



St. Paul Hospital Millennium Medical College
Graduate Study Program

Knowledge and practice of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia: Institutional based study

Investigator: Alebel Bekele (MD, Final year pediatrics and child health resident)

Advisor: Dr. Gesit Metaferia (MD, Assoc. prof. of Pediatric and Child Health and Neonatologist)

January 2026, Addis Ababa, Ethiopia



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Academic Research Submission Guide

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ABSTRACT

Background: Newborn care refers to the essential practices and routines needed to keep a baby healthy, safe, and thriving in the first 28 days of life and beyond. This includes feeding, health monitoring, hygiene, sleep, and bonding. One of the most serious public health issues globally today is neonatal mortality. 75% of neonatal mortality occurs in the first week of neonatal life. About four million deaths occur globally each year during the first four weeks of neonatal life. 99% of all neonatal deaths take place in LMIC (low- and middle-income countries), primarily in sub-Saharan Africa. Most of these neonatal mortalities take place at home that suggests that only few families are aware of the symptoms of neonatal sickness.

Objective: To assess the Knowledge, practice and associated factors of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

Methodology: A Hospital-based, cross-sectional study was conducted at St. Paul Hospital. The study involved all pre-discharge mothers in St. Paul Hospital from June to December 2025. After obtaining informed consent from each participant, data were collected using the Open Data Kit (ODK) mobile application and uploaded daily to the server. To maintain data confidentiality, two different user account (one for data collectors and the other is for Server) were used. Data was sent to the server on daily basis and its completeness was reviewed each day. Data was analyzed using SPSS version 26. Descriptive statistics used to describe the characteristics of study population and P. value less than 0.05 was considered significant.

Results: About 56.19% and 46.29% of the study participants had good Knowledge and practice of newborn care among respectively. The odds of having good knowledge among Mothers within 26-34 age range is 1.6 times higher as compared with those under 25 years age (AOR: 1.6: 95% CI: (1.14-2.48)) and, the odds of having good knowledge among Government or Private employed mothers is 3.9 times higher as compared with Housewife, (AOR: 3.9, 95% CI:(1.06-14.93)). The odds of having good practice of newborn care among Mothers who have good knowledge of NBC is 16.3 times higher comparing with those who have poor knowledge; (AOR: 16.3: 95% CI: (11.7-18.3)); and the odds of having good practice of newborn care among Mothers who had taken health education is 5.7 times higher compared with those who did not take health education; (AOR: 5.7(2.4-11.5))

Conclusion: This study reveals a significant gap between knowledge and practice in newborn care among mothers. It establishes that maternal knowledge and formal health education are both crucial drivers of proper care practices. The findings further indicate that maternal age and formal employment status enhance knowledge levels, pointing to socioeconomic influences on health information access.

Keywords: Newborn care, knowledge, practice

Acronyms

ANC	Anti Natal Care
EBF	Exclusive Breast-Feeding
EDHS	Ethiopia Demographic and Health Survey
ENBC	Essential Newborn Care
KAP	Knowledge Attitude and Practice
KMC	Kangaroo Mother Mare
LMIC	Low- and Middle-Income Country
PNC	Post Natal Care
RERC	Research Ethics Review Committee
SDG	Sustainable Development Goal
SIDS	sudden infant death syndrome
SPHMMC	St. Paul's Hospital millennium medical college
UNICEF	United Nations International Children's Fund
WHO	World Health Organization

1. Introduction

1.1. Background

Newborn care refers to the essential practices and routines needed to keep a baby healthy, safe, and thriving in the first 28 days of life and beyond. This includes feeding, health monitoring, hygiene, sleep, and bonding[1]. One of the most serious public health issues globally today is neonatal mortality. 75% of neonatal mortality occurs in the first week of neonatal life. About four million deaths occur globally each year during the first four weeks of neonatal life [1, 2]. 99% of all neonatal deaths take place in LMIC (low and middle income country), primarily in sub-Saharan Africa[3]. Most of these neonatal mortalities take place at home that suggests that either only few families are aware of the symptoms of neonatal sickness or that most neonates are not transferred to health facilities when they are sick [3, 4].

A neonate or a child less than 28 days has the highest risk of death during puerperal period. To solve this critical problem, World Health Organization (WHO) developed Essential newborn care (ENC) concept that provides comprehensive recommendations to advance the newborn's health. These recommendations comprise interventions before conception, during pregnancy, immediately after birth and postpartum[5]. The survival and well-being of newborns largely depend on their care. Nevertheless, neonatal care often does not receive sufficient attention, although it plays a fundamental role in reducing infant mortality[6, 7].

Most neonatal deaths can be prevented through standing child health and maternal curriculum which are linked to clean cord care for the prevention of sepsis, and early initiation of breastfeeding and regulating temperature [8]. On top of skill enhancement and equipping health care providers, enhancing the knowledge of mothers regarding ENC is very critical to increasing the quality of ENC. Knowledge gaps and strong cultural principles influence newborn survival at the moment the neonate is at home with the mother. Therefore, the enhancement of mothers' knowledge, practice and skills toward newborn care are vital aspects to sustain life, development and growth of neonates and reducing neonatal mortality and morbidity [9].

1.2. Statement of the problem

From 7.5 million neonatal deaths that occur in the world about half of them occur in the first four weeks after birth. 98% of these neonatal deaths occur in developing regions, 28% in the least developed countries. Overall, there were 30 neonatal mortalities per 1000 live births; 5 per 1000 in developed and 33 per 1000 in developing regions, and 42 per 1000 in the least developed nations. This means; in developing regions, the risk of death in the neonatal period is six times more than that of developed countries; in the least developed countries, it is more than eight times higher [6. 9].

Newborn care is influenced by mothers' knowledge and home practices and health services for both newborns and mothers. To advance the practice of immediate help to newborns and to decrease the mortality rate in newborns, it is important to introduce special measures and practices in health services. This can be achieved by promotion of the knowledge and practice of caregivers of newborns during and after delivery[10]. The under-five mortality rate in 2021 was 38 deaths per 1,000 live births globally, with a significant proportion due to birth complications. In Africa, approximately 300,000 newborns die every year shortly after birth due to inadequate maternal and newborn care. This figure is even higher in sub-Saharan Africa with 74 deaths per 1000 live births recorded [11].

UNICEF and WHO strongly recommend the global community to speed up the efforts to reach the global SDG (Sustainable Development Goal) targets of less than 25 under-5 deaths per 1000 live births and less than 12 neonatal deaths per 1000 live births, by 2030 [12, 13], however, the 2019 UNICEF projection report indicated that globally, 52 million under-5 children will die from 2019 to 2030. In Ethiopia EDHS 2019, neonatal mortality is not improved. Infant and under-5 mortalities per 1000 live births decreased from 59 and 88 in 2011 to 43 and 55 in 2019, respectively. However, neonatal mortality decrement is not satisfactory [14].

Mothers are usually the caregiver for children irrespective of education social class, and income differences. It is evidenced by several studies that mothers have average to poor knowledge on newborn care[15- 17].

In Ethiopia, despite of the tremendous effort tried in the improvement of newborn care, the status of neonatal care practice among mothers is still poor. In addition, neonatal care is highly affected

by the knowledge and practice of mothers [18, 19]. In Ethiopia, ANC and PNC follow-ups are insufficient [19], this can impact the care of neonates. The ability to detect knowledge and practice gaps in the neonatal period would help healthcare providers to identify and implement timely and suitable interventions that will lead to better neonatal outcomes[20]. Therefore, this study will investigate the mothers' level of knowledge and practice and associated factors to ward newborn care practice, and the result's finding will help the programmers/planner and other stakeholders to plan and work on improving mothers' knowledge, and practice on newborn care practice after obtaining our findings.

To the best of our literature review, there is no sufficient information in our study area, although few studies were conducted on newborn care practice in Ethiopia. Therefore, this study will try to fill the information gap that other researchers did not address.

1.3. Significance of the study

The aim of this study is to gather information on the knowledge, practices, and associated factors of newborn care among mothers prior to discharge from post-natal wards at SPHMMC in Addis Ababa, Ethiopia, and to raise awareness for actionable change. Understanding the level of knowledge and practices related to newborn care among these mothers is crucial for designing effective, targeted interventions to improve newborn care management.

The primary beneficiaries of this study will be the mothers and their children in the area. Additionally, the study will provide valuable recommendations to hospitals and relevant organizations, such as the Addis Ababa City Health Office, donors, and other stakeholders. Furthermore, the findings will serve as a resource for researchers interested in conducting future studies in this field.

2. Literature review

2.1. Knowledge of newborn care among mothers

A cross-sectional study that was carried out in the Dhaka Medical College Hospital, in Bangladesh revealed that mothers had apparently good knowledge and attitude about thermoregulation, early initiation of breast-feeding, importance of providing colostrum to the newborn, exclusive breast-feeding (EBF) up to six months of age and immunization at birth. However, this study identified knowledge gap about cord care, eye care, first bathing and hygiene practices. Overall, only a small proportion of respondents had good level of knowledge (37%) [21].

A population-based cross-sectional study that was conducted in 2016 in Mekelle City, Northern Ethiopia revealed that 36.1% of mothers had good knowledge of newborn care (A substantial number of postpartum mothers had poor knowledge) [22]; another community-based cross-sectional study conducted among 296 mothers from Gulomekada District showed that, Eighty percent (80.4%) study participants had good knowledge on newborn care [23]; moreover, a study conducted on Knowledge, practice and associated factors of newborn care among postnatal mothers at health centers, Bahir Dar City, Northwestern Ethiopia, showed that of newborn care among postnatal mothers at Bahir Dar, Ethiopia 55.3% had good knowledge[24]

Another community-based cross-sectional study that was conducted among recently delivered women in Choleworeda revealed that 33.5% (95% CI: 29.4, 37.6) of the mothers had good knowledge of newborn care [25]; A mixed-institution based cross-sectional study that was conducted in 2023 using a sample of 381 puerperal mothers who gave birth at public health facilities of southwest Ethiopia; revealed that 62.7% of participants showed good knowledge of newborn care [26]

2.2. Practice of newborn care among mothers

A study done on maternal knowledge and practice of essential newborn care in Gadarif city, eastern Sudan revealed that, (63.8%) of the 384 participants had good practice of essential newborn care [27]; moreover, a community-based cross-sectional study that assess the neonatal care practice and associated factors among mothers of infants 0–6 months old in Northern Shewa, Ethiopia; revealed that 62.0% mothers had a good neonatal care practice [28]. An institutional based cross-sectional study among postnatal mothers at Bahir Dar, Ethiopia revealed a 60.6% magnitude of a good practice of newborn care [24].

2.3. Factors associated with Knowledge and practice of newborn care among mothers

2.3.1. Socio-demographic factors

Higher education levels often correlate with better knowledge and practices regarding newborn care. Families with higher income levels may have better access to resources and information, influencing care practices [26]. Moreover, a quantitative cross section methods study among caregivers of children from birth to six weeks of life attending a regional referral hospital in south western Uganda revealed that Caretaker's age and relationship with the newborn were found to have a statistically significant associated to knowledge of danger signs in the newborn baby [29]. A community-based longitudinal panel survey design, that used data from the Performance Monitoring for Action Ethiopia panel survey (2019–2021) on a total of 860 mothers of neonates that included in analysis, revealed that, the chance of home-based optimal newborn care practice was 69% times lower among mothers from rural areas compared with those in urban areas (adjusted OR=0.31, 95% CI=0.15, 0.61) [30]; A cross sectional study that assessed the knowledge and associated factors toward essential newborn care practices among postnatal mothers attending postnatal service in governmental hospital of Harar town, Eastern Ethiopia revealed that Educational status, average monthly and income were significantly associated with knowledge of essential newborn care [31]; another facility-based cross-sectional study conducted on Essential newborn care practice and its associated factors in Southwest Ethiopia revealed that Being from urban residence [AOR 1.70, 95%CI: 1.03–2.79] is significantly associated with essential newborn care practice [32]. A community-based cross-sectional study that was conducted in 2017 to assess the Knowledge, Attitude, and Practices (KAP) in mothers regarding newborn care revealed that; mothers with no education had less significant KAP score about newborn care as compared to those who had higher education ($p < 0.05$) [33];

2.3.2. Cultural Beliefs and Practices

Many cultures have specific rituals and practices for newborn care, such as bathing, feeding, and protection from "evil spirits," which can influence maternal behavior. Cultural beliefs about breastfeeding versus formula feeding can impact a mother's approach to infant nutrition, including the timing and method of introducing solids. Some cultures have specific postpartum rituals (e.g., confinement periods) that dictate how mothers should care for themselves and their newborns, affecting their health and care practices. Cultural attitudes toward hygiene practices, such as handwashing and cleanliness, can influence the risk of infections in newborns [34].

Beliefs about the necessity of medical intervention (e.g., vaccinations) versus reliance on traditional healers can affect access to and utilization of healthcare services. The influence of elders and family members in decision-making about newborn care can either reinforce or challenge modern practices and knowledge. Societal expectations regarding gender roles can impact who is responsible for newborn care and the types of knowledge that are prioritized [35].

2.3.3. Family support, including involvement from partners

Positive emotional backing from family members can enhance a mother's confidence in her caregiving abilities, leading to better practices. Involvement from partners and extended family can help share the caregiving burden, allowing mothers to focus more on learning and implementing effective newborn care practices. Family members can provide valuable insights and knowledge based on their own experiences, enriching a mother's understanding of newborn care. Observing family members who practice good newborn care can serve as a practical example for mothers, encouraging them to adopt similar behaviors. Family support can aid mothers in making informed decisions regarding healthcare, such as vaccinations and seeking medical advice when necessary. A supportive family environment can motivate mothers to attend health check-ups and educational sessions that enhance their knowledge [24, 35].

2.3.4. Access to Healthcare Services

Regular check-ups during pregnancy and after childbirth provide mothers with essential information about newborn care, including feeding, hygiene, and health monitoring. Healthcare services often include educational programs and counseling sessions that equip mothers with knowledge about best practices in newborn care. Interaction with pediatricians, nurses, and midwives allows mothers to ask questions and receive personalized advice tailored to their specific situations. Access to immunization programs ensures that mothers are informed about the importance of vaccinations and how to keep their newborns healthy. Knowledge of where to seek immediate medical help for complications can greatly influence mothers' confidence in managing their newborn's health. Clinics and hospitals often provide pamphlets, workshops, and online resources that enhance mothers' understanding of newborn care practices [22, 35].

3. Objectives

3.1. General objective

To assess the Knowledge, practice and associated factors of newborn care among pre-discharge mothers from post-natal wards from June to December 2025 at St. Paul hospital, Addis Ababa, Ethiopia

3.2. Specific objective

- To determine the Knowledge and practice of newborn care among pre-discharge mothers from post-natal wards in St. Paul Hospital, Addis Ababa, Ethiopia
- To assess the associated factors of knowledge of newborn care among pre-discharge mothers from post-natal wards in St. Paul Hospital, Addis Ababa, Ethiopia
- To assess the associated factors of practice of newborn care among pre-discharge mothers from post-natal wards in St. Paul Hospital, Addis Ababa, Ethiopia

4. Method and Materials

4.1. Study setting

The study was carried out pre-discharge mothers at post natal ward of St. Paul Hospital Millennium Medical College, A tertiary hospital in Addis Ababa, Ethiopia, with average monthly delivery of more than 750 per month. The study was performed from June 30 to December 30, 2025.

The hospital serves a large and diverse catchment population, including residents of Addis Ababa and referred cases from across Ethiopia, reflecting a broad demographic and clinical spectrum.

Location: SPHMMC is situated in Addis Ababa, Ethiopia, at an altitude of approximately 2,355 meters (7,726 feet) above sea level, with geographic coordinates roughly centered at 9.03° N latitude and 38.74° E longitude.

4.2. Study design and sampling Techniques

A facility based cross-sectional study was conducted using simple random sampling techniques.

4.3. Population

4.3.1. Source population

Catchment population of SPHMMC

4.3.2. Study population

All pre-discharge mothers from post-natal ward at SPHMMC in the Study period

4.3.3. Study units

Randomly selected pre-discharge mothers from post-natal ward in SPHMMC

4.4. Eligibility criteria

4.4.1. Inclusion criteria

All pre-discharge mothers in SPHMMC

4.4.2. Exclusion criteria

Mothers who were unable to communicate because of seriously ill or impaired cognition will be excluded from the study.

4.5. Sample size

Sample size was calculated based on average value from study conducted on Knowledge, practice and associated factors of essential newborn care at home among mothers in different parts of Ethiopia, which revealed that 50.8% of study participants had good knowledge on essential new born care.

Confidence level to be 1.96 and margin of error ($\alpha=5\%$), degree of precision (d) 0.05

$$n = \frac{(z\alpha/2)^2 \cdot P(1-P)}{(d)^2} = \frac{(1.96)^2 \cdot 0.8(1-0.2)}{(0.05)^2}$$

n=384

Adding 10% non-response rate, **n=422**

4.6. Study variables and measurements

Data was collected using a structured questionnaire, which is adapted from various literatures (14-17). The questionnaires were designed to gather information regarding the mothers' socio-demographic characteristics, reproductive and obstetric history and knowledge and practice of the WHO Essential Newborn Care guidelines. To ensure data quality, the questionnaire written in English will be translated into the local language (Amharic) and pretested on postnatal mothers selected from similar setting but out of the study area. Face to face interview was conducted by four trained data collectors who are female nurses. Day to day on-site supervision during the whole period of data collection was done.

4.6.1. Dependent and Independent variables

Practice and Knowledge of postnatal mothers towards new born care were the two dependent variables in this study. Education Level, Occupation, Income Level, Availability of Services, Cultural Beliefs, Practices, Traditional Practices, Family Support, Media Influence, Previous Experiences, Counseling and Support are independent variables

Knowledge was assessed using a total of 18 “Yes/No” questions on various aspects of newborn care (Knowledge regarding immunization, breastfeeding, cleanliness, thermoregulation, and umbilical cord care, and eye care was assessed). The values was to be coded as “1 = Correct response (consistent with WHO ENBC guidelines) and 0 = Incorrect response (inconsistent with WHO ENBC guidelines)”. Finally, a composite variable from these questions was generated to categorize mothers as having “Good/poor knowledge”. Mothers who responded correctly to at least 75% of questions will be categorized as having good knowledge.

The newborn danger signs were assessed using a series of nine close ended questions and a composite variable were generated from these questions to categorize mothers as having “Good/poor” knowledge. Accordingly, mothers who correctly responded to at least 3 questions were categorized as having a good knowledge of newborn danger signs [14]

The practice was assessed using a series of 8 close ended questions (Practice on thermoregulation, cleanliness, breastfeeding, and umbilical cord care, and eye care). Then, a composite variable from these questions was generated to categorize mothers as

having “Good/poor practice”. Accordingly, mothers who responded correctly to at least 75% of questions were categorized as having a good practice.

4.7. **Study participant enrollment procedure**

Participants were enrolled using simple random sampling technique to ensure objective selection. Following selection, eligible participants were provided with a comprehensive briefing regarding the study’s objectives and their right to withdrawal .Formal enrollment was finalized only after obtaining signed informed consent from each mother. Data collection was then conducted through structured face- to-face interviews in a private setting to maintain confidentiality and ensure data quality.

4.8. **Data quality**

To ensure the questions were clearly understood, the data collection instruments were translated into Amharic. Their consistency was verified daily. Information was gathered through the Open Data Kit (ODK) mobile application and transmitted daily to a secure server. To protect confidentiality, two separate user accounts were established: one for data collectors and another for server access. The completeness of the daily uploads was reviewed each day. All data collectors were received training and had no involvement in the delivery or postnatal wards. To minimize potential errors, completed questioners underwent daily verification for both completeness and response consistency.

4.9. **Operational definition**

Knowledge of newborn care: Knowledge of newborn care refers to a caregiver's (e.g., parent, nurse, or midwife) understanding and awareness of essential practices required to maintain a newborn's health, safety, and well-being. This includes knowledge of proper feeding, hygiene, sleep safety, recognizing signs of illness, immunization schedules, and appropriate responses to common newborn behaviors.

Practice of newborn care: Practice of newborn care refers to the actual behaviors and actions performed by caregivers (e.g., parents, nurses, or midwives) to ensure the health, hygiene, safety, and proper development of a newborn. This includes daily routines,

preventive measures, and responses to the infant's needs based on recommended **guidelines**.

Counseling and support: Counseling and support on newborn care refers to guidance, education, and emotional assistance provided by healthcare workers, community workers, or trained counselors to parents or caregivers to enhance their knowledge, skills, and confidence in caring for a newborn. This includes evidence-based advice, demonstrations, and psychosocial support to ensure proper newborn care practices.

4.10. **Statistical analysis**

Data was downloaded from the ODK server with 'xls' form and cleaned and changed to Comma delimited (CSV) form to upload in to SPSS software for statistical analysis. Frequency and percentages were used to summarize the data. A multivariable logistic regression model was fitted to identify the socio-demographic, obstetric history of the mothers, reproductive and exposure to information or education about ENBC related factors associated with knowledge and practice of mothers towards ENBC. The degree of association between independent and dependent variables will be assessed by using odds ratio at 95% level of confidence.

4.11. **Ethical approval**

The Ethical approval was granted by the Institutional Review Board of SPHMMC (St. Paul's Hospital Millennium Medical College) before collecting the data, informed verbal consent will be obtained from each study participant. The data collectors were explained an information sheet prepared in the participant's local language and asked for the consent of the participant. The participation in the study was fully voluntary; provided that the data collection process did not involve more than minimal risk to the participants (as there was no specimen collection). All information gathered was anonymous to protect confidentiality.

5. Results

5.1 Socio-Demographic Characteristics

Out of 422 study participants initially sampled in the study, 404 have participated, making a response rate of 95.7%. 256 (63.4 %) of the participants were within the age of 26 and 34. For about 127(31.4%) of the participants, secondary school education is their highest education level. [Table 5.1].

Table 1:

Variables	Category	Frequency (n)	Percentage (%)
Age (in years)	<25	104	25.7
	26-34	256	63.4
	35-45	44	10.9
Level of education	Cannot read and write	6	1.5
	Read and write	22	5.4
	Primary education	130	32.2
	Secondary education	127	31.4
	Certificate/ diploma	53	13.1
	Degree and above	66	16.3
Occupation	House wife	204	50.5
	Self-employed	106	26.2
	Unemployed	21	5.2
	Employed (Government/Private)	73	18.1
Income	<5000	70	17.33

	5000-10,000	176	43.56
	10,001-15,000	73	18.07
	>15,0001	85	21.04

5.2. Related factors with newborn care among pre-discharge mothers

About 372 (92.1%) of the study participants mentioned financial constraint as key challenge for newborn care; 251(62.1%)of the study participants received Health education at PNC (table 2)

Table 2: related factors with newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

Variables	Category	Frequency (n)	Percentage (%)
Challenges	Lack of knowledge	10	2.5
	Cultural belief	2	0.5
	Financial constraints	372	92.1
	Lack of family support	20	4.9
Health education at PNC	Yes	251	62.1
	No	153	37.9
Support from family/health workers	Yes	303	75
	No	101	25

5.3. Knowledge of newborn care

About 227 (56.19%) of the study participants had good Knowledge of newborn care among pre-discharge mothers (Figure 1)

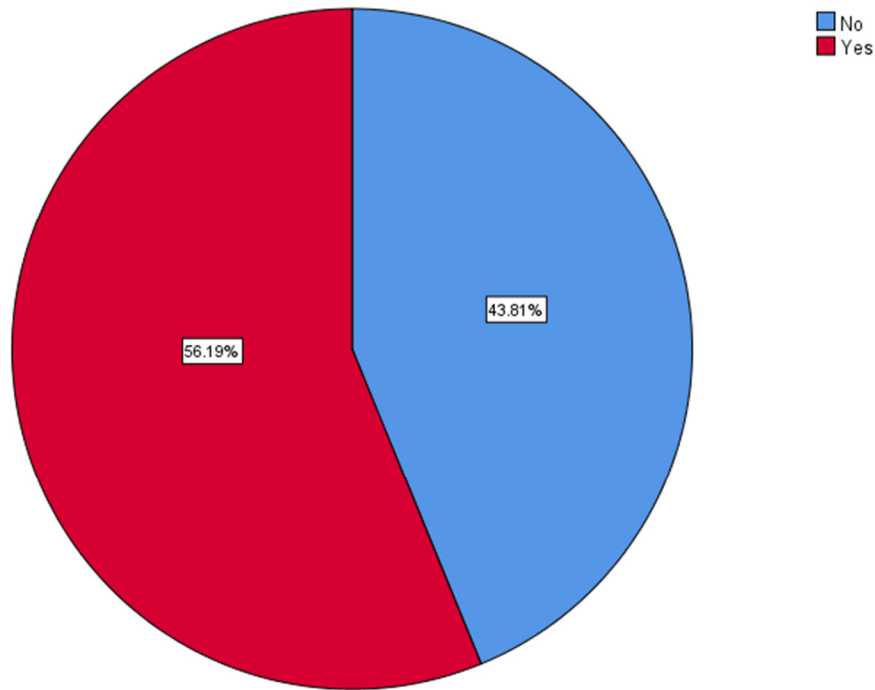


Figure 1: Knowledge of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

5.4. Practice of newborn care

About 187(46.29%) of the study participants had good practice of newborn care among pre-discharge mothers (Figure 2).

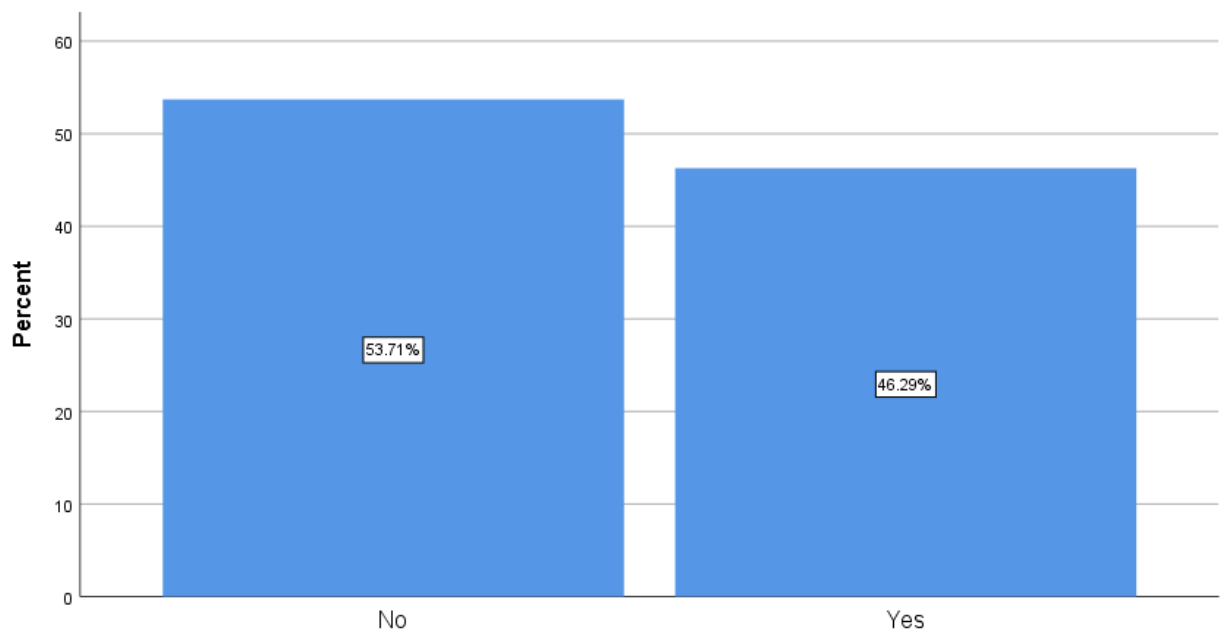


Figure 2: Practice of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

5.5. Factors associated with of Knowledge of newborn care

The odds of having good knowledge among Mothers within 26-34 age range is 1.6 times higher as compared with those under 25 years age (AOR: 1.6: 95% CI: (1.14-2.48)) and, the odds of having good knowledge among Government or Private employed mothers is 3.9 times higher as compared with Housewife, (AOR: 3.9, 95% CI:(1.06-14.93)).

Table 3: Factors associated with of Knowledge of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

Variables	Category	Knowledge of NBC		COR (95% CI)	AOR (95%CI)	P value
		Yes	No			
Age	< 25	53	51	1	1	
	26-34	148	108	1.32(1.17-3.82)	1.6(1.14-2.48)**	0.08
	35-45	26	18	1.38(1.20-5.27)	1.2(1.02-3.47)	0.03
Educational Status	Read and write	18	10	1	1	
	Primary education	54	76	0.39(0.2-0.73)	0.86(0.4-1.86)	0.71
	Secondary education	80	47	0.94(0.42-1.82)	0.64(0.30-1.32))	0.23
	Certificate/diploma	35	18	1.08(0.21-5.3)	0.49(0.18-1.3)	0.16
	Degree and above	40	26	0.85(0.37-3.82)	0.28(0.16-1.51)	0.00
Occupation	Housewife	107	97	1	1	
	Employed (Govt/Private	59	14	3.82(1.23-5.28)	3.9(1.06-14.93)**	0.04
	Self-Employed	50	60	0.75(0.28-3.82)	1.4(0.43-4.7)	0.56
	Unemployed	9	6	1.35(0.8-2.93)	0.72(0.2-2.53)	0.61

* Significant at $P = < 0.05$, * * Significant at $P = \leq 0.002$, * ** Significant at $P = < 0.001$, OR =Odd ratio, AOR=Adjusted odd ratio, CI= Confidence interval

5.6. Factors associated with of Practice of newborn care

The odds of having good practice of newborn care among Mothers who have good knowledge of NBC is 16.3 times higher comparing with those who have poor knowledge; (AOR: 16.3: 95% CI: (11.7-18.3)); and the odds of having good practice of newborn care among Mothers who had taken health education is 5.7 times higher compared with those who did not take health education; (AOR: 5.7(2.4-11.5)

Table 4: Factors associated with of Practice of newborn care among pre-discharge mothers from postnatal wards in SPHMMC, Addis Ababa, Ethiopia

Variables	Category	Practice of NBC		COR (95% CI)	AOR (95%CI)	P value
		Yes	No			
Educational Status	Read and write	7	21	1	1	
	Primary education	47	83	1.69(0.83-5.29)	1.45(0.53-4)	0.26
	Secondary education	57	70	2.44(1.2-8.3)	1.29(0.45-3.69)	0.31
	Certificate/diploma	28	25	3.36(1.7-8.34)	2.70(1.6-5.3)	0.49
	Degree and above	34	32	3.18(1.4-6.37)	1.53(0.59-3.9)	0.18
Support from family/ HCP	Yes	174	129	9.13(3.8-12.37)	4.6(2.8-7.5)	0.22
	No	13	88	1	1	
Knowledge of NBC	Yes	179	48	78.7(38.7-91.3)	16.3(11.7-18.3)	0.03
	No	8	169	1	1	
Health education	Yes	163	88	9.95(2.8-12.23)	5.7(2.4-11.5)	0.02
	No	24	129	1	1	

* Significant at P = <0.05, * * Significant at P = ≤ 0.002, * * * Significant at P = < 0.001, OR =Odd ratio, AOR=Adjusted odd ratio, CI= Confidence interval

6. Discussion

About 227 (56.19%) of the study participants had good Knowledge of newborn care and about 187(46.29%) of them had good practice of newborn care. The odds of having good knowledge among Mothers within 26-34 age range is 1.6 times higher as compared with those under 25 years age, the odds of having good knowledge of newborn care among Government or Private employed mothers is 3.9 times higher as compared with Housewife. The odds of having good practice of newborn care among mothers who have good knowledge of NBC is 16.3 times higher comparing with those who have poor knowledge; and the odds of having good practice of newborn care among mothers who had taken health education is 5.7 times higher compared with those who did not take health education.

The magnitude of good Knowledge of newborn care 227(56.19%) in this study is higher than findings from Mekelle City, Northern Ethiopia that revealed 36.1% of good knowledge of newborn care [22]; but lower than findings from community-based cross-sectional study conducted from Gulomekada District showed that, Eighty percent (80.4%) study participants had good knowledge on newborn care [23]; and consistent with results from Bahir Dar City, Northwestern Ethiopia (55.3% had good knowledge) [24].

The magnitude of good practice of newborn care (46.29%) revealed in this study is lower than findings from Gadarif city, eastern Sudan which showed (63.8%) had good practice of essential newborn care [27]; and a community-based cross-sectional study done in Northern Shewa, Ethiopia (62.0%) [28]; this might due to differences such as being hospital-based vs. community-based "normal" deliveries vs. including C-sections (where mothers may be less mobile initially).

The odds of having good knowledge of newborn care among Mothers within 26-34 age range is 1.6 times higher as compared with those under 25 years age; this is consistent with a cross-sectional study conducted in Jazan region, Saudi Arabia; this might be because women in this age range are matured, more likely to be in stable, long-term relationships or marriages as compare with youngsters.

The odds of having good knowledge of newborn care among Government or Private employed mothers are 3.9 times higher as compared with Housewife; this finding is consistent, with a community-based cross-sectional study conducted in the rural districts of Gedeo Zone, Southern Ethiopia [36]; Employment is often correlated with higher levels of formal education, which is a strong, independent predictor of health literacy. Educated individuals have better cognitive skills

to seek, comprehend, appraise, and apply health information. Employment typically provides a higher household income, granting access to resources such as quality prenatal care, parenting books, online resources, and expert consultations; moreover, the workplace exposes mothers to a diverse network of colleagues, many of whom may be parents. This creates a formal and informal forum for exchanging evidence-based advice and experiences.

The odds of having good practice of newborn care among mothers who have good knowledge of NBC is 16.3 times higher comparing with those who have poor knowledge; this finding is consistent with a community-based cross-sectional study conducted in Hossana town, southwest Ethiopia [37]; and a population-based cross-sectional study conducted in Mekelle City, Northern Ethiopia [38]; Knowledge is likely a facilitating factor for good newborn care practices. Interventions aimed at improving maternal knowledge (through education, counseling) could be an effective strategy to improve newborn care practices.

The odds of having good practice of newborn care among mothers who had taken health education is 5.7 times higher compared with those who did not take health education. The magnitude of the association underscores health education not merely as a supplementary intervention but as a potentially transformative basis of strategies aimed at improving neonatal outcomes. Such a strong effect suggests that knowledge and behavioral gaps are a primary barrier to optimal newborn care practices, and that structured educational interventions can effectively bridge this gap. Consequently, public health policy should prioritize the integration of robust, accessible, and culturally adapted health education into routine antenatal and postnatal care services. This investment is likely to yield significant returns in the form of reduced neonatal morbidity and mortality, advancing progress toward key global health targets such as the Sustainable Development Goal for child survival [37-41].

7. Conclusion

In conclusion, this study highlights a critical gap between knowledge and practice in newborn care, with only 46.29% of mothers demonstrating good practice despite 56.19% possessing good knowledge. The findings powerfully demonstrate that both maternal knowledge and structured education are pivotal determinants of positive outcomes. The exceptionally strong association between good knowledge and good practice (AOR=16.3) establishes knowledge as the fundamental driver of behavior, while the significant impact of formal health education (AOR=5.7) underscores the effectiveness of systematic intervention programs. Furthermore, the results identify key demographic factors, as maternal age (26-34 years) and formal employment status substantially increased the odds of good knowledge, suggesting these socioeconomic factors influence access to health information.

8. Recommendation

 To Ministry of Health:

Integrate standardized, interactive newborn care education as a component of all antenatal and postnatal care services. Allocate specific funding and develop monitoring frameworks to ensure the quality and reach of these programs, with a particular focus on bridging the observed knowledge-practice gap.

 To Healthcare facilities and health care providers:

Prioritize the delivery of hands-on, practical newborn care training during clinical contacts, moving beyond passive information dissemination. Implement systematic screening to identify mothers with poor knowledge particularly young mothers under 25 and those who are housewives and provide them with tailored, reinforced counseling and educational materials.

 To Community Health Programs and NGOs:

Design and deploy targeted community-based education campaigns that reach housewives and young, first-time mothers, who were shown to have lower odds of good knowledge. Utilize community health workers to reinforce messages, demonstrate practices, and create supportive peer groups to translate knowledge into sustained behavior change.

 To Academic and Research Institutions:

Conduct implementation research to identify the most effective and cost-effective methods for delivering health education in low resource settings. Further investigate the specific barriers that prevent mothers with good knowledge from adopting optimal practices

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Annexes

Questioners

Section 1: Socio-Demographic Information

01. Age of the mother: _____

02. Educational level:

1. No formal education
2. Primary education
3. Secondary education
4. Higher education (Diploma/Degree)

03. Occupation:

1. Housewife
2. Employed (Government/Private)
3. Self-employed
4. Unemployed

04. Monthly family income: _____

05. Residence:

1. Urban
2. Rural

06. Number of children: _____

07. Source of newborn care information: (Multiple answers possible)

1. Healthcare workers
2. Family/relatives
3. Media (TV, radio, internet)
4. Books/pamphlets
5. Traditional birth attendants

Section 2: Knowledge of Newborn Care

(To assess mothers' understanding of essential newborn care practices)

Knowledge assessment questions:

1. Newborn Care Knowledge Assessment (Yes/No Questions)

Should breastfeeding be started within the first hour after birth?

Yes

No

2. Is exclusive breastfeeding recommended for the first 6 months of life?

Yes

No

3. Should a newborn be given water or other liquids in the first 6 months?

Yes

No

4. Is it safe to bathe a newborn immediately after birth?

Yes

No

5. Should the umbilical cord stump be cleaned with antiseptic?

Yes

No

6. Is applying substances like oil or ash to the umbilical cord safe?
Yes
No
7. Does Kangaroo Mother Care (skin-to-skin contact) help keep the baby warm?
Yes
No
8. Should a newborn sleep on their back to reduce the risk of sudden infant death syndrome (SIDS)?
Yes
No
9. Is it necessary to wash hands before handling a newborn?
Yes
No
10. Does a fever in a newborn require immediate medical attention?
Yes
No
11. Is severe jaundice (yellow skin/eyes) in a newborn a danger sign?
Yes
No
12. Should a newborn with difficulty breathing be taken to a healthcare provider immediately?
Yes
No
13. Is it safe to delay the baby's first bath for at least 24 hours after birth?
Yes
No
14. Should a newborn's nails be trimmed regularly to prevent scratching?
Yes
No
15. Is it safe to use honey or herbal remedies for a newborn's cough?
Yes
No

16. Does breastfeeding protect the baby from infections?

Yes

No

17. Should a newborn receive all recommended vaccinations on schedule?

Yes

No

18. Is it normal for a newborn to lose weight in the first few days after birth?

Yes

No

Section 3: Practices of Newborn Care

(To evaluate actual newborn care behaviors)

1. Did you breastfeed your baby within the first hour of birth?

Yes

No

2. Are you currently practicing exclusive breastfeeding?

Yes

No

3. How do you keep the baby warm after birth?

Skin-to-skin contact (KMC)

Wrapping in layers of clothing

Using a heater/room heating

Other (specify) _____

4. How do you clean the umbilical cord stump?

With antiseptic

With soap and water

Apply traditional substance

Do not clean it

5. Do you delay the baby's first bath for at least 24 hours?

Yes

No

6. Where does the baby sleep?

In a separate crib
With parents (bed-sharing)
Other (specify) _____

7. Do you immunize your newborn as per the recommended schedule?

Yes

No

Section 4: Challenges & Associated Factors

(To identify barriers to proper newborn care)

1. What challenges do you face in taking care of your newborn? (Multiple answers possible)

Lack of knowledge

Financial constraints

Cultural/traditional beliefs

Lack of family support

Distance from healthcare facilities

1. Do you receive support from family/health workers in newborn care?

Yes

No

2. Have you attended any postnatal health education sessions?

Yes

No

Amharic version Questionnaire

የእውቀት ግምገማ ጥያቄዎች

1. የአዲስ የተወለደ ህፃን እንክብካቤ የእውቀት ግምገማ (አዎ/አይ ጥያቄዎች)

1. ጡት መጠባበቅ ከመወለድ በኋላ በመጀመሪያው አንድ ሰዓት ውስጥ መጀመር አለበት?

1.አዎ

2.አይ

2. በመጀመሪያዎቹ 6 ወራት ውስጥ ብቻ የጡት ወተት መመገብ ይመከራል?

1.አዎ

2.አይ

3. አዲስ የተወለደ ህፃን በመጀመሪያዎቹ 6 ወራት ውስጥ ውሃ ወይም ሌሎች ፈሳሾች መስጠት ይገባል?

1.አዎ

2. አይ

4. አዲስ የተወለደ ህፃንን ወዲያውኑ ከተወለደ በኋላ መታጠብ ይህንን የተጠበቀ ነው?

1.አዎ

2.አይ

5. የእርግዝና ገመድ (የእብጦት ገመድ) ቅርፊት በአንቲሴፕቲክ መንጻት አለበት?

1.አዎ

2.አይ

6. እንደ ዘይት ወይም አመድ ያሉ ንጥረ ነገሮችን በየእርግዝና ገመድ ላይ መተግበር ይህንን የተጠበቀ ነው?

1.አዎ

2.አይ

7. የካንጋሩ እናት እንክብካቤ (ቆዳ-ለ-ቆዳ ንክኪ) ህፃኑን ሙቀት እንዲጠብቅ ይረዳል?

1.አዎ

2.አይ

8. የአዲስ የተወለደ ህፃን ድንገተኛ ሞት ስንድሮም (SIDS) አደጋን ለመቀነስ ህፃኑ በጀርባው ላይ መተኛት አለበት?

- 1.አዎ
- 2.አይ

9. አዲስ የተወለደ ህፃንን ከመንከባከብ በፊት እጅ መታጠብ አስፈላጊ ነው?

- 1.አዎ
- 2.አይ

10. በአዲስ የተወለደ ህፃን ውስጥ ትኩሳት መኖር ወዲያውኑ የህክምና እንክብካቤ ይፈልጋል?

- 1.አዎ
- 2.አይ

11. ከባድ ጃንዲስ (ቢጫ ቆዳ/ዓይኖች) በአዲስ የተወለደ ህፃን ውስጥ የአደጋ ምልክት ነው?

- 1.አዎ
- 2.አይ

12. መተንፈስ ችግር ያለበት አዲስ የተወለደ ህፃን ወዲያውኑ ወደ የጤና ባለሙያ መውሰድ አለበት?

- 1.አዎ
- 2.አይ

13. የህፃኑን የመጀመሪያ መታጠብ ቢያንስ ለ24 ሰዓታት መዘግየት ደህንነቱ የተጠበቀ ነው?

- 1.አዎ
- 2.አይ

14. ህፃኑ እንዳይጨጨር የእጅ ጥፍሮችን በየጊዜው መቆረጥ አለበት?

- 1.አዎ
- 2.አይ

15. ለአዲስ የተወለደ ህፃን ሳል ማር ወይም የባህላዊ መድሃኒቶችን መጠቀም ደህንነቱ የተጠበቀ ነው?

- 1.አዎ
- 2.አይ

16. ጡት መጠባበቅ ህፃኑን ከኢንፌክሽኖች ይጠብቃል?

- 1.አዎ
- 2.አይ

17. አዲስ የተወለደ ህፃን በተመከረው መርሃ ግብር መሰረት ሁሉንም ክትባቶች መቀበል አለበት?

- 1.አዎ
- 2.አይ

18. አዲስ የተወለደ ህፃን በመጀመሪያዎቹ ቀናት ክብደቱን መቀነስ መደበኛ ነው?

- 1.አዎ
- 2.አይ

ክፍል 3: የአዲስ የተወለደ ህፃን እንክብካቤ ልምዶች

(ተግባራዊ የህፃን እንክብካቤ ባህሪያትን ለመገምገም)

1. ህፃንዎን ከመወለዱ በኋላ በመጀመሪያው አንድ ሰዓት ውስጥ ጡት አጠቡት?

- 1.አዎ
- 2.አይ

2. አሁን ብቻ የጡት ወተት መመገብ ታደርጋለችሁ?

- 1.አዎ
- 2.አይ

2. ህፃኑን ከተወለደ በኋላ እንዴት ትሞቃለችሁ?

1.ቆዳ-ለ-ቆዳ ንክኪ (KMC)

2.በብዙ ልብስ መጠቅለል

3.ማሞቂያ/የክፍል ሙቀት መጠቀም

4.ሌላ (ይግለጹ) _____

4. የእርግዝና ገመድ ቅርፊትን እንዴት ታነጻለችሁ?

1.በአንቴሴፕቲክ

2.በሳሙና እና በውሃ

3.የባህላዊ ንጥረ ነገሮችን በመተግበር

4.አንገጻውም

5. የህፃኑን የመጀመሪያ መታጠብ ቢያንስ ለ24 ሰዓታት ታዘግያለችሁ?

- 1.አዎ
- 2.አይ

6. ህፃኑ የት ይተኛል?

- 1.በተለየ አልጋ
- 2.ከወላጆች ጋር (አንድ አልጋ ላይ)
- 3.ሌላ (ይግለጹ) _____

7. ህፃኑን በተመከረው የክትባት መርሃ ግብር መሰረት ታከትባለችሁ?

- 1.አዎ
- 2.አይ

ክፍል 4: ችግኝነቶች እና ተያያዥ ምክንያቶች

(ትክክለኛ የህፃን እንክብካቤን የሚከለክሉ እንቅፋቶችን ለመለየት)

1. አዲስ የተወለደ ህፃንን በመንከባከብ ላይ ምን ዓይነት ችግኝነቶችን ትጋፈጣለችሁ? (ብዙ መልሶች ይቻላሉ)

- 1.የእውቀት እጥረት
- 2.የፋይናንስ ችግኝነት
- 3.የባህል/ባህላዊ እምነቶች
- 4.የቤተሰብ ድጋፍ እጥረት
- 5.ከጤና ተቋማት ርቀት

2. በህፃን እንክብካቤ ውስጥ ከቤተሰብ ወይም ከጤና ሰራተኞች ድጋፍ ታገኛለችሁ?

- 1.አዎ
- 2.አይ

3. ማንኛውንም የድህረ-ወሊድ የጤና ትምህርት ስልጠና ተሳትፈዋል?

- 1.አዎ
- 2.አይ