neonatal deaths for every 1000 live births, 47 deaths occur for every 1000 live births in the infant mortality rate (IMR), and 59 deaths occur for every 1000 live births in the under-five threshold; this death occurs because of early recognition on the neonatal danger sign and low health care seeking practices (13).

Mothers' knowledge of neonatal danger signs and health-seeking practices is low in resource-limited countries (14). The lack of formal links between the local community and health facilities contributes to the inadequate level of mothers' knowledge of neonatal danger signs and health-seeking practices (15). Similarly, the lack of decision-making power of mothers on maternal and neonatal healthcare utilization remains an important drawback in developing countries (16). Despite the fact Ethiopia has properly designed a strategy for the improvement of neonatal health, there is still a high burden of neonatal death. Early detection and effective management of a neonatal problem represent a key strategy to reduce neonatal mortality (17).

Maternal factors, including young maternal age, primipara, short birth intervals, maternal health complications, and not breastfeeding, and neonatal factors like preterm birth, low birth weight, multiple births, and male gender, were associated with the deaths of newborns. Besides, factors like a shortage of proper care during pregnancy, delivery, and the postpartum

period and sociodemographic factors like residence and poor socioeconomic status were also associated with neonatal death (18).

Recommendations for preventing neonatal danger signs and complications included raising the standard of care provided to newborns during their first week of life, improving the quality of care provided to mothers and newborns from the time of pregnancy to the postnatal period, and increasing the availability of high-quality services for small and ill newborns (8).

All previous studies were conducted among mothers with knowledge of neonatal danger signs, those who had < 6 months of infants, and at the EPI OPD, so it might be affected by recall bias. The mother might answer based on their experience, from birth to the data collection date. Therefore, to intervene correctly and to save the current neonate, maternal knowledge about neonatal danger signs should be known immediately after childbirth (early postnatal period). Therefore, this study aimed to evaluate mothers' knowledge of neonatal danger signs and determine the associated factors with their knowledge.

1.3 SIGNIFICANCE OF THE STUDY

The greatest gap in newborn care happens during the first week of life because of a lack of knowledge among mothers about neonatal danger signs and delayed recognition, which leads to complications and neonatal death. So this study will help by identifying gaps in maternal knowledge so that interventions can be designed to enhance awareness of neonatal danger signs. This could lead to early identification of health issues in newborns, prompt healthcare-seeking behavior, and ultimately contribute to improved neonatal health outcomes. Enhancing maternal knowledge can lead to early detection and intervention, reducing the severity of neonatal health issues and preventing complications. This, in turn, may contribute to a reduction in neonatal morbidity and mortality rates.

The study helps healthcare providers develop training and educational programs for mothers during antenatal and postnatal care counseling, and emphasizing the importance of seeking timely medical attention for neonatal danger signs. It is also important for policymakers to consider the development or modification of policies related to maternal and neonatal healthcare. Similarly, it is useful for researchers as a reference and for further investigation in the study area. Likewise, the result of the study will help mothers and families benefit directly by gaining knowledge about neonatal danger signs. This empowers them to take prompt action in case of any danger signs in the newborn, potentially leading to improved neonatal health outcomes.

Furthermore, the purpose of this study is to identify risks, enhance early detection, and inform targeted interventions, ultimately improving neonatal health outcomes and maternal care.

CHAPTER TWO: - LITERATURE REVIEW

2.1 Introduction

The aim of this literature review is to examine current mothers' knowledge regarding neonatal danger signs and related factors. It also includes sources of information about neonatal danger signs that the studies carried out in various countries, sociodemographic traits of the mother, maternal health services, and obstetric factors related to maternal knowledge of neonatal danger signs.

2.2 Knowledge of mothers about neonatal danger signs

Immediate caregiver recognition of suggestive danger signs is crucial for reducing neonatal morbidity and mortality. Understanding neonatal danger signs is essential for mothers to decide to get their sick newborn medical attention right away (5)**.**

A cross-sectional study conducted in Wenshan, a rural country in southwest China revealed that from a total number of 112 mothers, 58% of mothers had poor knowledge of neonatal danger signs. Most people were able to identify the danger signs of bluish or pale skin, chest indrawing, and convulsion, while fewer people were able to identify the danger signs of not being able to feed since birth, or stopping feeding well, excessive crying, and eyes draining pus (19).

Another study done in India Punjab, the study design on total of 550 mothers were included in the study. 550 mothers 273 (49.6%) of them had good knowledge of NDS, 68 (12.4%) had zero knowledge, and 209 (38%) had poor knowledge (20). A similar study conducted on a community-based survey in southwestern rural Uganda knowledge of neonatal danger signs respondents had a poor knowledge of newborn danger signs 58.2% could identify one and 14.8% could identify two (5). However, a research carried out in Rwanda from a total of 209 new mothers 67% of them had some information on neonatal danger signs (NDS). They mentioned the top three NDS those are; not feeding (44.0%), high body temperature (24.9%), and convulsions (22.0%) (21).

An institution-based cross-sectional study done in Kenya revealed that the prevalence of neonatal danger signs about 84.5% of mothers had a poor level of knowledge, Hotness of the

body (fever) was identified by 74.9% of postnatal mothers. Furthermore, 40.1% of mothers and 5.8% of mothers, mentioned poor feeding and lethargy or unconsciousness as newborn danger signs. On the other hand, just 11.1% and 9.7% of mothers, respectively, were aware of seizures and hypothermia (22).

Similarly, in Gurage Zone, Southern Ethiopia a study done from a total number of 618 mothers, 40.7% had good knowledge (23). Likewise, a community-based cross-sectional design study was conducted in Dire Dawa About 285 (40.8%) of mothers had good knowledge of neonatal danger signs (24).

Another study was conducted in Debre Tabor town, northwest Ethiopia, and the cluster sampling technique was used in about 36.5% of Mother's who had good knowledge of neonatal danger signs (17). Similarly, an institutional-based cross-sectional study was done among 363 postnatal mothers at public hospitals in Addis Ababa Overall, 33.1% of mothers had good knowledge about neonatal danger signs (25).

Recognition of neonatal danger signs by caregivers is crucial for reducing neonatal morbidity and mortality. Studies show varying levels of maternal knowledge, with gaps in understanding signs like poor feeding and excessive crying. Strengths include diverse geographic coverage and large sample sizes, while limitations involve inconsistent study designs and self-reported data. Key gaps are inconsistent knowledge levels, lack of detailed factor analysis, limited data on effective educational interventions, and insufficient exploration of socioeconomic and cultural influences. These findings highlight the need for standardized education programs and further research.

2.3. Factors associated with maternal knowledge towards neonatal danger sign

2.3.1. Socio-demographic characteristics of the mother

A cross-sectional study was conducted in Wenshan, a rural country in southwest China younger mothers had lower knowledge of neonatal danger signs (19). However, a study carried out in India Punjab indicated that mothers aged 18-28 years were more likely to be knowledgeable as compared to mothers who were 29-40 years old (20).

Studies carried out in Uganda about the mother's age revealed that those mothers who are less than 20 years of age had poor knowledge and between 20-24 have good knowledge (5). Similarly in Rwanda mothers who are between 27-32 had good knowledge as compared to mothers who are <20 years old (21). However, in cross-sectional descriptive studies carried out in Kenya, mothers between the ages of 18 and 35 demonstrated greater knowledge than mothers under the age of 18 (22).

Research from China, India, Kenya, and Ethiopia showed that knowledge of neonatal danger signs was significantly correlated with the marital status of the mother, compared to mothers who were widowed. Maternal education was statistically associated with awareness of neonatal danger signs (19, 20, 22).

Studies conducted in India, Ghana, Uganda, and Rwanda indicated that mothers who live in urban areas are more knowledgeable than those who live in rural areas (5, 20, 21, 26). In a related study carried out in Ethiopia's Gurage zone, the mothers who live in urban areas were 2.037 times more knowledgeable than those who live in rural areas (27). Another study done in Arsi Zone stated that mothers who live in urban areas were 5.83 times more knowledgeable than mothers who live in rural areas (28).

Focusing on educational status in Rwanda, parents' educational level was significantly associated with knowledge of NDS. The parents with secondary school and above were more than two times more knowledgeable than those who were not unable to read or write (21). Similarly, in Tigray, Mekelle studies conducted on mothers who had college and a higher educational level were 3.3 times more likely to know the defined neonatal danger signs than those who had no formal education (29).

Similarly, the study conducted in Diredawa indicated that fathers' educational level was a significant predictor of mothers' knowledge of neonatal danger signs. Those fathers whose educational level was secondary or above education were 2.3 times more likely to have good knowledge as compared to fathers who were not educated (24). Similarly, a study conducted in Debre Tabor found that mothers who had an educational level of diploma or above education had nearly three times higher odds of being knowledgeable compared to those with no formal education (17).

Similarly, the study conducted on Diredawa mothers' occupation was a factor significantly associated with mothers' knowledge of neonatal danger signs. Government employee mothers were two times more likely to have good knowledge than those who were housewives (24).

Another study showed that in West China, mothers from higher-income families knew 56% more about neonatal danger signs than mothers from lower-income families (19). However, a study carried out in Rwanda found no correlation between family income (21). Similarly, the study done in Southern Ethiopia in Bule Hora Town states that family monthly income was the factor that was significantly associated with maternal knowledge about neonatal danger signs (30).

Studies show maternal knowledge of neonatal danger signs varies with age, marital status, education, urban versus rural residence, and income. Younger mothers often have lower knowledge, except in some regions like Punjab and Kenya. Higher education and urban living are consistently linked to better awareness. Income impacts knowledge in some areas but not others. Strengths include diverse geographic coverage and multi-faceted socio-demographic analysis. Limitations are inconsistent methodologies and self-reported data. Gaps identified include the need for standardized knowledge measures and effective educational interventions across different socio-economic and cultural contexts.

2.3.2. Maternal health service and obstetric factors

A study carried out in southwest China, mothers who attended less than 4 ANC visits during pregnancy were 4.3 times more likely to have low-level knowledge of neonatal danger signs as compared to those who had attended more than 4 ANC visits (19). Similarly, a study done in India Punjab based on Mothers who attended Antenatal Care Clinics (ANC) four times or more were more likely to have good knowledge than those who had not attended ANC during their pregnancy (20).

Parents' awareness of NDS was found to be significantly correlated with the number of ANC visits, according to another descriptive cross-sectional study carried out in Rwanda.. The participants with three ANC visits were two times more knowledgeable than those with one ANC visit (21). Based on cross-sectional study carried out in Diredawa, those mothers who attended ANC for four visits or more were 4.3 times more likely to have good knowledge than

those mothers who had not attended ANC during the last pregnancy (24). Similarly, in the study done in Mekelle, mothers who had ANC follow-ups four times and above were 2.6 times more likely to be aware of neonatal danger signs as compared to those mothers who had 1 to 3 ANC follow-ups (29).

The study carried out in India and China, no correlation observed in parity (19). On the other hand, the research conducted in Uganda and Rwanda the outcomes additionally demonstrated that individuals with 2-4 parity possessed twice as much knowledge as those with a single parity (5, 21).

Another study conducted in North Wollo the result showed that the mothers who had 2-4 parity were 2.10 times more knowledgeable than those who had 1 parity (31). Similarly, in a study conducted by Diredawa and Debretabor, mother's parity was significantly associated with the mother's knowledge of neonatal danger signs (17, 24)**.** Study conduct in Southwest Ethiopia shows history of PNC attendance were significantly associated with mothers' knowledge of neonatal danger signs 2.33 (1.16-4.65)(32). Study conducted ambo revealed that mothers who had received counseling on newborn-care after delivery were almost two-times more-likely to have good knowledge than those who weren't (AOR = 1.78, CI 1.04–3.04)(33).

Studies highlight that more antenatal care (ANC) visits correlate with better maternal knowledge of neonatal danger signs. Frequent ANC visits and higher parity (2-4 children) are linked to greater awareness. Strengths include diverse regions and large samples, but limitations involve inconsistent methods and self-reported data. Gaps identified are the need for standardized knowledge measures, detailed factor analysis, and further research on effective educational interventions and counseling's role in improving maternal knowledge.

2.3.3 Source of Information about Neonatal Danger Signs

The information the mother gatheres on social media is important to developing knowledge of neonatal danger signs (NDS). A study conducted in Tigray Mekelle, there is an association between source of information and knowledge The mothers who had either TV, radio, or read magazines were 3.9 times more likely to be aware of neonatal danger signs as compared to their counterparts (29).

The parents' knowledge of NDS was found to be significantly correlated with health care professionals (HCPs) as the information source, per a study carried out in Rwanda. Information from HCP was twice as knowledgeable as information from the media (21). Conversely, according to the research that was done in Ethiopia There is also a significant correlation between having access to mass media and knowing the warning signs of newborns. Women with access to mass media were 1.69 times more aware of the warning signs for newborns than women without such access. It could be the case that mothers with media access are more likely to become aware of the warning signs of a newborn, which contributes to the formation of public opinion (34).

Studies conducted in Debre Tabor found that mothers' awareness of neonatal warning signs was positively correlated with media exposure. Mothers who were exposed to the media were 2.85 times more likely to be knowledgeable than mothers who were not (17).

Studies underscore the significance of media, including social and mass media, in enhancing maternal knowledge of neonatal danger signs (NDS). Strengths include diverse information sources analyzed, but limitations involve varying media access and reliance on self-reported data. Further research is needed to explore the content effectiveness of media in different socio-economic contexts.

2.4 Conceptual frame work

This theoretical structure discloses the relationship between independent variables (SDF, MHRF, and source of information) with the dependent variable (Knowledge of neonatal danger signs among early post-natal mothers.

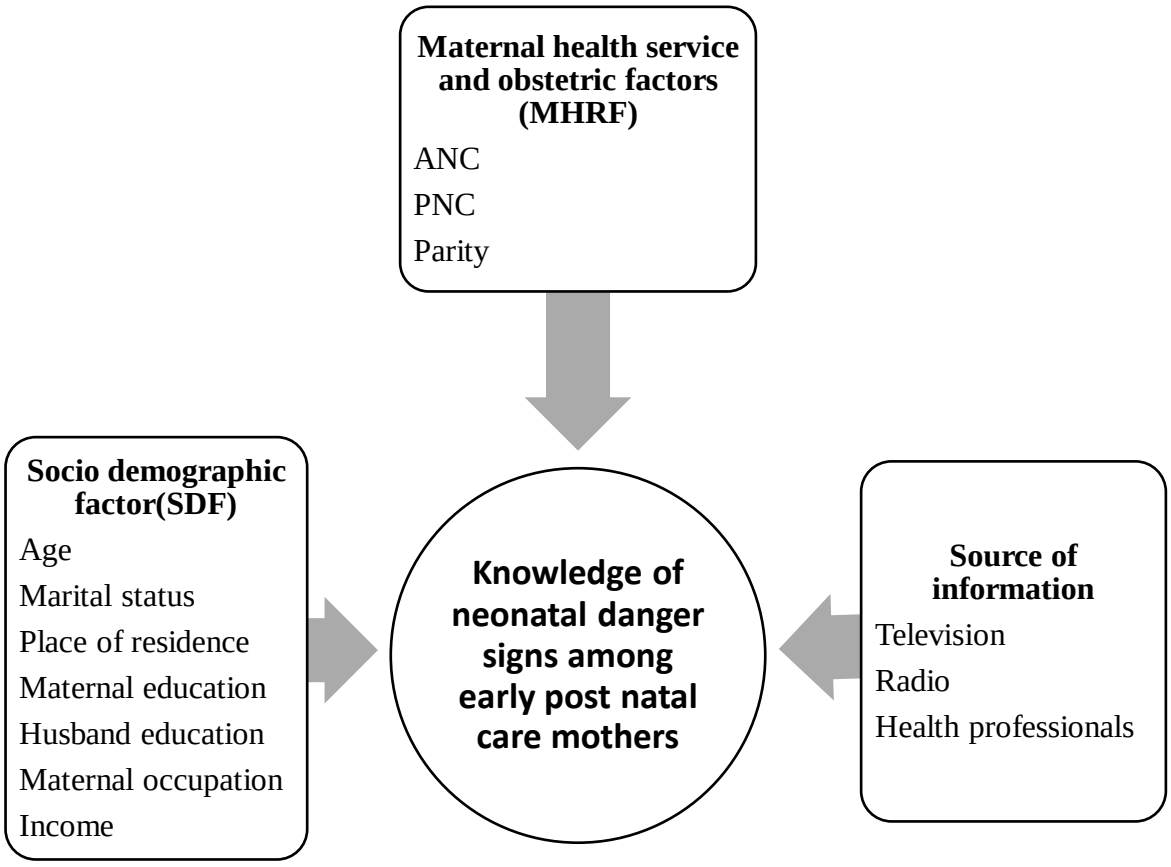

Figure 1. Conceptual framework adapted from different literatures (19),(20),(21),(29),(23),(24),(17),(25) to assess mother's knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

CHAPTER THREE: - OBJECTIVES OF THE STUDY

3.1 General objective

To assess mothers' knowledge of neonatal danger signs and associated factors among early post-natal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

3.2 Specific objectives

To determine knowledge of mothers' on neonatal danger signs among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

To identify associated factors with mothers knowledge of neonatal danger signs among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

CHAPTER FOUR:- METHOD AND MATERIALS

4.1. Study setting

The study was carried out in Addis Ababa. Addis Ababa is the capital and largest city of Ethiopia. There are 11 Sub Cities and 116 Woredas. The city has 12 hospitals run by governments 5 hospitals are operated by the Addis Ababa Health Bureau, 5 specialized hospitals, 4 by the Federal Ministry of Health, 1 by the Ministry of Education (AAU), and 2 by the Addis Ababa City Health Bureaus defense force. Among these, four hospitals were randomly selected for the study: Tikur Anbessa Specialized Hospital (TASH), St. Paul's Millennium Medical College Hospital (SPMMCH), Zewuditu Memorial Hospital, and Yekatit 12 Hospital. These hospitals served the community by offering postnatal care and other crucial maternal services, such as help with labor and delivery.

4.2. Study design and period

An institutional-based cross-sectional study was employed for this study from February 19 to March 19 2024.

4.3. Population

4.3.1. Source population

All postnatal mothers with their neonates who admitted at selected public hospitals in Addis Ababa.

4.3.2. Study population

The study population was all postnatal mothers with their neonates from date of delivery up to 7 days (early postnatal period) who admitted to selected public hospitals in Addis Ababa.

4.3.3 Study unit

Postnatal Mothers at the Postnatal Ward of the Selected Hospital

4.4 Inclusion and Exclusion Criteria

4.4.1 Inclusion Criteria

All postnatal mothers with their neonates within a period of birth up to 7 days (in the early postnatal period) and who were present in the study unit.

4.4.2. Exclusion criteria

Those mothers who are critically ill during data collection time and unable to respond.

Mothers who are past 7^{th} days after the delivery

4.5. Sample size determination

4.5.1. Sample size

The sample size for this investigation was determined by taking into account the following assumptions and using a single population proportion formula (n = (Z α/2)2 (p(1-p)/d2. A 95% confidence level, the margin of error (0.05), adding 10% to compensate for the non-response rate and the proportion of mothers knowledge of neonatal danger signs was 67.1% based on the previous studies done in Wolaita Mother's Knowledge about Neonatal Danger Signs and Associated Factors (35). Consequently, the value was replace with the following single population proportion formula:

$$n = \frac{Z\ \alpha/2^2\ P(1-P)}{d^2}$$

Where;

n= the desirable calculated sample size

Z (∝/2) =1.96 (95% confidence level for two side)

P = proportion of mothers' knowledge on neonatal danger sign (67.1%) from similar study conducted in Wolaita (35).

d = margin of error to be tolerated (5%). With a 10% non-response rate

Therefore the value of **n** will be calculated as

$$\mathbf{n = \frac{(1.96)^2 * 0.671(1-0.671)}{(0.05)^2} = 340}$$

n= 340

Finally. Add 10% non response rate, the total sample size is:

(340× 10)/100= 34

Nt = 340+34 = **374** early postnatal mothers with their neonates

4.5.2. Sampling procedure

There are 12 public hospitals in Addis Ababa thus selected by lottery method 4 hospitals with post-natal unit; TASH, Zewditu Memorial Hospital, St Paul Hospital Millennium Medical College, and Yekatit 12 Hospital were chosen. Next, using each hospital's individual prior delivery report, the entire sample size was distributed proportionately to each one. After proportionate allocation was made for each chosen public hospital, study participants were chosen through a systematic random sampling method until the required sample size was reached.

Table 1 proportional allocation of sample size of study on knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

HOSPITALS	**Twelve months case Flow**	**Average monthly case flow**	**The proportion of study Participants**
TASH	5322	443	443x374/2589 =64
SPHMMC	8987	749	749x374/2589 =108
YEKATIT12	10860	905	905x374/2589 =131
ZEWUDITU	5900	492	492 x374/2589 =71
TOTAL	31,069	2589	**374**

Proportionate to population size is calculated as ni=Ni X no/N

The schematic presentation of the sampling procedure for the study on the knowledge of neonatal danger signs and associated factors among early postnatal mothers involves a systematic and well-defined process. Initially, a list of healthcare facilities and postnatal clinics were compiled, representing diverse demographic settings.

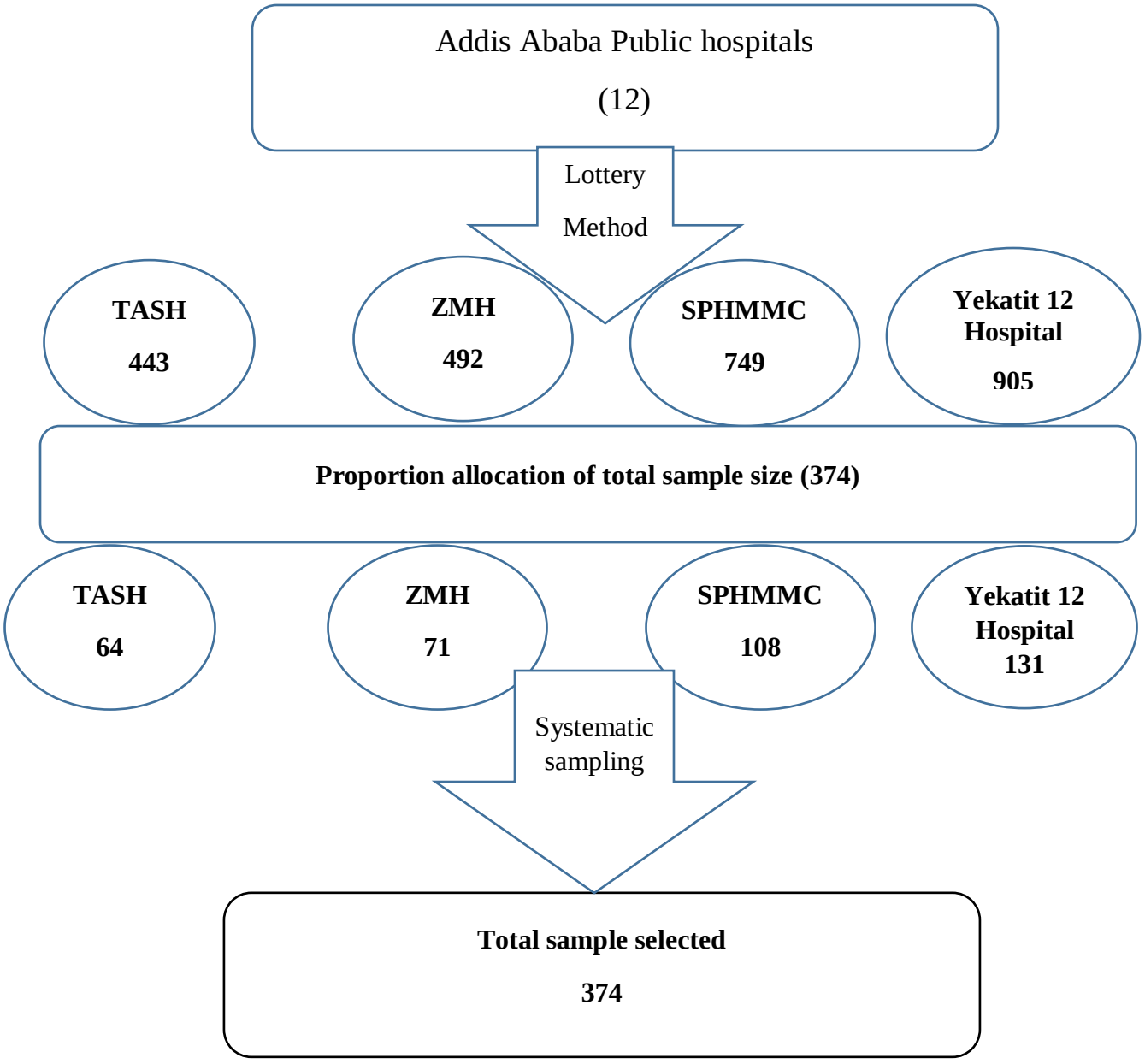

Figure 2. Schematic presentation of the sampling procedure for the study done on knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

4.6. Study variables

4.6.1. Dependent variable

Knowledge of mothers on neonatal danger sign

4.6.2. Independent variables

Socio-demographic data of participants:- age, marital status, maternal level of education, place of residence, maternal occupation, husband's educational and occupational status.

Maternal health service and obstetric factors:- antenatal care (ANC) follow up during current pregnancy, number of ANC visit, postnatal care (PNC) and parity.

Source of information: media and health professionals

4.7. Operational Definitions

Neonates: the period from birth up to 28 days of life.

Neonatal danger sign: According to the World Health Organization (WHO) neonatal danger sign occur during the first 28 days of life and represents with abnormal health condition (3).

Knowledge: was the awareness of mothers about neonatal danger signs stated by WHO which include poor/not sucking, fever, hypothermia, convulsion, fast breathing, vomiting, chest retraction/in drawing, jaundice (yellow soles, palms and sclera), lethargy, and umbilical redness or draining pus/sign of infection (36).

Good knowledge: having good knowledge was defined as the mother who scores above the mean (18).

Poor knowledge: having poor knowledge was defined as the mother who scores below the mean (18).

Early post-natal period: it starts after childbirth and is typically considered up to seven days (37).

4.8. Data collection instrument or tool

The data collection process involved the use of prepared questionnaires and interviews. The questionnaire was adopted from previous similar studies with necessary modifications to align with the specific objectives of the current research. The questions were carefully crafted to capture relevant information and insights (32). The questionnaire composed of 4 parts; Part 1: socio-demographic factors (8Q), Part 2: maternal health and obstetric factors (4Q), Part 3: knowledge of neonatal danger signs (2Q), and Part 4: source of information about neonatal danger signs related question was included (3Q).

4.9. Data collection procedure

Data were collected by using prepared questionnaire by face-to-face interviewing the mother. The data were collected by 8 BSc nurses and 2 supervisors with an online Kobo collector. The supervisor and data collectors received half a day of training regarding data collection procedures, including eligibility criteria. During the training session, the significance of the study was explained, including details about the participants, methods for approaching mothers for interviews, ways to ensure confidentiality, and the overall data collection process. Prior to data collection, the data collector explained the study's objectives to the participants. The supervisor reviewed the collected data daily to ensure it was complete.

4.10. Data quality control

Five percent of the questionnaires were pretested for consistency of the questions in non-selected facilities which is Gandhi Memorial Hospital prior to the actual data collection. Any necessary corrections were made based on the feedback of the data collectors. The questionnaire was prepared in English, then translated into Amharic, and then back to English to ensure consistency by language experts. The data collectors and supervisors were trained one day before the pre-test about the objective, tools, and process of data collection. To guarantee the quality of the data, supervisors and investigators kept closely monitoring things during the data collection period. Lastly, throughout the data management and analysis process, the investigator and supervisor reviewed all of the gathered data to ensure its consistency and completeness.

4.11. Data processing and analysis

The gathered data were checked for completeness and consistency before being coded, cleaned, recoded, and exported from kobo collector application to Statistical Package for Social Science (SPSS) version 27 for analysis. Binary logistic regression was used to identify statistically significant independent variables, and dependent variables with a p-value of <0.25 entered multivariable logistic regression analysis for controlling confounders. In multivariable logistic regression analysis, a p-value of <0.05 with a 95% confidence interval (CI) for the odds ratio was employed to assess the significance of the association.

4.12. Ethical consideration

Ethical approval was obtained from school of nursing and midwifery, Addis Ababa University Health Science College Institutional Research Ethical Review Board (IRERB). After receiving ethical clearance, a permission letter was obtained from the School of Nursing and submitted to the Addis Ababa Health Bureau. Preceding this Addis Ababa health bureau wrote a letter to respective hospitals, and then permission letters were obtained from each hospital. Since this study involved interviews, consent was secuered from the mothers of the study participants. Sensitive issues that identify and put the mothers at risk, such as name and address, were not mentioned, and all information collected throughout the study was shared with third parties. The information gathered was used only for this study, ensuring confidentiality..

4.13. Dissemination of the plan

The study results will be submitted to Addis Ababa University and presented to the Federal Ministry of Health and various other medical organizations. Distribution will also include the selected public hospitals where the research will take place. Additionally, attempts will be made to have the research published in a respectable journal

4.14. Potential limitation

This study's cross-sectional design captured data at a single point, making causation difficult to establish and changes in knowledge over time hard to determine. Participants might struggle to recall details and may respond in socially desirable ways, potentially affecting the accuracy of the information reported.

CHAPTER FIVE: RESULT

5.1. Socio-demographic characteristics

The study encompasses a comprehensive analysis of various socio demographic factors among participants, revealing intriguing insights into their diverse backgrounds and circumstances. Among the key findings, it is observed that the majority of mothers fall within the age range of 20-30 years, constituting 250 (69.4%). Marital status distribution shows that 309 (85.8%) of participants are married, with the same proportion, 309 (85.8%), currently living with their partners. Regarding residency, the majority reside in urban areas, with 280 (77.8%) living in such locations. Education levels vary, with notable percentages across different categories: 107 (29.7%) of mothers have college education or above, and similar figures are reported for their husbands. Occupationally, a diverse range is observed, including 120 (33.3%) housewives. Finally, family monthly total income reflects a spectrum of financial statuses, with 148 (41.1%) reporting an income exceeding 5000.

Table 2*:* Socio-demographic characteristics of the mother for the study done on knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024 (n=360)

Variable	Categories	Frequency	Percentage
Age of the mother	20-30	250	69.4
	>30	110	30.6
Marital status	Divorced	14	3.9
	Married	309	85.8
	Single	30	8.4
	Widowed	7	1.9
Are you currently living with your partners	Yes	309	85.8
	No	51	14.2
Place of residency	Urban	280	77.8
	Rural	80	22.2
Maternal education	No formal	59	16.4
	Primary	95	26.4
	Secondary	99	27.5
	College and above	107	29.7
Husband education	No formal	47	15.1
	Primary	65	21.0

	Secondary	82	26.5
	College and above	116	37.4
What is your occupation	Student	24	6.7
	Private employee	69	19.2
	Merchant	64	17.8
	House wife	120	33.2
	Government employee	69	19.2
	Daily laborer	14	3.9
How much is your family monthly total income	<2000	6	1.7
	2000-3000	59	16.4
	3000-5000	147	40.8
	>5000	148	41.1

5.2. Obstetrics and Maternal health service

The research explores vital aspects of maternal healthcare usage, highlighting key indicators concerning both antenatal and postnatal care. Analysis of parity distribution indicates that 207 participants (57.5%) have two or more children. In terms of antenatal care (ANC) attendance, a substantial majority of mothers, 261 (72.5%), report having attended ANC visits. Among those who received ANC, 238 (91.2%) attended four or more visits. Remarkably, immediate postnatal care (PNC) visits are widespread, with 349 participants (96.9%) accessing PNC services promptly.

Table 3: Obstetrics and Maternal health service for the study done on knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024 (n=360)

Variable	Categories	Frequency	Percentage
Parity	1	153	42.5
	2 and above	207	57.5
Have you ever had ANC follow up	Yes	261	72.5
	No	9	27.5
Number of ANC visit	3 and above	23	8.8

	4 and above	238	91.2
Did you have immediate PNC visit	Yes	349	96.9
	No	11	3.1

5.3 Source of information about neonatal danger sign

The study explores the awareness and education surrounding neonatal danger signs among participants, offering valuable insights into maternal knowledge and information sources. The findings reveal that 206 participants (57.2%) are aware of neonatal danger signs. Among those who have acquired this knowledge, health professionals emerge as the predominant source, comprising 180 responses (50%). Concerning post-delivery education, 196 individuals (54.4%) report receiving information about neonatal danger signs.These findings underscore the need for targeted interventions to improve awareness and education about neonatal health issues among mothers, potentially through increased engagement with healthcare professionals and tailored media campaigns.

Table 4: Source of information about neonatal danger sign for the study done on knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024 (n=360)

Variable	**Categories**	**Frequency**	**Percentage**
Have you ever heard about neonatal danger sign	Yes	206	57.2
	No	154	42.8
From which source did you get the information	Health prof	180	81.1
	Media	42	18.9
Did you get the education about neonatal danger sign after delivery	Yes	196	54.4
	No	164	45.6

5.3. Knowledge of neonatal danger sign

The study investigates maternal awareness regarding neonatal danger signs, providing insights into the recognition of critical indicators for infant health. Among participants, 223 (61.9%) report knowledge of neonatal danger signs. The findings show that 211 (58.6%) of participants had poor knowledge, while 149 (41.4%) had good knowledge of neonatal danger signs. Analysis of specific danger signs reveals varying levels of awareness: the most commonly known sign was high or low body temperature, recognized by 203 (56.4%). Additionally, 178 (49.4%) acknowledge persistent vomiting as a danger sign, 167 (46.4%) recognize yellowish discoloration of the eye, palm, and sole, 115 (31.9%) identify skin rash, and 111 (30.8%) note the inability to breastfeed or poor feeding.

Table 5: Mother's knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024 (n=360)

Variable	Categories	Frequency	Percentage
Do you know about neonatal danger sign	Yes	223	61.9
	No	137	38.1
Difficulty of breathing	Yes	103	28.6
	No	257	71.4
Unable to breast feeding or poor feeding	Yes	111	30.8
	No	249	69.2
Persistent vomiting	Yes	178	49.4
	No	182	50.6
High or low body temperature	Yes	203	56.4
	No	157	43.6
Lethargy or unconsciousness	Yes	52	14.4
	No	308	85.6
Convulsion	Yes	65	18.1
	No	295	81.9
Umbilical infection	Yes	92	25.6
	No	268	74.4
Yellowish discoloration of eye, palm and sole	Yes	167	46.4
	No	193	53.6
Puss, discharge or redness of the eye	Yes	72	20
	No	288	80
Skin rash	Yes	115	31.9
	No	245	68.1

The study found that among mothers in 58.6% had poor knowledge of neonatal danger signs, while 41.4% had good knowledge.

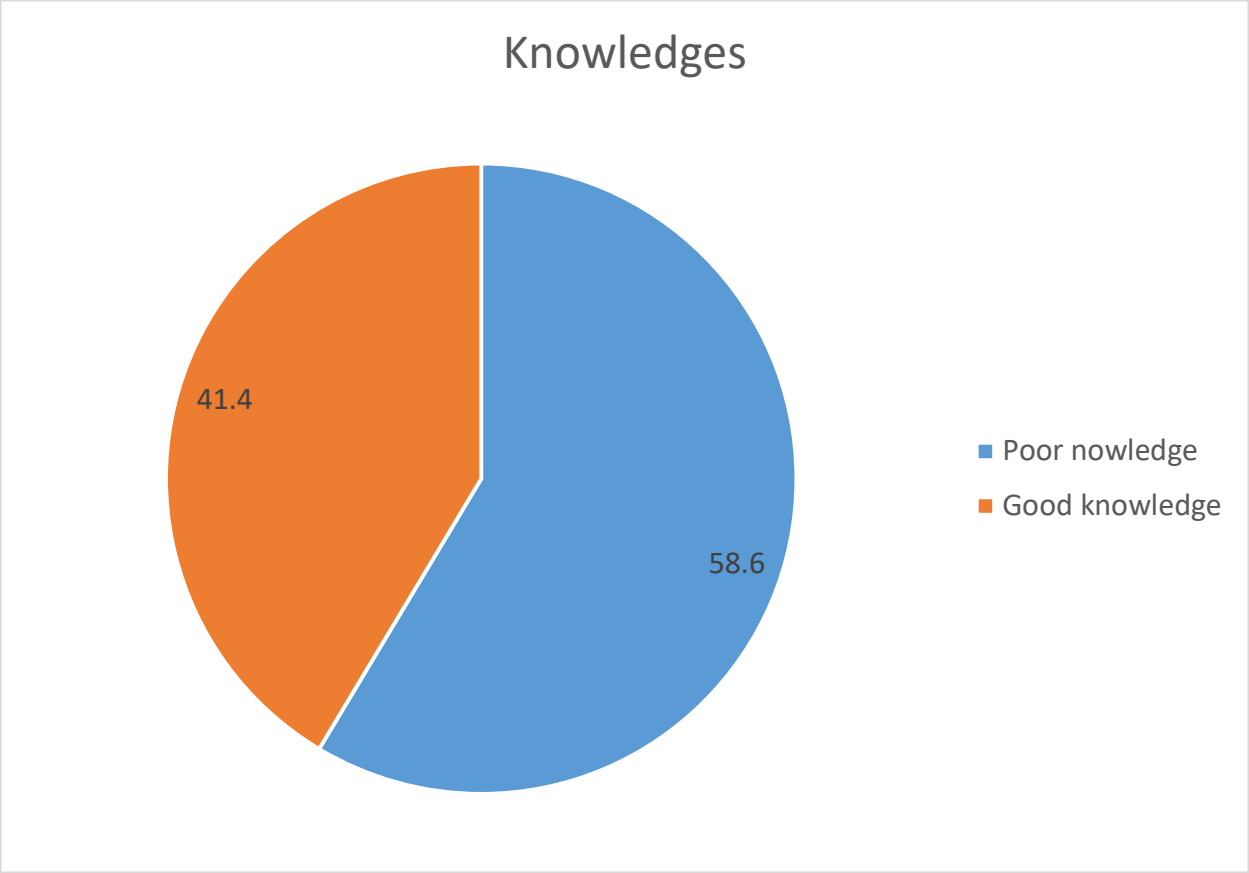

Figure 3: Mother's knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024

5.4. Factors associated with neonatal danger sign

Bivariate analysis was conducted to investigate factors associated with knowledge of neonatal danger sign. Significant associations were observed in the crude bivariable analysis with factors such as age of the mother, residence, maternal education status, husband educational status, ANC follow up, heard about neonatal danger sign and education neonatal danger sign after delivery.

In the subsequent multivariate analysis, variables with a p-value < 0.25 in the bivariate analysis were included. Among the identified variables, it was found that maternal education status, ANC follow up, education neonatal danger sign after delivery and heard about neonatal danger sign were significantly associated.

Counseling about neonatal danger signs after delivery emerged as a strong predictor, with individuals who received this education with the value of (AOR = 7.576, 95% CI: 3.174 to 18.086). Similarly, awareness of neonatal danger signs was significantly associated with the outcome, with those who had heard about these signs have the outcome of (AOR = 2.812, 95% CI: 1.035 to 7.644). Maternal education also played a significant role. Higher levels of maternal education were associated with increased odds of the outcome. Specifically, individuals with primary level education had (AOR = 3.807, 95% CI: 1.048 to 13.835), secondary level education had higher odds (AOR = 4.741, 95% CI: 1.351 to 16.638), and those with college education had higher odds (AOR = 7.43, 95% CI: 2.087 to 26.455) compared to the group with no formal education.

Mothers who reported having ANC follow-up had higher odds of experiencing the outcome (AOR = 3.699, 95% CI: 1.113 to 12.297). These findings underscore the importance of ANC follow-up and awareness of neonatal danger signs in influencing the outcome variable.

Table 6: Bivariable and Multivariable analysis of factors associated mother's knowledge of neonatal danger signs and associated factors among early postnatal mothers in selected public hospitals of Addis Ababa, Ethiopia, 2024 (n=360)

Variable	Category	Knowledge of NDs		COR (95%CI)	AOR (95%CI)
		Good ,n	Poor, n		
Age of the mother	20-30	94	156	1	
	>30	55	55	1.66(1.055, 2.61)	1.296(0.66, 2.546)
Residence	Urban	141	139	1	
	Rural	8	72	9.129(4.239,19.66)	.492(.134, 1.805)
Maternal education status	No formal education	5	54	1	
	Primary	24	71	3.651(1.308, 10.19)	3.807(1.048, 13.835) *
	Secondary level	52	47	11.949(4.407, 32.4)	4.741(1.351, 16.638) *
	College level	68	39	18.83(6.947,51.5)	7.43(2.087, 26.455) **
Husband educational status	No formal education	5	42	1	
	Primary	12	53		1.534(0.352,6.688)
	Secondary level	44	38	9.726(3.494,27.8)	2.806(0.71,11.086)
	College level	67	49	11.486(4.235,31.151)	1.651(0.443,6.153)
ANC follow up	Yes	143	118	18.784(7.842,44.425)	3.699(1,113,12.297) *
	No	6	93	1	
Heard about neonatal danger sign	Yes	137	69	23.485(12.187,46.266)	2.812(1.035,7.644) *
	No	12	142	1	
Education neonatal danger sign after delivery.	Yes	134	62	21.469(11.661,39.525)	7.576(3.174,18.086) ***
	No	15	149	1	

1: Reference category, COR: Crude odd ratio, AOR: Adjusted odd ratio, CI: Confidence interval. * P < 0.05, ** P < 0.01, *** P < 0.001

CHAPTER SIX: DISCUSSION

This study indicates that 58.6% of participants had poor knowledge of neonatal danger signs, while 41.4% demonstrated good knowledge. In comparison, a study in Punjab, India, showed a higher percentage of mothers with good knowledge (49.6%), suggesting potentially better awareness levels in that region (20). Conversely, a study in Addis Ababa, Ethiopia, reported a lower percentage of mothers with good knowledge (33.1%), indicating a significant gap in awareness compared to this findings (25). These disparities highlight the variability in maternal knowledge of neonatal danger signs across different regions and underscore the need for tailored interventions to improve awareness and ultimately enhance neonatal health outcomes.

The findings from this study underscore the significant influence of maternal education on knowledge of neonatal danger signs individuals with primary education displayed 3.807 times higher odds ($p = 0.042$, 95% CI: 1.048 to 13.835) of awareness regarding neonatal danger signs compared to those with no formal education. Similarly, those with secondary education exhibited 4.741 times higher odds ($p = 0.015$, 95% CI: 1.351 to 16.638), and individuals with college education displayed 7.43 times higher odds ($p = 0.002$, 95% CI: 2.087 to 26.455) of awareness of the reference group.

These findings resonate with previous research outcomes. For instance, in Rwanda, parents with secondary school education and above exhibited over two times higher odds of knowledge compared to those who were unable to read or write. Similarly, in Mekelle, Tigray mothers with college education or higher were significantly more likely to be aware of neonatal danger signs compared to those with no formal education (29) . Additionally, studies conducted in Diredawa and Debre Tabor revealed that fathers' educational levels were significant predictors of mothers' knowledge of neonatal danger signs, with those having secondary education or above showing 2.3 times higher odds of knowledge compared to those who were not educated (17, 24).

These consistent findings underscore the universal importance of education in shaping maternal awareness and knowledge of neonatal health risks. Higher levels of parental education, particularly secondary and above, appear to be associated with increased odds of

maternal awareness across diverse cultural and socioeconomic contexts. This highlights the need for targeted interventions aimed at enhancing educational access and attainment among expectant mothers and their partners, especially in resource-constrained settings.

The study reveals a significant association between ANC follow-up and the outcome variable, indicating that mothers who engaged in ANC follow-up had 3.699 times higher odds (95% CI: 1.113 to 12.297) of experiencing the outcome has gap to those who did not participate in ANC follow-up. This underscores the importance of ANC attendance in influencing maternal and neonatal health outcomes, suggesting that regular prenatal care may contribute to improved health outcomes for both mothers and babies.

Similarly, findings from other studies support the notion that ANC attendance is crucial for maternal awareness of neonatal danger signs. A study conducted in southwest China demonstrated that mothers with fewer than four ANC visits during pregnancy were 4.3 times more likely to have low-level knowledge of neonatal danger signs compared to those with more frequent ANC visits (19).

Moreover, research conducted in India and Rwanda further emphasizes the positive correlation between ANC attendance and parental knowledge of neonatal danger signs(20, 21). Mothers attending ANC clinics four times or more consistently demonstrated better knowledge of neonatal danger signs compared to those with fewer ANC visits or no ANC attendance. These findings underscore the role of ANC visits not only in maternal health monitoring but also in providing essential health education to expectant mothers, empowering them to identify and address potential neonatal health issues effectively. Overall, the collective evidence suggests that ANC plays a pivotal role in promoting maternal and neonatal health awareness, thereby contributing to improved health outcomes for both mothers and newborns.

This study revealed that, education about neonatal danger signs after delivery emerged as a significant predictor, with individuals who received this education being 7.576 times more likely to experience the outcome of other studies to those who did not ($p < 0.001$, 95% CI: 3.174 to 18.086).

Similarly, another study conducted in Southwest Ethiopia found that a history of postnatal care (PNC) attendance was significantly associated with mothers' knowledge of neonatal danger signs, with an adjusted odds ratio of 2.33 (95% CI: 1.16-4.65) (32). This suggests that receiving postnatal care services may play a crucial role in enhancing maternal awareness of neonatal health indicators, thereby contributing to improved neonatal care practices. Additionally, a study conducted in Ambo revealed that mothers who received counseling on newborn care after delivery were almost two times more likely to have good knowledge compared to those who did not receive such counseling (AOR = 1.78, 95% CI: 1.04–3.04) (33). These findings collectively emphasize the importance of postnatal education and care interventions in promoting maternal understanding and management of neonatal health issues.

This study, revealed that a significant association between awareness of neonatal danger signs and the outcome, indicating that individuals informed about these signs were 2.812 times more likely to experience the outcome. This underscores the critical role of disseminating information on neonatal health indicators to expectant mothers, potentially empowering them to recognize and respond to neonatal health issues effectively. Similarly, other studies support the notion that various information sources contribute to parental knowledge of neonatal danger signs. For instance, research from Tigray Mekelle showed that mothers exposed to TV, radio, or magazines were nearly four times more likely to be aware of neonatal danger signs compared to those without access to such media platforms (29). Moreover, findings from Rwanda highlighted the influential role of healthcare professionals in educating parents about neonatal health, indicating that information obtained from healthcare providers led to greater parental knowledge compared to information from media sources (22). These collective findings underscore the importance of diverse information dissemination strategies in promoting maternal awareness of neonatal danger signs and enhancing neonatal care practices.

CHAPTER SEVEN: STRENGTH AND LIMITATION OF THE STUDY

7.1 Strength

The research comprehensively evaluates mothers' knowledge of early neonatal danger signs, offering insights into crucial aspects of neonatal care and potentially informing targeted interventions to improve maternal awareness and healthcare-seeking behavior.

7.2 Limitations

Excluding private hospitals may restrict the generalizability of the findings to the broader population of mothers in Addis Ababa, as those utilizing private healthcare facilities may have different socio-economic backgrounds or healthcare-seeking behaviors.

CHAPTER EIGHT: CONCLUSION AND RECOMMENDATION

8.1 Conclusion

The study reveals that out of 360 mothers 41.4% had good knowledge about neonatal danger sign. Counseling about neonatal danger signs after delivery, maternal awareness of these signs, and maternal education levels are significant predictors of early neonatal danger sign awareness among mothers in Addis Ababa public hospitals. Specifically, receiving counseling post-delivery significantly increases the likelihood of mothers being aware of neonatal danger signs. Furthermore, higher maternal education levels correlate with increased odds of awareness. Additionally, mothers who reported attending ANC follow-up had significantly higher odds of being aware of neonatal danger signs. These findings highlight the crucial role of education and ANC follow-up in enhancing maternal knowledge and promoting better neonatal health outcomes.

8.2 Recommendation

Based on the results the following recommendations are forwarded:-

To health care provideres:

The healthcare providers in public hospitals prioritize counseling sessions on neonatal danger signs during antenatal and postnatal care visits. This can help improve mothers' awareness and knowledge of these signs, ultimately leading to better maternal and neonatal health outcomes. It's essential to seamlessly integrate education about neonatal danger signs into routine care visits, both during pregnancy and after childbirth. By incorporating this education into standard care practices, healthcare providers can ensure that mothers receive consistent and timely information, increasing their awareness and preparedness to respond to potential neonatal health issues.

To policymakers and program planners:

The Policymakers should develop and implement policies that support the seamless integration of neonatal danger sign education into existing healthcare systems. This includes motivate healthcare providers to prioritize maternal education during antenatal and postnatal care visits and mandating the inclusion of specific educational modules in healthcare training curricula.

To the studied institute:

To enhance early postnatal mothers' knowledge of neonatal danger signs, the institution should strengthen ANC follow-up with comprehensive counseling and structured educational sessions, provide targeted postnatal education using visual aids, and conduct community outreach through health workers. Emphasizing maternal education with diverse resources, integrating education into existing health services, and offering continuous training for healthcare providers will improve awareness and support. Monitoring and evaluating these initiatives will ensure effectiveness and improve neonatal health outcomes.

To researchers:

Researchers should conduct comprehensive studies using diverse methodologies to understand factors influencing maternal knowledge of neonatal danger signs. Longitudinal studies and collaboration with healthcare professionals can enhance the effectiveness of educational interventions and improve neonatal health outcomes

REFERENCES

1. Masaoud A, Hussein AA, Ahmad ER. Factors associated with neonatal danger signs among high risk mothers during perinatal period. Journal of Nursing Education and Practice. 2019;9(4).
2. Wardlaw T, You D, Hug L, Amouzou A, Newby H. UNICEF Report: enormous progress in child survival but greater focus on newborns urgently needed. Reproductive health. 2014;11(1):1-4.
3. Abu-Shaheen A, AlFayyad I, Riaz M, Nofal A, AlMatary A, Khan A, et al. Mothers' and caregivers' knowledge and experience of neonatal danger signs: a cross-sectional survey in Saudi Arabia. BioMed research international. 2019;2019.
4. Seid SS, Ibro SA, Ahmed AA, Olani Akuma A, Reta EY, Haso TK, et al. Causes and factors associated with neonatal mortality in neonatal intensive care unit (NICU) of Jimma University medical center, Jimma, south West Ethiopia. Pediatric health, medicine and therapeutics. 2019:39-48.
5. Sandberg J, Odberg Pettersson K, Asp G, Kabakyenga J, Agardh A. Inadequate knowledge of neonatal danger signs among recently delivered women in southwestern rural Uganda: a community survey. PLoS One. 2014;9(5):e97253.
6. Saaka M, Iddrisu M. Patterns and determinants of essential newborn care practices in rural areas of northern Ghana. International Journal of Population Research. 2014;2014.
7. Upadhyay RP, Rai SK, Krishnan A. Using three delays model to understand the social factors responsible for neonatal deaths in rural Haryana, India. Journal of tropical pediatrics. 2013;59(2):100-5.
8. Organization WH. Newborns: reducing mortality, 2018. Retrieved2020 Mar 11from https://www who int/news-room/fact-sheets/detail/newborns-reducing-mortality. 2018.
9. Mersha A, Assefa N, Teji K, Bante A, Shibiru S. Mother's level of knowledge on neonatal danger signs and its predictors in Chencha District, Southern Ethiopia. Am J Nurs Sci. 2017;6(5):426.
10. Kananura RM, Tetui M, Mutebi A, Bua JN, Waiswa P, Kiwanuka SN, et al. The neonatal mortality and its determinants in rural communities of Eastern Uganda. Reproductive health. 2016;13:1-9.
11. UNICEF D. United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). Monit Situation Children Women. 2019;386:2276-86.
12. <11 22 NICU training manual .pdf>.
13. Institute EPH, ICF. Ethiopia mini demographic and health survey 2019: key indicators. Rockville, Maryland, USA. 2019.
14. Herbert H, Lee A, Chandran A, Rudan I, Baqui A. Care Seeking for Neonatal Illness in Low-and Middle-Income Countries: A Systematic. 2012.
15. Nsibande D, Doherty T, Ijumba P, Tomlinson M, Jackson D, Sanders D, et al. Assessment of the uptake of neonatal and young infant referrals by community health workers to public health facilities in an urban informal settlement, KwaZulu-Natal, South Africa. BMC health services research. 2013;13:1-8.
16. Chou D, Daelmans B, Jolivet RR, Kinney M, Say L. Ending preventable maternal and newborn mortality and stillbirths. Bmj. 2015;351.

17. Kebede AA, Cherkos EA, Taye EB. Mother's knowledge of neonatal danger signs and health-seeking practices and associated factors in debretabor, Northwest Ethiopia: a community-based cross-sectional study. Research and Reports in Neonatology. 2020:47-58.
18. Degefa N, Diriba K, Girma T, Kebede A, Senbeto A, Eshetu E, et al. Knowledge about neonatal danger signs and associated factors among mothers attending immunization clinic at Arba Minch General Hospital, Southern Ethiopia: a cross-sectional study. BioMed Research International. 2019;2019.
19. Zhou J, Hua W, Zheng Q, Cai Q, Zhang X, Jiang L. Knowledge about neonatal danger signs and associated factors among mothers of children aged 0–12 months in a rural county, Southwest of China: a cross-sectional study. BMC Pregnancy and Childbirth. 2022;22(1):346.
20. SINGH B, CHAWLA G, KAUR M, SINGH J, SINGH J, BHARDWAR V. Knowledge about Danger Signs in Neonates and Health Seeking Behaviour amongst Mothers Attending Tertiary Healthcare Centre in Punjab, India. Journal of Clinical & Diagnostic Research. 2021;15(11).
21. Mujawimana P, Uwingabire F, Kankindi F, Dusabe R, Meharry P. Parents' knowledge of neonatal danger signs and associated factors at health centers in Kigali, Rwanda. Rwanda Journal of Medicine and Health Sciences. 2020;3(2):128-38.
22. Kibaru EG, Otara AM. Knowledge of neonatal danger signs among mothers attending well baby clinic in Nakuru Central District, Kenya: cross sectional descriptive study. BMC research notes. 2016;9:1-8.
23. Shitu S, Abebe H, Adane D, Wassie A, Mose A, Yeshaneh A. Knowledge of neonatal danger signs and associated factors among husbands of mothers who gave birth in the last 6 months in Gurage Zone, Southern Ethiopia, 2020: a community-based cross-sectional study. BMJ open. 2021;11(8):e045930.
24. Guta A, Sema A, Amsalu B, Sintayehu Y. Knowledge of neonatal danger signs and associated factors among mothers of< 6 Months old child in Dire Dawa, Ethiopia: a community based cross-sectional study. International Journal of Women's Health. 2020:539-48.
25. Ayele WE, Bante A, Wubie AB, Murugan R, Tesfaye T, Tesema GW. Knowledge on neonatal danger signs and associated factors among post natal mothers in public hospitals of Addis Ababa, Ethiopia, 2019. A cross–sectional study. 2022.
26. Okawa S, Ansah EK, Nanishi K, Enuameh Y, Shibanuma A, Kikuchi K, et al. High incidence of neonatal danger signs and its implications for postnatal care in Ghana: A cross-sectional study. PLoS One. 2015;10(6):e0130712.
27. Anmut W, Fekecha B, Demeke T. Mother's knowledge and practice about neonatal danger signs and associated factors in Wolkite Town, Gurage Zone, SNNPR, Ethiopia, 2017. J Biomed Sci. 2017;6(4):33.
28. Getachew T, Assebe T, Dheresa M, Eyeberu A, Gereziher T. Knowledge of Neonatal Danger Signs and Associated Factors Among Mothers Who Gave Birth in the Past Six Months in Chole District, Arsi Zone, South East Ethiopia: Cross sectional Study. 2020.
29. Adem N, Berhe KK, Tesfay Y. Awareness and associated factors towards neonatal danger signs among mothers attending public health institutions of Mekelle City, Tigray, Ethiopia, 2015. J Child Adolesc Behav. 2017;5(06):365.
30. Shinde S, Haro A, Panari H, Madhale M, Parabathina R. Assessment of knowledge about danger signs of neonatal illness and its associated factor among mothers who had

children less than one year in Bule Hora town, southern Ethiopia: a cross-sectional study. PAMJ-One Health. 2022;7(12).
31. Yitayew YA, Tadele AS, Yalew ZM, Mamuye SA, Jember DA. Knowledge of neonatal danger signs and associated factors among mothers attending pediatric immunization clinics in Gidan District Health Centers, North Wollo, Ethiopia. Heliyon. 2021;7(7).
32. Yosef T, Nigussie T, Asefa A. Knowledge of neonatal danger signs and its associated factors among mothers attending child vaccination centers at Sheko District in Southwest Ethiopia. International journal of pediatrics. 2020;2020.
33. Bulto GA, Fekene DB, Moti BE, Demissie GA, Daka KB. Knowledge of neonatal danger signs, care seeking practice and associated factors among postpartum mothers at public health facilities in Ambo town, Central Ethiopia. BMC research notes. 2019;12:1-7.
34. Demis A, Gedefaw G, Wondmieneh A, Getie A, Alemnew B. Women's knowledge towards neonatal danger signs and its associated factors in Ethiopia: a systematic review and meta-analysis. BMC pediatrics. 2020;20(1):1-13.
35. Molalegn M, Yohannes F. Assessment of mother's knowledge about neonatal danger sign and associated factors in Sodo town, Wolaita Zone, Southern Ethiopia. J Prev med. 2021;6(3):80.
36. Talukder A, Sathi NJ, Islam MA, Islam SMS, Haq I. Prevalence and Factors Associated with under-5 Mortality in Nigeria: Evidence from 2018 Nigeria Demographic and Health Survey. Dr Sulaiman Al Habib Medical Journal. 2021;3(4):154-61.
37. Finlayson K, Crossland N, Bonet M, Downe S. What matters to women in the postnatal period: A meta-synthesis of qualitative studies. PloS one. 2020;15(4):e0231415.

ANNEXES

Appendix A. Information Sheet

Date _____

My name is _____ Currently I am a graduate student at Addis Ababa University, College of Health Sciences, School of Nursing and Midwifery. And now I am conducting a study to assess knowledge of neonatal danger sign and associated factors among early postnatal mothers in public hoapital of Addis Ababa Ethiopia 2024

Title of the Research Project: knowledge of neonatal danger sign and associated factors among early postnatal mothers in public hoapitals of Addis Ababa Ethiopia 2024

Name of Investigator: Yordanos Bogale (Bsc)

Name of the Organization: Addis Ababa University

Name of the Sponsor: Addis Ababa University

Introduction: This information sheet is prepared for Tikur Anbesa Specialized Hospital, Zewditu Memorial Hospital , St Paul's Millenium Medical College, And Yekatit 12 Hospitals. The aim of the form is to make the above-concerned office clear about the purpose of research, data collection procedures and get permission to conduct the research.

Purpose of the Research Project: To assess knowledge of neonatal danger sign and associated factors among early postnatal mothers

Procedure: In order to achieve the above objective, information which is necessary for the study will be taken from the participant.

Risk and /or Discomfort: Since the study involved collecting information from participants, it was important to consider their comfort, especially regarding time spent participating. Therefore, data were collected only from willing mothers. No names or any other identifying information were recorded on the questionnaire. The information retrieved was used solely for the purpose of the study.

Benefits: The research did not offer direct benefits to participants, but participation likely aided in assessing knowledge on neonatal danger signs and associated factors. This, in turn, could help improve the quality of life and healthcare service delivery for neonates with severe illnesses. Additionally, the study helped mothers identify neonatal danger signs and encouraged immediate healthcare-seeking behavior by increasing their knowledge. Furthermore, the findings were important for policymakers concerning neonatal danger signs.

Confidentiality: The information collected from participants in this study was kept confidential, and all records and other information obtained were strictly maintained as confidential. All data collection tools were identified by number or otherwise coded to protect any information that could be used to identify neonates, with no names attached to them.

Person to contact: This research project was reviewed and approved by the institutional review board of Addis Ababa University, Tikur Anbesa Specialized Hospital. If you have any question you can contact any of the following individuals (Investigator and Advisors) and any time.

Investigator: Yordanos Bogale (Bsc)

Email: yordanosbogale@gmail.com

Tel: 0922494068

Appendix B: Consent form for the mother

I am giving my consent to participate in the study.I have been informed that the purpose of the study. I have also understood that participating in this study is entirely voluntarily. I have been told that the answers to the questions will not be given to anyone else. I have also been informed that my participation or non-participation or my refusal to answer questions will have no effect on me. If respondent does not agree to be interviewed, let them thanks and go to the next respondent. If respondent say "YES" continues.

1. Name of interviewer_____ Signature_____ date_____/_____/____

Appendix C: English version Questionnaire

Addis Ababa University, College of Health Sciences, School of Nursing and Midwifery

A questionnaire to determine sociodemographic characteristics, obstetrics and maternal health services, source of information about neonatal danger signs and knowledge about neonatal danger sign associated with neonatal danger sign among early postnatal mothers in selected public hospitals of Addis Ababa

Questionnaire code number_____

Name of the hospital_____

Part I: Socio-demographic Characteristics

S.No	**Question**	**Response**	**Skip**
101.	Age of the mother	---------years	
102.	Marital status	1. Married 2. Single 3. Divorced 4. Widowed	
103.	Are you currently living with your partner?	1. Yes 2. No	
104.	Place of residence?	1. Urban 2. Rural	
105.	What is your educational status?	1. No formal education 2. Primary 3. Secondary 4. College and above	
106.	What is your husband's educational status?	1. No formal education 2. Primary 3. Secondary 4. College and above	
107.	What is your occupation?	1. Student 2. House wife 3. Daily laborer 4. Merchant	

		5. Government employee 6. Private employee 7. Other specify_____	
108.	How much is your family's monthly total income?	1. < 2000 2. 2000-3000 3. 3000-5000 4. >5000	

Part 2:- obstetrics and maternal health services

S.No	Question	Response	Skip
201	Parity	1. 1 2. 2 and above	
202.	Have you ever had an ANC follow up?	1. Yes 2. No	If 'No' skip to Q202
203.	How many ANC follow up did you had?	1. 3 and below 2. 4 and above	
204.	Did you have immediate postnatal care visit?	1. Yes 2. No	

Part 3:- source of information about neonatal danger signs

S.No	Question	Response	Skip
301.	Have you ever heard about neonatal danger signs?	1. Yes 2. No	If 'No' skip to Q302
302.	From which source did you get the information?	1. Health professionals 2. Media 3. Other _____	
303.	Did you get the education about neonatal danger signs after delivery?	1. Yes 2. No	

Part 4:- knowledge about neonatal danger sign

S.No	Question	Response	Skip
401	Do you know about neonatal danger signs?	1. Yes 2. No	If "No" skip Q402
402.	Can you mention neonatal danger signs?	1. Difficult/ fast breathing 2. Unable to breast feeding or poor feeding 3. Persistent vomiting 4. High or low temperature 5. Lethargy or unconsciousness 6. Convulsion 7. Umblical infection/ such as redness of the cord 8. Yellowish discoloration of eyes, palms or sole 9. Pus discharge or redness of the eye 10. Skin rashes 11. Others_____	

አባሪ አራት፡ የመረጃ ቅጥያዎች

ቀን _____

እኔ.....የተባልኩ አሁን ላይ በአዲስ አበባ ዩኒቨርስቲ ፣በጤናሳይንስ ኮሌጅ፤በነርሲንግና በሚድዋይፈሪ ት/ት ክፍል የማስተርስ ተማሪ በሆነችው በዮርዳኖስ ቦጋለ አማካኝነት በሚከናወነው ጥናትና ምርምር ላይ መረጃ ሰብሳቢ ሆኜ እይሰራሁ እገኛለሁ። በአሁኑ ሰአት በ አዲስ አበባ በሚገኙ የመንግስት ሆስፒታሎች በቅድመ ድህረ ወሊድ እናቶች ላይ ያለውን የጨቅላ ህፃናት አደገኛ የህመም ምልክቶች እና ተያያዥ ጉዳዮች ያለውን የ እናቶችን እውቀት ለመገምገም ጥናት እያደረግሁ ነው።

የጥናቱ ርዕስ ፡- በጨቅላ ህጻናት ላይ የሚከሰቱ አደገኛ የህመም ምልክቶችን በተመለከተ በ ቅድመ ድህረ ወሊዲ ሰአት ያሉ እናቶችን እውቀት እና በእውቀታቸው ላይ በቀጥታም ሆነ በተዘዋዋሪ ተፅዕኖ የሚያመጡ ተየያዥ ነገሮችን የሚዳሰሰ ጥናት ነው ። ጥናቱ በአዲስ አበባ የመንግት ሆስታሎች ውሰጥ በ2024 ዓ.ም ይካሄዳል።

የተቋሙ ስም፡- በአዲስ አበባ ዩኒቨርስቲ ፣በጤናሳይንስ ኮሌጅ፤በነርሲንግና በሚድዋይፈሪ ት/ት ክፍል

የድጋፍ ሰጪ ተቋም ስም፡- አዲስ አበባ ዩኒቨርሲቲ

መግቢያ፡- ይህ የመረጃ ወረቀት የተዘጋጀው ለጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል፡ ለዘውዲቱ መታሰቢያ ሆስፒታል፤ ለቅዱስ ጳውሎስ ሚሊኒየም ሜዲካል ኮሌጅ እና ለየካቲት 12 ሆስፒታሎች ነው። የቅጹ ዐላማ ከላይ የተመለከተውን ጽህፈት ቤት ስለ የምርምር ዓላማ ፡ የመረጃ አሰባሰብ ሂደቶች እና ጥናቱን ለማካሄድ ፈቃድ ማግኘት ነው።

የጥናቱ ዓላማ፡ ይህ ጥናት የእናቶች እውቀት በጨቅላ ህጻናት ላይ የሚከሰቱ አደገኛ የህመም ምልክቶችን በተመለከተ እና ከእናቶች እውቀት ጋር የሚዛመዱ እና ለእውቀታቸው ማነስም ሆነ መጨመር ምክንያት የሆኑ ጠቃሚ ነገሮችን ለማዎቅ ይረዳል

አካሄድ፡- ከላይ ያለውን ዓላማ ለማሳካት ለጥናቱ አስፈላጊ የሆኑ መረጃዎችን ከጨቅላ ህፃናት እናቶች ይወሰዳሉ።

ጉዳት/ስጋት፡-ጥናቱ የሚካሄደው ከተሳታፊዎች አስፈላጊውን መረጃ በመውሰድ ነው። ነገር ግን ተሳታፊዎች ጊዜዎትን እንደምንሻማዎት ሊሰማዎት ይችላል። ስለዚህ መረጃውን የሚሰበሰበው ከፈቃደኛ እናት ብቻ ነው። ስም ወይም ሌላ መረጃ በመጠይቁ ላይ አይመዘገብም። የተገኘው መረጃ ለጥናት ዓላማ ብቻ ጥቅም ላይ ይውላል።

ጥቅም፡- ጥናቱ ቀጥተኛ ጥቅም የለውም ነገር ግን ተሳትፎው በዚህ ጥናት ተሳታፊ መሆን የአጭር ጊዜ ጥቅም ወይም ክፍያ አይኖረውም። ነገር ግን የሚሰጡት መረጃ በጨቅላ ህጻናት ላይ የሚከሰቱ አደገኛ የህመም ምልክቶችን በተመለከተ የእናቶችን እውቀት ለማዎቅ እና በእውቀታቸው ላይ በቀጥታም ሆነ በተዘዋዋሪ ተጽኖ የሚያመጡ ተያያዥ ነገሮችን ለማዎቅ ይረዳል። ስለዚህ በአራስ ህፃናት ላይ የህይወት ጥራት እና የጤና አጠባበቅ አገልግሎት አሰጣጥን ለማሻሻል ይረዳል እናም ይህ ጥናት እናቶች በጨቅላ ህፃናት ላይ አደገኛ ምልክቶችን እና አፋጣኝ የጤና አጠባበቅ ባህሪያትን በመለየት የእናቶችን ዕውቀት ለማሳደግ እና እንዲሁም ለፖሊሲ አውጪዎች አስፈላጊ ነው።

ሚስጥራዊነት፡- ለዚህ ጥናት ከተሳታፊዎች የሚሰበሰበው መረጃ በሚስጥር ተጠብቆ ይቀመጣል። ሁሉም የመረጃ መሰብሰቢያ መሳሪዎች ጨቅላ ህፃናትን ለመለየት ጥቅም ላይ ሊውሉ የሚችሉትን ማንኛውንም መረጃ ለመጠበቅ በቁጥር ወይም በሌላ ኮድ ተለይተው ይታወቃሉ ነገር ግን ምንም ስም አይያያዝም። **የሚመለከተውን ሰው ለማግኘት፡-** ይህ የምርምር ፕሮጀክት በአዲስ አበባ ዩኒቨርሲቲ ጥቁር አንበሳ ስፔሻላይዝድ ሆስፒታል ተቋማዊ ግምገማ ቦርድ ታይቶ ይፀድቃል። ማንኛውም ጥያቄ ካሎት በሚከተለው አድራሻ ያገኙናል።

ስም፡ ዮርዳኖስ ቦጋለ

ኢሜል: yordanosbogale@gmail.com

ስልክ: 0922494068

አባሪ አምስት፡- የስምምነት ቅፅ ለእናቶች

በጥናቱ ለመሳተፍ ፈቃዴን እየሰጠው ነው። የጥናቱን አላማ ተረድቼዋለው። በዚህ ጥናት ውስጥ መሳተፍ ሙሉ በሙሉ በፈቃደኝነት እንደነም ተረድቻለሁ። የጥያቄዎቹ መልስ ለሌላ ሰው እንደማይሰጥ ተነግሮኛል። እንዲሁም የእኔ ተሳትፎ ወይም አለመሳተፍ ወይም ለጥያቄዎች መልስ አለመስጠት በእኔ ላይ ምንም ተፅዕኖ እንደሌለው ተነግሮኛል። ምላሽ ሰጪው ቃለ መጠይቅ ለማድረግ ካልተስማማ እንዲያመሰግኑ እና ወደ ቀጣዩ ምላሽ ሰጪ ይሂዱ። ምላሽ ሰጪው "አዎ" ከሆነ መልሱ ይቀጥሉ።

2. የጠያቂው ስም_____ ፊርማ_____ ቀን_____/_____/____

አባሪ ስድስት፡- የአማርኛ መጠይቅ

በአዲስ አበባ ዩኒቨርስቲ ፣በጤናሳይንስ ኮሌጅ፤በነርሲንግና በሚድዋይፈሪ ት/ት ክፍል

ይህ መጠይቅ የተዘጋጀው በአዲስ አበባ በሚገኙ የመንግስት ሆስፒታሎች ውስጥ ላሉ ለቅድመ ድህረ ወሊድ እናቶችን በጨቅላ ህጻናት ላይ የሚከሰቱ አደገኛ የህመም ምልክቶችን በተመለከተ እና ከእናቶች እውቀት ጋር የሚዛመዱ እና ለእውቀታቸው ማነስም ሆነ መጨመር ምክንያት የሆኑ ጠቃሚ ነገሮችን የሚዳስሱ ጥቄዎች ናቸው።

የመጠይቅ ኮድ ቁጥር_____

የሆስፒታሉ ስም_____

ክፍል 1: ማህበረሰሰባዊ እና ግላዊ ጥያቄዎች

ተ.ቁ	**ጥያቄ**	**መልስ**	**ይለፉት**
101.	እድሜዎ ስንት ነው	----------years	
102.	የጋብቻ ሁኔታ	1. ያገባ 2. ያላገባ 3. አግብታ የፈታች 4. የሞተባት	
103.	በአሁኑ ጊዜ ከ ባለቤትዎ ጋር እየኖሩ ነው?	1. አዎ 2. አይ	
104.	የመኖሪያ ቦታ?	1. ከተማ 2. ገጠር	
105.	የትምህርት ደረጃዎ?	1. መደበኛ ትምህርት ያልተማሩ 2. የመጀመሪያ ደረጃ የተማረ 3. ሁለተኛ ደረጃ የተማረ 4. ኮሌጅ እና ከዛ በላይ የተማረ	
106.	የባለቤትዎ የትምህርት ደረጃ?	1. መደበኛ ትምህርት ያልተማሩ 2. የመጀመሪያ ደረጃ የተማረ 3. ሁለተኛ ደረጃ የተማረ 4. ኮሌጅ እና ከዛ በላይ የተማረ	

107.	የስራ ሁኔታዎ?	1. ተማሪ 2. የቤት እመቤት 3. የቀን ሰራተኛ 4. ነጋዴ 5. የመንግስት ሰራተኛ 6. የግል ድርጅት ሰራተኛ 7. ሌላ ከሆነ ይጥቀሱ_____	
108.	የቤተሰብዎ አጠቃላይ ገቢ ምን ያህል ነው?	1. < 2000 2. 2000-3000 3. 3000-5000 4. >5000	

ክፍል 2:- ቅድመ ወሊድና ከወሊድ በሁላ የህክምና አገልግሎትን የሚመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄ	መልስ	ይለፉት
201	ስንት ልጆች አለዎት?	1. 1 2. 2 እና ከዛ በላይ	
202.	የቅድመ ወሊድ ክትትል አድርገው ያውቃሉ?	1. አዎ 2. አይ	አይ ካሉ ጥ.ቁ 203 ይለፉት
203.	ስንት ጊዜ የቅድመ ወሊድ ክትትል አድርገዋል?	1. 3 እና ከዛ በታች 2. 4 እና ከዛ በላይ	
204.	አፋጣኝ የሆነ የድህረ ወሊድ እንክብካቤ አጊኝተዋል?	1. አዎ 2. አይ	

ክፍል 3:- ስለ ጨቅላ ህጻናት አደገኛ የህመም ምልክቶች የመረጃ ምንጭ የሚመለከቱ ጥያቄዎች

ተ.ቁ	ጥያቄ	መልስ	ይለፉት
301.	ስለ ጨቅላ ህጻናት አደገኛ የህመም ምልክቶች ሰምተው ያውቃሉ?	1. አዎ 2. አይ	አይ ካሉ ጥ.ቁ 302ን ይለፉት
302.	ከየትኛው ምንጭ ነው መረጃውን ያገኙት?	1. ከጤና ባለሙያ 2. ሚዲያ 3. ሌሎች ካሉ ይግለጹ _____	
303.	ከወለዱ በኃላ ስለ ጨቅላ ህጻናት አደገኛ የህመም ምልክቶች ትምህርት ወስደዋል?	1. አዎ 2. አይ	

ክፍል 4:- የጨቅላ ህፃናት አደገኛ የህመም ምልክቶችን በተመለከተ የእናቶችን እውቀት የሚዳስሱ ጥያቄዎች

ተ.ቁ	ጥያቄ	መልስ	ይለፉት
401	ስለ ጨቅላ ህጻናት አደገኛ የህመም ምልክቶች ያውቃሉ?	1. አዎ 2. አይ	አይ ካሉ ጥ.ቁ. 402ን ይለፉት
402.	የሚያውቁትን ስለ ጨቅላ ህጻናት አደገኛ የህመም ምልክቶች ሊጠቅሱልኝ ይችላሉ?	1. ለመተንፈስ መቸገር ወይም በፍጥነት መተንፈስ 2. በደንብ አለመጥባት ወይም መጥባት አለመቻል 3. በተደጋጋሚ ማስመለስ 4. ከፍተኛ ወይም ዝቅተኛ የሰውነት ሙቀት 5. ድካም ወይም የአእምሮ መሳት 6. መንቀጥቀጥ 7. መነጫነጭ 8. የአይን የመዳፍ እና የእግር ቢጫ መሆን 9. ከአይን የመግል ፈሳሽ መፍሰስ ወይም የአይን መቅላት 10. ቆዳ ላይ ሚወጡ ሽፍታዎች 11. ሌሎች ካሉ ይግለጹ _____	