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St. Paul's Hospital Millennium Medical College**

SCHOOL OF PUBLIC HEALTH

**KNOWLEDGE AND PRACTICE OF ESSENTIAL NEWBORN CARE AND
ASSOCIATED FACTORS AMONG MOTHERS ATTENDING POSTNATAL
CARE AT PUBLIC HEALTH FACILITIES OF ASSOSA ZONE,
BENISHANGUL GUMUZ REGIONAL STATE, ETHIOPIA.**

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Abbreviations and Acronyms

ANC	Antenatal Care
AOR	Adjusted odds ratio
BEmONC	Basic emergency obstetric newborn care
CI	Confidence interval
COR	Crude odds ratio
DRC	Democratic Congo
EDHS	Ethiopian demographic health survey
ENC	Essential newborn care
ENBCP	Essential new-born care practice
EBF	Exclusive breast feeding
HC	Health center
HFs	Health facilities
LBS	Live births
MDG	Millennium Development Goals
NMR	Neonatal mortality rate
NICU	Neonatal intensive care unit
PNC	Postnatal care
SPSS	Statistical Package for the Social Sciences
SSA	Sub-Saharan Africa
WHO	World health organization

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Summary

Background: A series of procedures known as the essential new-born care practice (ENBCP) include safe cord care, thermal care, and starting nursing within the first hour. These procedures all help to lower newborn morbidity and mortality. Worldwide, the newborn era, which requires more care to safeguard a baby's life, accounts for 46% of mortality in children under the age of five. One of the Ethiopian regions with a high infant mortality rate is Benishangul Gumuz.

Objective: To assess the magnitude of essential new born care knowledge, practice and its associated factors among mothers attending postnatal care at public health facilities in Assosa zone, Benishangul Gumuz, Ethiopia.

Methods- A cross-sectional study with an institutional focus was carried out between December 15, 2021, and January 20, 2022. By using rigorous random sampling methods, 492 mothers from eight HCs and one public hospital in the Assosa zone were chosen. Following the pre-test at Chamatsa HC, which was conducted on 5% of the sample size, data were gathered using a semi-structured questionnaire. Using SPSS software version 20, data was examined. Bivariate and multivariate logistic regression analyses, as well as descriptive statistics, were performed. Adjusted odds ratios with 95% confidence intervals were used to gauge the strength of the link. The p-value threshold of 0.05 was used. Texts, tables, and graphs were used to present the final findings.

Result: In this study, 74.4% of women had good essential newborn care knowledge, and 63.8% had good practice in this area. In comparison to mothers without any formal education, mothers who had formal education were 3.26 times more likely to know how to provide essential newborn care (AOR = 3.26, 95% CI: 1.38- 7.66), and mothers who lived in urban areas were 2.60 times more likely to provide essential newborn care than their counterparts(AOR= 2.60, 95% CI: 1.15- 5.87). The majority of responders, 349 (70.9%), had knowledge of newborn care; of these, 346 (70.3%) had begun breastfeeding within the first hour.

Conclusion: - In this study the level of comprehensive essential newborn care practice is low. So, HEWs should strengthen home visit to every mother during their postpartum period in order to provide appropriate information regarding essential newborn care essential for improving the service

Keywords: knowledge, Practice, Essential newborn care, Newborn, Postpartum care, Ethiopia

1. Introduction

Background

Essential new-born care practice (ENBCP) is a series of procedures that is used to reduce neonatal morbidity and mortality worldwide. These procedures include safe cord care, thermal care, and starting nursing within the first hour. No matter where or how big the infant is, every newborn needs this care. It should be used as soon as the baby is born and kept on for at least the first week following birth (1,2).

About 46% of neonatal deaths worldwide are caused by the most vulnerable period, which is the period around labor, delivery, and the first 28 days. By assuring the provision of high-quality critical newborn care, combined with proper neonatal care in the postnatal period, 75% of newborn fatalities and problems can be avoided. Under-five mortality rates have been steadily declining over the past ten years as a result of a greater global commitment to improving the lives of newborns. Although infant mortality rates have decreased, despite these declines, neonatal mortality rates have remained unacceptable high, with an estimated 2.6 million fatalities occurring each year (3–5).

Essential newborn care knowledge and practices have been found to be underrepresented in low-income countries. A research conducted in Nepal found that 64% of infants were nursed within one hour after being dried, wrapped, and cleaned on their first day of life. Low adoption of ENC practices has been identified as a major contributor to neonatal mortality in Sub-Saharan Africa, along with other socio-demographic determinants. A research done in rural southern Tanzania found that just 19% of home-born infants were bathed after six hours, but that 41% of newborns were dry and 28% were wrapped within five minutes of birth(6–8).

It is important to comprehend the care provided to the babies in a home environment as the majority of neonatal deaths in underdeveloped nations occur at home as a result of births attended by inexperienced experts. In Sub-Saharan Africa (SSA), only five nations—Nigeria, the Democratic Republic of the Congo, Ethiopia, Tanzania, and Uganda—account for 50% of newborn mortality, and up to 67% of those deaths may be avoided with high-quality care and modest changes in household practices (1,9).

Neonatal morbidity and mortality are significantly reduced when newborn care knowledge and practices are used right after delivery. In developing nations, it is simple, inexpensive,

and quick to reduce the risk of death; nonetheless, the issue persists because there are insufficient standards for maternal newborn care(10,11).

The Essential Newborn Care Practices (ENCP) is a set of WHO guidelines that are evidence-based and economical ways to enhance neonatal health outcomes. All parties involved in the care of the neonate, including as the mother, healthcare professionals, the community, and the government, are expected to follow this recommendation to reduce neonatal morbidity and mortality(12).

The estimated neonatal cause of death from infection is 47%, which accounts for nearly half of the neonatal death, and Ethiopia is one of the African nations with the highest newborn mortality rates. Around 120,000 neonatal deaths during the first week of life occur annually in Ethiopia, accounting for 42% of all under-five mortality (11).

Ethiopia adopted Community-based newborn care implementation programs to lower neonatal mortality, which include expanding community-based maternal and newborn health services, providing essential neonatal care, as well as developing strategies for proper care of the neonate in domestic settings and making sure those neonates who cannot be managed at home are properly referred (13,14). Only a small number of studies, mostly restricted to Ethiopia's north, have been done on crucial new-born care knowledge and practices. To the best of the researchers' knowledge, little is known about the knowledge and practices of crucial new-born care and the factors impacting it in western Ethiopia in general and the study area in particular and there is no prior published work on these topics (15).

The aim of this study was to assess the magnitude of newborn care knowledge, practice and associated factors in public health facilities of Assosa zone, north western Ethiopia.

1.1. Statement of the problem

About 3.1 million children worldwide die each year in the first 28 days of life, according to a World Health Organization (WHO) report from 2011. Due to premature deliveries, severe infections, and birth asphyxia, 50% of these unexpectedly occur during the first 24 hours of delivery, and 75% occur in the early neonatal period (0 to 6 days after delivery). In the first 28 days of life, 1.16 million African infants per year pass away. In South Asia and Sub-Saharan Africa, the poorest communities bear a disproportionate amount of the burden of newborn mortality and ill health (11,16) .

Over 75% of neonate dies within the first week following birth. One in every eleven children in Sub-Saharan Africa dies before the age of five. When compared to rates in wealthy nations, this is roughly 15 times higher. In addition, 6.3 million children died in Southeast Asia and Sub-Saharan Africa in 2013. The percentage of newborn mortality to under-five fatalities is predicted to rise from 45% in 2015 to 52% in 2030(17). If the trend keeps up, One of the crucial infant care practices suggested by the World Health Organization to lower morbidity and mortality among newborns worldwide is clean cord care. Despite this, because to the high prevalence of unclean cord care procedures, cord infections are still common in developing nations (18).

Following this, only five countries—Nigeria, the Democratic Republic of the Congo, Ethiopia, Tanzania, and Uganda—account for 50% of neonatal deaths, and up to 67% of sub-Saharan Africa's newborn deaths could be avoided with high coverage of care, simple at-home practices like birth preparation, breastfeeding, keeping the baby warm, and safe cord care practices. Additionally, neonatal mortality can be decreased by care provided at childbirth and (10–27% by care provided at postnatal care services (1).

According to the most current mini-EDHS 2019 data, neonatal mortality increased in Ethiopia from 29/1000 to 30/1000, despite a decrease in infant mortality from 48 to 43 deaths per 1,000 live births. A significant majority of maternal and neonatal deaths take place in the first 48 hours following delivery as a result of mothers not knowing how to care for themselves and their newborns immediately after birth(19).

In addition, there are a lot of unscientific, unclean health practices, and societal taboos in neonatal care that leave the baby very susceptible to infection. The first 48 hours following delivery are the most dangerous for the mother and the child in terms of morbidity and mortality related to childbirth (10).

Ethiopia still has relatively low rates of skilled healthcare provider delivery (16.4%) and postnatal care (13%). The majority of moms give birth at home with the assistance of traditional delivery attendants, which has led to numerous harmful customs being imposed by mothers and grandmothers to the newborn child. Baby drying and cloth covering are optional. There have been no reports of skin-to-skin contact, and newborns are frequently put a little to the side of the mother. Additionally, there are many illogical, unsanitary health practices, and societal taboos in neonatal care that put the infant at a great risk(20,21) .

Neonatal deaths and stillbirths are not seen as an issue in many Ethiopian societies, especially in Benishangul Gumuz, in large part because they are so common. In many cultures, this condition has been accommodated by delaying the recognition of the birth as complete and delaying the naming of the child until the newborn infant has survived the critical first few days. Since the awareness of opportunity is still developing in many countries, primary and secondary level health care providers frequently lack the abilities to address the needs of newborn children. As a result, they have little expertise in this area(22)

Ethiopia had some of the highest rates of neonatal morbidity and mortality in the world. In north Gondar, the rate of neonatal mortality was reported to be 214 out of 4888 live births, or 43.8 per 1000 live births. Even though just 26% of deliveries take place in a healthcare facility, newborn mortality is on the rise (23).

When the majority of neonatal and maternal deaths frequently take place at home and without any contact with the formal health sector during the crucial first week of life, there is frequently the greatest gap in infant care. Newborn survival is significantly impacted by some incorrect behaviors, including inexperienced labor assistants, unsafe delivery procedures, taboos, and superstitions related to newborn care (24).

According to Mini-EDHS 2019, Benishangul Gumuz Regional State is among the top three regional states with a high burden of perinatal mortality and has the highest stillbirth rate out of all the regional states of Ethiopia. In general, Ethiopia, like other countries in the sub-Saharan region, has a high perinatal mortality rate(25).

In order to improve essential newborn care services and preserve the lives of neonates in the area, it is crucial to have an understanding of the aspects that link to this type of care. The goal of this study was to pinpoint elements that affect the provision of crucial infant care as well as service gaps in the delivery and NICU departments of local public hospitals and health facilities.

1.2. Rationale of the study

Continually assessing knowledge and practice of mothers on essential newborn care and its determinant factors is one of the key prerequisite information required in designing strategy that can improve newborn health outcomes and ending the preventable causes of neonatal morbidity and mortality.

Therefore, the finding from this study may help policy makers and health care planners by providing useful information about factors hindering good neonatal care practice, and forcing them to consider designing new program or improving the quality and effectiveness of the current intervention programs on neonatal care practice. Mothers and new-borns are directly benefited from the finding of the study as the identified level of practice and factors affecting it influences quality care of the mothers and new-born.

In addition to that the study could provide information for those who are working on child health to focus on neonatal care practice in a community or professionals to provide high standard quality care by using evidence based practice; also the findings will help them by providing useful information for development of effective education program and awareness creation forums for mothers regarding essential newborn care practice.

Finally since there are limited published studies on ENBC in Ethiopia, study may provide pathways and information for other future researchers on similar study.

2. Literature review

2.1. Magnitude of essential newborn care practice

Each year nearly 7.7 million children under five years die around the world. Neonatal mortality accounts for approximately two-thirds of all infant mortality and 45% of deaths of children aged less than five years (under-five mortality). Only 42% of newborns were breastfed within 1 hour of birth in 2017, an increase from 37% in 2005. In Sub Saharan Africa (SSA) the prevalence of early initiation of breastfeeding vary; 40% in West and Central Africa, 65% in Southern Africa, 62% in Kenya, 66% in Uganda and 80% in Rwanda (26,27) .

Neonatal mortality is continuously becoming a progressive public health problem in the marginalized and poorest populations in countries of Sub-Saharan Africa and South Asia because of factors like poverty, poor quality of health care. The majority of neonatal mortality in developing countries is related to conditions of labor, intra-partum and poor immediate newborn care practices. More than 60% of infant and 40% of under-five deaths in Ethiopia are neonatal deaths. This dire situation calls for extensive health care services(13,28).

Even though there are remarkable reductions in infant and under-five mortality in Ethiopia, the reduction in neonatal mortality has not been as impressive. In other words, in Ethiopia 1 in every 35 children dies within the first month and 1 in every 21 children dies before celebrating the first birthday (29) .

The maximum gap in newborn care is often during the critical first week of life when most neonatal and maternal deaths often occur at home and without any contact with the formal health sector. An acceleration of the pace of the progress of under-five and neonatal mortality reduction is urgently required to achieve the sustainable development goal (SDG) target on the child Survival particularly in high mortality countries in sub Saharan Africa. A Promise Renewed, Aiming for a continued post-2015 focus to end preventable child deaths(24,30)

These easy practices are significant for all babies in order to save lives, but also need to be integrated into a comprehensive newborn care package which includes immediate care at birth, care-seeking behavior, and additional care for sick and premature babies, and resuscitation. Successful promotion of ENC at scale could significantly contribute to reducing the leading causes of newborn deaths in LICs, especially those due to sepsis/pneumonia, preterm births and tetanus(31) .

Benishangul Gumuz is one of the region in Ethiopia with high neonatal mortality 35 per 1000 live birth and under 5 mortality next to Afar by 98 per 1000 live birth according to report from EDHS 2016.(32).

2.2. Factor associated with essential newborn practice

2.2.1. Thermal protection

The study done in Amaro woreda southern Ethiopia shows that, a recent systematic review of low- and middle-income countries found that the prevalence of hypothermia ranged between 32% and 85% for newborns delivered at hospitals and between 11% and 92% for newborns delivered at homes. Another study done in rural eastern part of Ethiopia also shows that ,Newborns who weren't made in skin to skin contact with their mothers after delivery were 2.9 times more likely to be hypothermic as compared to those who had skin to skin contact (AOR = 2.87,95% CI: 1.48, 5.57) (29,33).

2.2.2. Safe cord care

The study done in rural Ethiopia revealed that, majority 377(73.9%) of the respondents practiced safe cord care. Some respondents were used to tie cord different instruments. About 250 (49%) stated they used a sterile cord tie, 80 (15.7%) stated were used unsterile materials. Regarding materials applied on the cord, 298 (58.4%), 34 (6.7%), and 178 (34.9%) stated that they applied nothing, anti-septic solution, and butter, respectively(34).

The study done in in rural eastern zone Tigray shows that, Ninety two (16.0%) of the respondents were reported as have applied anything on the cord, among these 74 (80.4%) and 18 (19.6%) of women had applied Vaseline and butter respectively similarly the study done in Laura district Ghana shows that, women aged 35 years were 6.6 times more likely to provide safe cord care to their babies than women under 20 years (AOR = 6.57, CI: 1.71–25.31), $p = 0.006$. (11,35).

2.2.3. Breast Feeding practices and health service utilization

The study done in rural Ethiopia revealed that about 386 (75.7%) respondents were initiation breastfeeding within 1 h after delivery. Only 203 (39.8%) mothers fed colostrum to their newborn. Additionally, 350 (68.6%) stated that they exclusively feed their newborns until the first 6 months, while 301 (59%) reported that newborns should exclusively breastfeed until 6 months.(34)

The study done in Moshi municipal, northern Tanzania, shows that women who had knowledge on time of breastfeeding initiation during pregnancy had 3 times more higher

odds to initiate breastfeeding early compared to others (Adjusted OR = 3.01 (1.56–5.81). another study done in Mandura north western Ethiopia, shows that, the odds of good newborn care practice among mothers who know first breast feeding time (AOR=1.74 95% CI: 1.12, 2.71) than who don't know the first breast feeding time (36,37).

The study in Kenyatta National hospital shows that ,Poor knowledge was also associated with those who had lower than tertiary level of education; OR 6.1 (95% CI 2.5-15.1) for primary education and OR 3.3 (95% CI 2.0-5.2) for secondary education with p values both less than 0.001. Similarly, According to the study done in southwest Ethiopia, revealed mothers who had primary, secondary, and college and above educational status had three times (AOR = 2:80, 95% CI: 1.027-7.637), three times (AOR = 2:596, 95% CI: 0.921-7.316), and four times (AOR = 3:63, 95% CI: 1.056- 12.492) more likely to practice newborn care than mothers who had no formal education, respectively (38,39).

The study done in Gulomekada District, Eastern Tigray shows that, the odds of practicing essential newborn care is 6.57 among urban resident mothers compared to rural resident mothers 2.73(0.44, 17.0)] and another study done in La Dade Kotop on Municipality, Ghana shows that, Respondents who were unemployed (AOR = 0.13, 95% CI: 0.09–0.26) were less likely to have adequate knowledge about essential newborn care (3,40).

The study done in Himalaya's shows that, Mothers whose family income was more than \$100 USD per month (AOR 4.17 at 95% CI 1.75–9.69), completed three postnatal visits (AOR 3.27 at 95% CI 1.16–9.20) and had adequate newborn care knowledge (AOR 15.35 at 95% CI 5.82–40.47) were found to be more likely to practice satisfactory level of newborn care practices (41).

The study done in Aksum town shows that, Employed women were 7.08 times more likely to practice essential new born care than housewives with AOR = 7.08; 95% CI (2.21, 2.72). Women who have 2–3 number of deliveries were 1.84 times more likely to practice essential new born care than women who gave birth once with AOR = 1.84; 95% CI (1.04, 3.26)(42).

2.2.4. Timing of newborn bathing

The study conducted in Mekelle city northern Ethiopia revealed that, mothers who have been informed of newborn care practices during and after birth had 4.97 times (AOR = 4.97; 95% CI (1.93, 12.76)) higher odds of good newborn care practice than those who had no health information about ENBC during ANC visit and another study done in Harar region eastern Ethiopia shows that, women educated at primary level were [(COR= 2, 95% (1.15, 3.7)] times more inclined to bathe their newborn baby <24hr after delivery compared with those

educated to college and above. Similarly, women whose husbands had no education [(COR= 1.45, 95% (0.79, 2.6)] were more likely to bathe their newborns within 24hrs than those educated to college and above. The study done in. (39,43).

The study done in southern Ethiopia revealed that, those woman who had urban residency were 1.70 [AOR 1.70, 95%CI: 1.03–2.79] times more likely to practice essential new-born care as compared with those women who had a rural residency. Mothers who had attended antenatal care visit were 3.53 times and who had attending pregnant mothers meeting were 1.86 times more likely to practice good essential newborn care, (AOR = 3.53, 95%CI: 2.14–5.83) and (AOR = 1.86, 95%CI: 1.21–2.86) respectively. Educational qualification was also found to have association ($p < 0.001$). Diploma holders were 0.250 times less likely knowledgeable about ENC than degree holders (AOR (95% CI) 0.250 (0.120-0.523))(44,45).

According to a study conducted in the Wolita zone of southern Ethiopia, knowledge of the ENC was statistically significantly correlated with educational attainment (AOR 3.26 [CI: 1.42, 7.52]). Additionally, a study conducted in Rwanda's eastern province found that participants who got postpartum ENC instruction are more than twice as likely to have good understanding and practices of ENC than those who did not (OR=2.248, CI=1.137-4.446, $p=0.020$) (46,47).

According to a study conducted in Bahirdar City, Northern Ethiopia, by Awoke et al., respondents between the ages of 20 and 24 were more likely than respondents between the ages of 15 and 19 to practice good newborn care [AOR = 4.636 95% CI (1.024, 20.977)], and a study conducted by the Bahirdar City Administration found that women who received PNC services within six weeks of giving birth had odds of providing good newborn care that were 1.69 times higher than those women who had no PNC visit (AOR= 1.69, 95% CI= 1.03,2.79). Additionally, In the research conducted in Damot Pulsa, southern Ethiopia, found that women who skipped an ANC visit were 73.6% less likely to practice basic newborn care than those who did (AOR =0.213, P = 0.015, CI = 0.102-0.446). (24,48,49).

2.3. Conceptual framework

According to the literature review the main factors associated with knowledge and practice of essential newborn care have been classified as socio-demographic characteristics, maternal factors and health service utilization related factors(21).It helps to summarize the determinant factors and to analyze the association between dependent and independent variables.

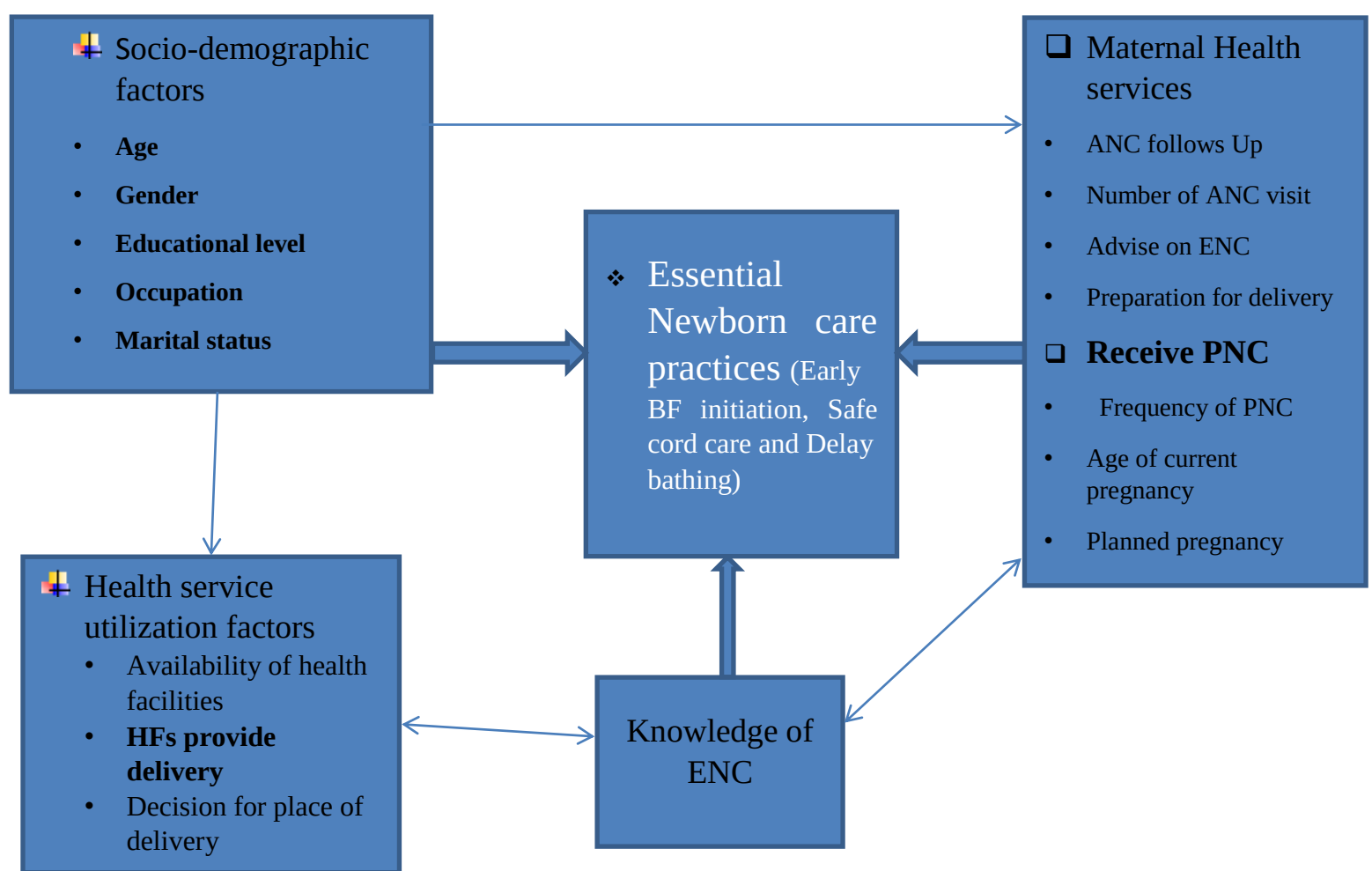


Figure 1: Conceptual framework for the study on essential newborn care and associated factors in public health facilities developed from the study done in Adigrat town, Tigray

3. Objective

3.1. General objective

- ✓ To assess the magnitude of essential new born care knowledge, practice and associated factors among postnatal mothers attending at public health facilities in Assosa zone, Benishangul Gumuz regional state, Ethiopia.

3.2. Specific objective

- ✓ To assess the knowledge about essential newborn care among postnatal mothers in the selected public health facilities in Assosa zone, Benishangul Gumuz regional state 2022.
- ✓ To assess the magnitude of essential newborn care among postnatal mothers in the selected public health facilities in Assosa zone, Benishangul Gumuz regional state 2022.
- ✓ To identify factors associated with essential newborn care knowledge and practice among postnatal mothers at the selected public health facilities in Assosa zone, Benishangul Gumuz regional state 2022.

4. Methods and materials

4.1. Study area

The study was conducted in a public health facility in the Assosa zone, which is found in the Benishangul Gumuz regional state. Assosa is the capital city of the region, which is 675 kilometers away from Addis Ababa in the North West, which is found in the Assosa zone. Administratively, the Assosa zone is made up of eight woredas with a total of 211 kebeles. The region shares common borders with the Metekel zone in the north, the Kamashi zone in the north-east, Sudan in the west, and the Mao-komo special woreda in the south. Based on a survey by the Central Statistical Agency of Ethiopia that was conducted in 2007, the Assosa zone has a total population of 310,822, of whom 158,932 were men and 151,890 were women. 39,957, or 12.86% of the population, were urban inhabitants. With an estimated area of approximately 14,166.12 km² and an altitude ranging from 580 to 2,731 meters above sea level, the annual population growth rate is estimated at 3% per annum. According to the 2013 EC, the Assosa zone was one of the zones in the region that has one general hospital, one primary hospital, 24 health centers, and 197 health posts.

Asossa general hospital was one of the public hospitals in the region, which was situated in Asossa town. The hospital was established in 1977 EFY and renovated in 1982 EFY. The catchment population of the hospital was estimated to be over 600,000. The hospital provides over 15 different services, including NICU service, with 108 beds and 298 employees. 130 were technical staff, and the rest 168 were supportive staff. The average annual service volume of the hospital was estimated to be over 4300 inpatients and over 8700 outpatients.

4.2. The study period

The study was conducted between December 15, 2021 – January 20, 2022 at public health facility in Asossa zone, Benishangul Gumuz regional state, Ethiopia.

4.3. Study design

Health facility-based cross-sectional study was applied to study the knowledge and practice of essential newborn care in Assosa zone, Benishangul Gumuz regional state, Ethiopia.

4.4. Source population

The source populations were all mothers who gave birth within the last six weeks (all visited health facility for delivery, postnatal care and immunization) in the study area.

4.5. Study population

All Selected mothers who gave birth within the last six weeks "and or" mothers who came for delivery, post natal care and immunization from the selected health facilities were considered as study population.

4.6. Inclusion criteria

All Women who gave a live birth within the last six weeks in the study area were included in the study.

Exclusion criteria: Women who were seriously sick or with known mental illness, neonatal death and infant with care giver/ guardians were excluded from the study.

4.7. Sample size and sampling procedure

The sample size of this study was determined by using a single population proportion formula considering prevalence of good newborn care practice from study done in Gedeo Zone, Southern Ethiopia 24.1% ($P=0.241$) at 95% confidence interval and 5% margin of error. Adding non-response rate of 10% (28).

The size of the sample was determined by the formula:
$$n = \frac{(z \alpha/2)^2 p (1-p)}{d^2}$$

$$\text{Calculation} = \frac{(1.96)^2 \times 0.241(1-0.241)}{(0.05)^2} = \frac{0.7027}{0.0025} = 281$$

Where

n- Minimum sample size needed

P- 24.1% from study done in Gedeo Zone 2020(28).

Z- Significance level at confidence interval of 95%

d- The margin error between the sample and the population (0.05)

$Z\alpha/2$ = Value of the standard normal distribution corresponding to a significant level of alpha (α) 0.05, which was 1.96.

Therefore the total sample size calculated with single population proportion formula by adding 10% of non-response rate was **309**.

EpiInfo-7 Stat Calc calculates the required sample size using a double population proportion formula, taking into account the following assumptions: 24.1 percent (newborn care practice from a study done in Gedeo Zone, Southern Ethiopia, with a 95% confidence level and a 5% margin of error. The ultimate sample size was 492, which was calculated by adding a 10% non-response rate and multiplying by 2 for the design impact. I utilized the highest sample

size, 492, because the sample size estimated above using prevalence or frequency (309) was smaller than that computed using associated factors (492).

Table 1 : The sample size calculated using EPinfo. Version -7 Stat Calc at health facility of Assosa zone in Benishangul Gumuz western Ethiopia 2022

S.no	Sample variable	Ratio	Power	Odds ratio	Risk Ratio	% outcome In unexposed group	% outcome In exposed group	Design effect	Total sample size
1	Maternal education	1	80%	2.6	1.25	67.5%	32.6%	2	492
2	ANC visit	1	80%	5.7	2.77	22.5%	77.5%	2	124

4.8. Sampling Technique and Procedure

The study was done in Assosa zone among randomly selected health facilities. The Asossa zone was one of three zones in the region that have eight woredas and one town administration. Out of eight woredas, five woredas (Asossa woreda, Homosha, Menge, Shorkole, Bambasi woreda) and Asossa town were selected by simple random sampling technique. There were 24 health centers, 1 general hospital, and 1 primary hospital. Out of these, 8 health centers (33%) and 1 general hospital were selected by simple random sampling method. The stratified sampling technique was used to select the required sample size by allocating a proportional size to each of the nine health facilities based on the average monthly visits for delivery, postnatal care and immunization.

The study participants were all selected mothers who attended postnatal care in selected health facilities within the last six week after delivery. Sampling interval (k) was determined by dividing the total number of mothers expected to visit MCH clinic of each health facility in one month period by number of sample size allocated to each health facility, thus sampling interval is approximately 2 for each health facility. Systematic random sampling was used to select the study participants and the first study subject was selected from the first or the second client randomly, and then taking every 2nd clients from mothers came for MCH service.

Table 2: Schematic presentation of sampling procedure in Assosa zone, Benishangul Gumuz, North western Ethiopia 2022 n=492).

Woreda	Hospital/HC	Total number of mothers(Ni)	allocated proportionately for each month($n_i = n * \frac{N_i}{N}$)
Assosa town	AGH	427	195 (427*492/1075)
	Assosa HC	138	62
Assosa Woreda	Abrehamo HC	54	25
	Ura HC	46	21
	S/22 HC	61	28
Bambasi Woreda	Bambasi HC	106	49
Homosha woreda	Homosha HC	87	40
Menge HC	Menge HC	93	43
Kurmuk woreda	Kurmuk HC	63	29
	Total	1075	492

4.9. Measurements

4.10. Study variable

Dependent variable: Essential New born care practice and knowledge of Essential newborn care

Independent variables: Age, gender, Religion, Educational level, occupation, marital status.

Maternal health service

Antenatal care follows up, Number of Antenatal care visit, Advice on essential newborn care, Preparation for delivery, Receive postnatal care, Frequency of postnatal care, Age of current pregnancy, planned pregnancy and parity.

Health service utilization

Availability of health facilities, Health facilities provide delivery, Decision for place of birth, Health education, availability of essential newborn care guideline.

4.11. Data Collection Instruments.

Data were collected through a semi-structured questionnaire which was used to assess essential newborn care knowledge and practice. The questionnaire was developed from different literature that was used to collect data from mothers who have neonates within the last six weeks on different variables.

4.12. Data collection tool and procedure

Data were collected using a pre-tested interviewer administering a semi-structured questionnaire. The questionnaire was developed by the investigator after an intensive review of different literature that was prepared in English, translated to Amharic and then translated back to English to check for consistency. The questionnaire was containing socio-demographic and socio-economic information, obstetrics characteristics, and essential newborn care knowledge and practice. Nine diploma midwives and nurses were collect data. Two supervisors who have a first degree in midwifery/nursing with experience in data collection were involved in supervision. Two days of training was given for data collectors and supervisors before data collection time and a pretest was done. The study teams were deployed to the study sites to collect the data from the selected study units by following the data collection procedures, before data collection pre-test was done, on 5% of the sample population at Bambasi woreda Mender 46 Health center. The data was collected thoroughly from the knowledge and practice of essential newborn care was defined. The definition is based on the number of mothers who gave birth within the last six weeks in the study area. And the data were collected after verbal consent has been approved.

4.13. Operational definitions

Essential newborn care: is the care provided to a newborn immediately after delivery which includes dry, keep the newborn warm (prevent hypothermia), initiate breastfeeding, administer eye ointment, administer vitamin K IM, weigh the newborn, cord care and delayed bathing for 24 hours after birth.

Initiation of breastfeeding: the recommended practice of breastfeeding a newborn baby within one hour after birth.(37) .

Cord Cutting: the practice of cutting a cord with a new blade or a boiled blade(37)

Thermal care: when the new born was dried and wrapped after birth.

Baby bathing: - The practice of newborn baby bathing only after 24 hours of birth(21).

Knowledge and practice of postnatal mothers towards ENBC were the two main outcome variables in this study. Knowledge was assessed using a total of 6 “Yes/No” questions on

various aspects of newborn care (e.g. Knowledge regarding immunization, thermoregulation, breastfeeding, and umbilical cord care were assessed). The values were 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 50% of questions were categorized as having good knowledge(39).

The practice was assessed using a series of 8 questions (e.g. Practice on thermoregulation, breastfeeding, and umbilical cord 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. If they perform below 75% of the tasks in the checklist considered as having poor practice(39).

4.14. Quality Control

To ensure data quality, Nine data collectors one from every health facility and two supervisors who were fluent speakers of Amharic and work in the same district were selected and trained for two days on procedures of data collection techniques, approaching participants, ethical issues, quality of data, and the advantages of collecting the actual data as well as the role and responsibilities they have as data collectors and supervisors. The pre-test was done by data collectors on 5% of the total sample size outside of the study selected health facilities (Mender 46 health center) which have the same socio-demographic characteristics with selected health facilities. During the pre-test, lack of clarity on some words was faced, and modification was done accordingly before the actual data collection period. Onsite supervision was carried out during the whole period of data collection on a daily basis. At the end of each day, questionnaires were reviewed and cross-checked for their completeness, accuracy, and consistency by the supervisor and investigator. In case errors are made, corrective measures were taken, and a report was given the next morning before data collection starts.

4.15. Data quality assurance

In order to ensure quality of data, pretest was done on 5% of the sample size of the study one week prior to the actual data collection period from other health facility on women those were not included in the actual study. Based on the pretest result wording, language consistency and edition made. Principal investigator and supervisor were checking daily the completeness of the filled tool.

4.16. Data Processing and Analysis procedures

After data collection, data was checked for consistency and completeness; it was entered into Epi data Version 3.1 and was analyzed using SPSS version 20. Bivariate logistic regression analysis was used to see significance of association between dependent and independent variables. P-Value less than 0.05 were taken as statistically significant. Multiple logistic regressions were used to identify associated factors & the strength of association was measured by odd ratios with 95% CI. Variables that had significant association with the outcome variables in the crude analysis were entered in to multivariable logistic regression model. In a Multivariable logistic regression model using adjusted odds ratio (AOR) independent predictors of new-born care practices among postpartum mothers were identified through controlling the confounding effects of other variables. Descriptive statistics was calculated and finally obtained results were presented by using simple frequency tables, graphs and charts.

4.17. Ethical consideration

Ethical clearance and approval were obtained from the ethical approval committee of St Paul's Hospital Millennium Medical College. A formal letter from the Benishangul Gumuz Regional Health Bureau was submitted to the study health facilities to obtain their co-operation in facilitating the study. Data were collected, after explaining the aim of the study, confidentiality and its possible benefits to the study participant. During data collection, informed consent was taken from each study participant. Consent of the autonomies, privacy, and justice of the individual were addressed. The respondents were free to withdraw/interrupt participation at any time of the study without any penalty. The information collected were stored securely.

4.18. Dissemination of findings

The final report of the study was defended at St Paul's Hospital Millennium Medical College. The results of the study were also be disseminated to regional, Zonal and woreda health bureaus, and it were presented at St Paul's Hospital Millennium Medical College, and further efforts were made to publish the results in peer-reviewed international journals.

5. Results

5.1. Socio-Demographic Characteristics

A total of 492 postnatal mothers took part in the study; apart from these 100% of them were voluntary participants who responded to the interview. Regarding their religion, 284 respondents, or 57.7%, identified as Muslims. In terms of schooling, the majority of respondents 114 (23.2%) were in grades 1-6, while 188 (38.2%) were housewives. The majority of responders, 423 (86%), were married and 328 (66.7%) lived in rural areas (Table-3).

Table 3: Socio - demographic characteristics of the respondent in Assosa zone, Benishangul Gumuz, Western Ethiopia, 2022.

Variable	Frequency(492)	Percentage
Religion		
Orthodox	144	23.2
Muslim	284	57.7
Protestant	38	7.7
Catholic	26	5.3
Educational status		
Non formal education	98	19.9
1-6 grade	114	23.2
7-8 grade	98	19.9
9-12 grade	88	17.9
Join college/university	94	19.1
Occupational status		
Gov.t employee	97	19.7
Farmer	121	24.6
House wife	188	38.2
Merchant	68	13.8
Others*	18	3.7
Marital status		
Married	423	86
Single	54	11
Divorced	8	1.6
Widowed	6	1.4
Residence		
Urban	164	33.3
Rural	328	66.7

Others :- * never married

5.2. MATERNAL HEALTH SERVICES

The age of respondents, who made up a total of 350 (71.1%), ranged from 20 to 34 years old on average (SD±5.9). The majority of respondents 481 (97.8%) got antenatal care, and 453 (92.1%) had planned their pregnancy. The majority of women who got prenatal care had their

fourth appointment at 278 (56.5%), followed by their third visit at 131 (26.1%). About 92.1% of the respondents out of 451 had planned pregnancies. 339 (68.9%) of those who went to a health center for ANC were given advice on crucial newborn care procedures. 466 (94.7%) of the midwifery/BSC nurses performed the majority of the deliveries. 421 (85.5%) of the study's participants received postpartum care visits. (Table 4).

Table 4: Maternal health services of respondent, in Assosa Zone, Benishangul Gumuz, Western, Ethiopia, 2022

Variable	Frequency	Percentage
Age at current pregnancy		
< 20 years	70	14.20
20-34 years	350	71.11
35-49 years	72	14.60
Planned pregnancy		
Yes	453	92.10
No	39	7.90
ANC follow up		
Yes	481	97.80
No	11	2.10
Number of ANC visit		
Once	16	3.30
Twice	65	13.20
Third	131	26.60
Fourth	278	56.50
Never	2	0.40
Mother advised on essential newborn care		
Yes	339	68.90
No	153	31.10
Have you Visited HF for PNC		
Yes	421	85.60
No	71	14.40

Most of respondents 281(57.10%) were delivered at health center followed by governmental hospital 202(41.10%).

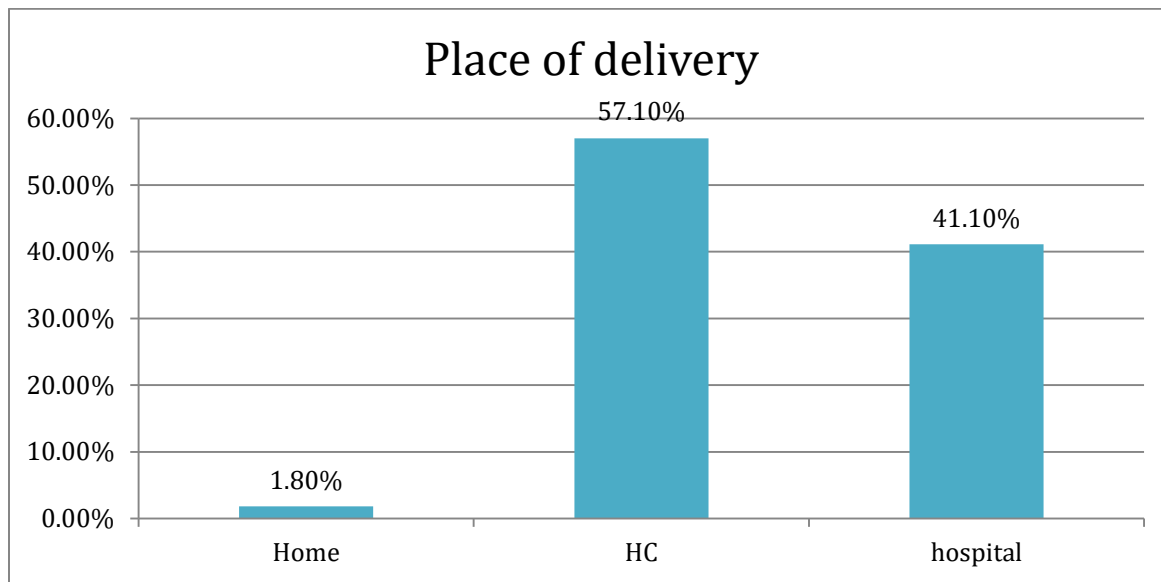


Figure 1 : place of current delivery at public facilities in Assosa zone, Benishangul Gumuz Western Ethiopia 2022.

5.3. HEALTH SERVICE UTILIZATION

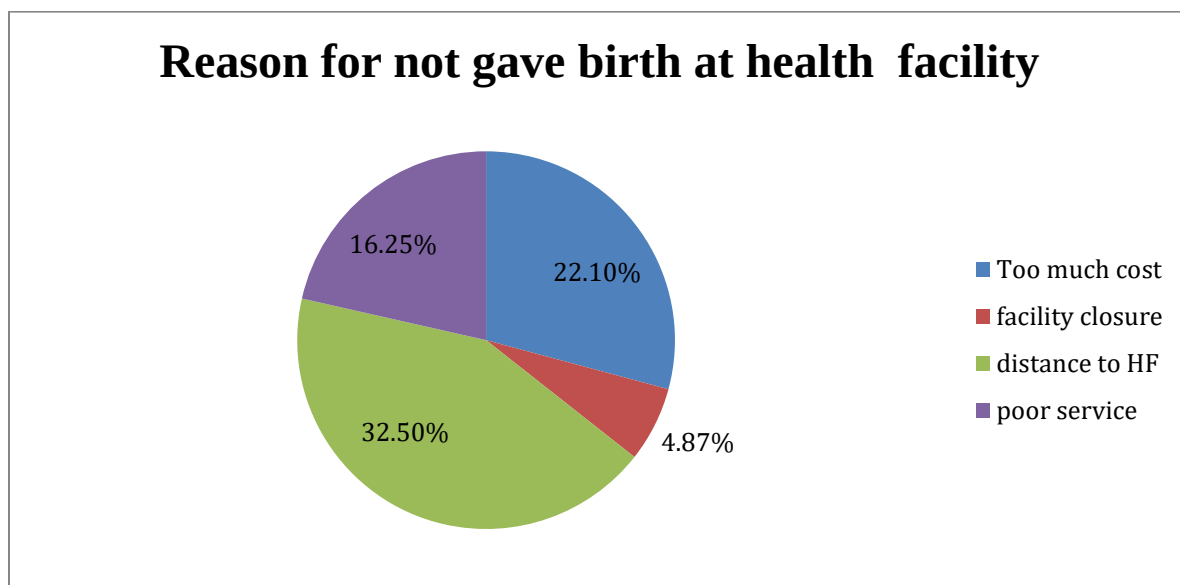
The majority of participants in the study area, 444 (90.2%) had access to health facilities when it came to the use of health services in the chosen health facilities. For the women, 220 (44.7%) said health posts were the closest health facility, followed by 189 health centers (38.4). The majority of respondents, 406 (82.5%), said that they gave birth in a health facility. The majority of respondents 414 (984.1%) chose the delivery location independently without any force from others. (Table 5).

Table 5: Health service utilization of respondents, in Assosa Zone, Benishangul Gumuz, Western Ethiopia 2022

Variable	Number (%)
Is their health facility in the vicinity	
Yes	444(90.2%)
No	48(9.8%)
Types of health facility	
Health post	220(44.7%)
HC	189(38.4%)
Hospital	149(30.3%)

Does health facility provide delivery service	
Yes	406(82.5%)
No	86(17.5%)
Decision for place of birth	
Mother herself	401(81.5%)
Husband	107(21.7%)
Relatives	41(8.3%)

Most of the respondents not use facility for delivery due to; distance to health facility 160(32.5%) followed by too much cost to health care at facility level 109 (22.2%).



* too much cost: Due to shortage of drugs at public health facility level, mothers replied that they buy drugs from private clinics.

Figure 2 : The reason not to give birth at health facility in Assosa zone, Benishangul Gumuz, western Ethiopia 2022.

5.4. KNOWLEDGE OF THE RESPONDENTS

Most of the respondents, 349(70.9%) were knowledgeable about neonatal care. Among those who had knowledge, 345 (70%) of the women knew when to begin breastfeeding, and 346 (70.3%) had done so within an hour. A little over 332 (67.5%) of the women knew something about first breast milk, and 352 (71.5%) of them thought it was significant. More than half of respondents, 335 (68.1%) of women said that it was possible to expose the newborn to morning sunlight. In addition, 351 (71.3%) of women said that there were no

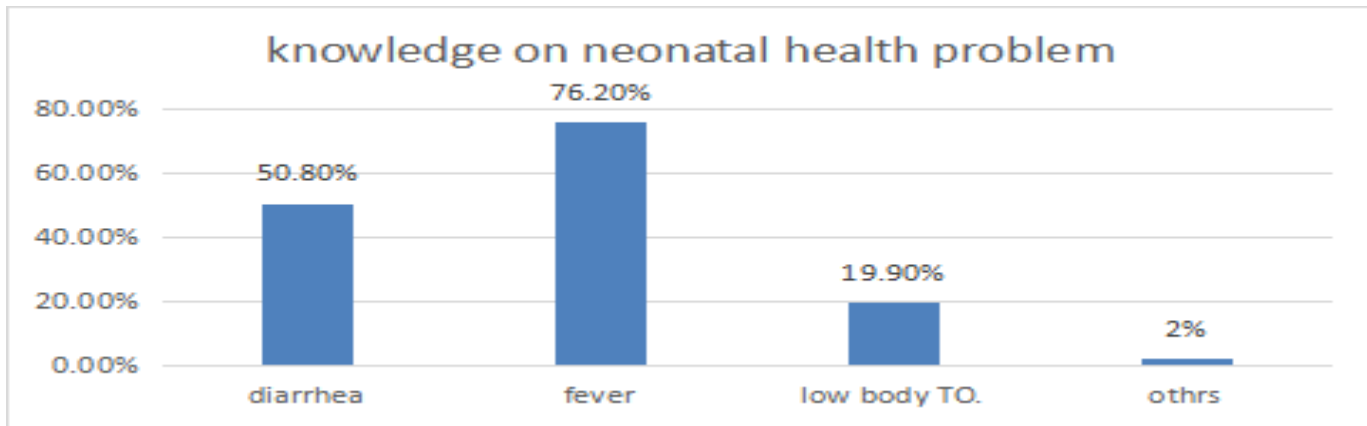
issues with the newborn's vaccination it's good. Just around 339 (68.9%) of the participants knew when to bathe a newborn baby right after birth, which is relevant to the knowledge of the time to bathe a newborn after birth. About 213 (74.4%) of the women were knowledgeable about the most important newborn care (Table 6).

Table 6: Knowledge of the respondents, in Benishangul Gumuz, Assosa zone Western Ethiopia 2022.

Variable	Number (%)
Information on newborn care	
Yes	349(70.9%)
No	143(29.1%)
Information about when to start BF	
Yes	345(70%)
No	147(29.9%)
Knowledge on first BM	
Yes	332(67.5%)
No	160(32.5%)
Advantage of BM	
Advantage	352(71.5%)
Disadvantage	140(28.5%)
Time to start BF	
Within 1 hours	346(70.3%)
Within 2 hours	61(12.4%)
Within 6 hours	75(15.2%)
Within 12 hours	10(2%)
Information when to expose neonate for vaccination	
Yes	351(71.3%)
No	141(28.7%)
Sun light exposure	
Yes	335(68.1%)
No	157(31.9%)
Information when to bath the neonate	
Yes	339(68.1%)

No	153(31.1%)
Time to bathing	
<24 hours	126(25.6%)
>24 hours	366(74.4%)
Knowledge on ENC	
Good	366(74.4%)
Poor	126(25.6%)

Most of respondents said fever is one of the neonatal health problem 375(76.2%) followed by diarrhea 250(50.8%) (See figure 4).



Others like: * pneumonia, Asphyxia

Figure 3 : knowledge of women about essential newborn care practice in Assosa zone, Benishangul Gumuz, western Ethiopia 2022.

About 40.7 of the respondents % delivered baby on mother abdomen followed by 30.9% know how to dry/wrapping neonate immediately after birth (see figure 5)

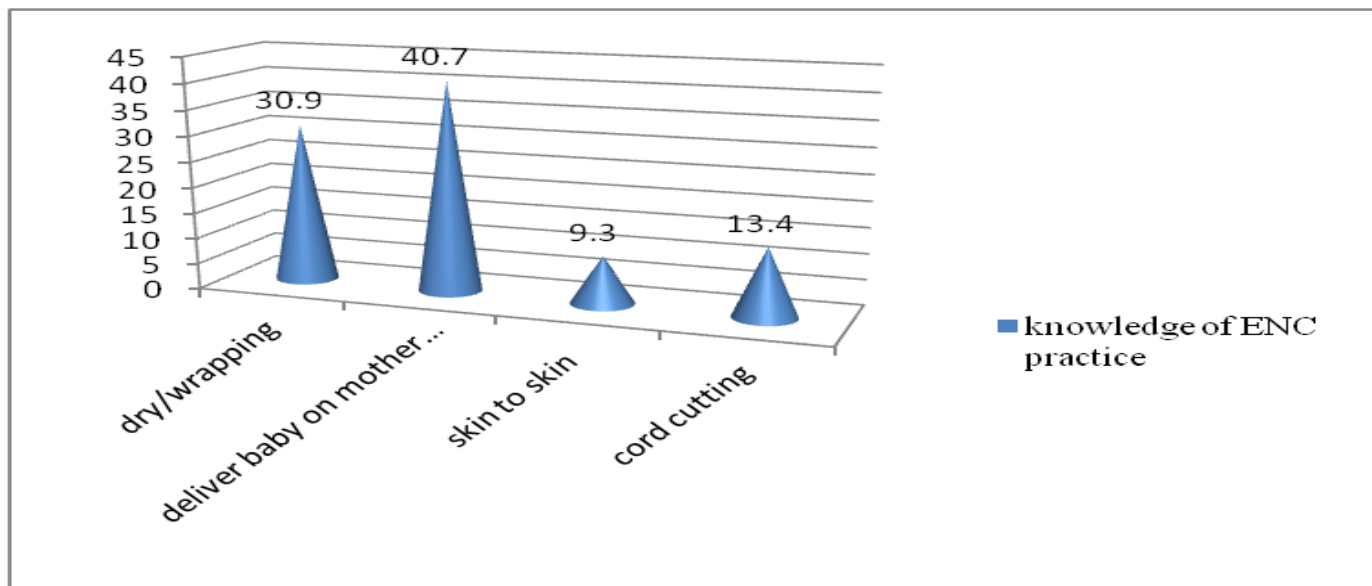


Figure 4: knowledge of women about essential newborn care practice in Assosa zone, Benishangul Gumuz, western Ethiopia 2022.

5.5. NEWBORN CARE PRACTICE OF THE RESPONDENT

Among the respondents, 375 (76.2%) could recall the location where the newborn should be placed just after birth. Among those who could recall where to place the newborn right away after birth, the majority 200 (40.7%) placed the newborn on the mother's abdomen. The majority of respondents, 379 (77%) of the mothers, said they would dry or wrap the newborn, and the majority of respondents, 300 (61%) did so prior to placenta delivery. The majority of respondents 433 (88%) had dried or wrapped the baby with pre-prepared towels. Most of the respondents 330 (67.1%) bathed the newborn after 24 hours. About 378 (78.9%) of the mothers were engaged in skin-to-skin contact. In terms of starting breastfeeding, 376 (76.4%) of the mothers did so within the first hour of giving birth. 78 (14.9%) and 13 (2.6%) of the women gave formula milk and water respectively. About 334 responders (67.9%) had given their newborn their first milk, and 402 mothers (81.7%) breastfed their babies at least eight times per day. 75.7 percent of the 339 women in this study used new, boiled razor blades to cut the cord. (Table 7).

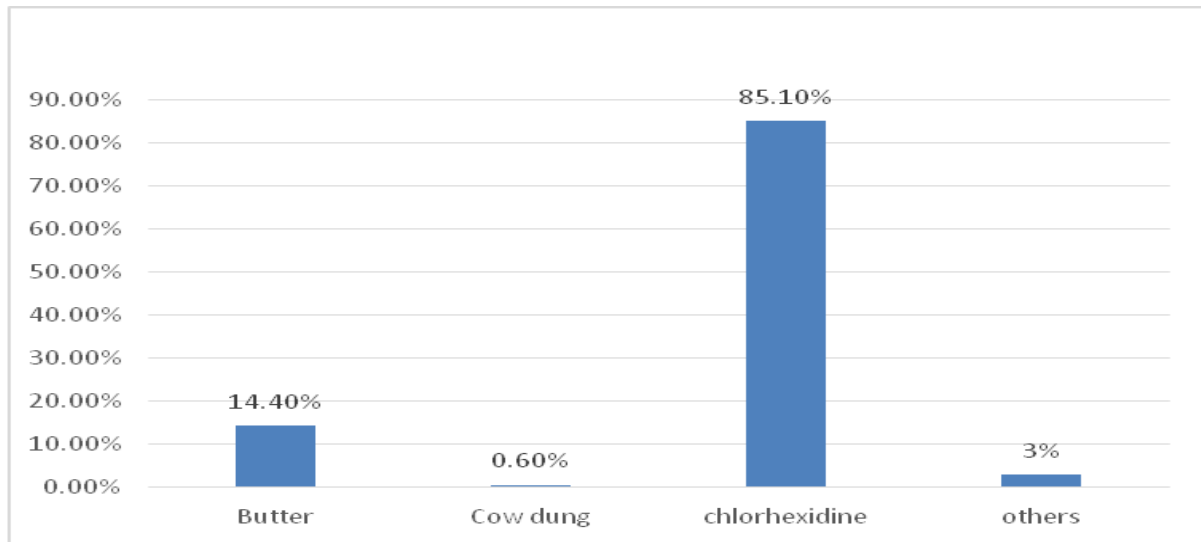
Table 7: Essential newborn care practice of the respondents, in BG, Assosa zone Western Ethiopia 2022.

Variable	Frequency	Percentage
Position neonate		

Yes	375	76.2
No	117	23.8
Place of positioning		
On mother abdomen	392	79.70
Separate from mother	43	8.70
Transfer to father /relatives	3	0.60
Near delivery surface	43	8.70
Drying /wrapping the neonate		
Yes	379	77
No	113	23
Time of drying/wrapping		
Before placenta delivery	300	61
Immediately after placenta delivery	124	25.20
I don't remember	55	11.20
Others	13	2.60
Material used for dry/wrap the neonate		
Pre prepared towel	433	88
A piece of blanket/Gabi	58	11.8
Every available material	51	10.4
I don't remember	4	0.8
Material used to cut the cord		
Boiled new razor blade	339	75.7
Unboiled new razor blade	27	6
available sharp instruments	35	7.8
Others*	48	10.7
Material used to tie cord		
Threat	210	42.7
Cord tie	277	56.3
Cord clamp	9	1.80
Others*	4	.8

Others: - * scissors is material used to cut the cord and some don't know the material used to tie cord

About 85% of the respondents applied chlorhexidine on the cord followed by butter application (see figure 6).



® Others: Vaseline

Figure 5: Shows types of material applied on the cord in BG, Assosa zone, Western Ethiopia 2022.

The majority of the 376 respondents (76.4%) remembered when exclusive breastfeeding for newborns was first introduced. About 116 respondents (23.6%), or those who did not commence exclusive breastfeeding, did not do so. The majority of the 380 responders (77.2%) began breastfeeding their neonate within an hour. About 128 responders (26%) reported providing supplemental nutrition for newborns (see table 8).

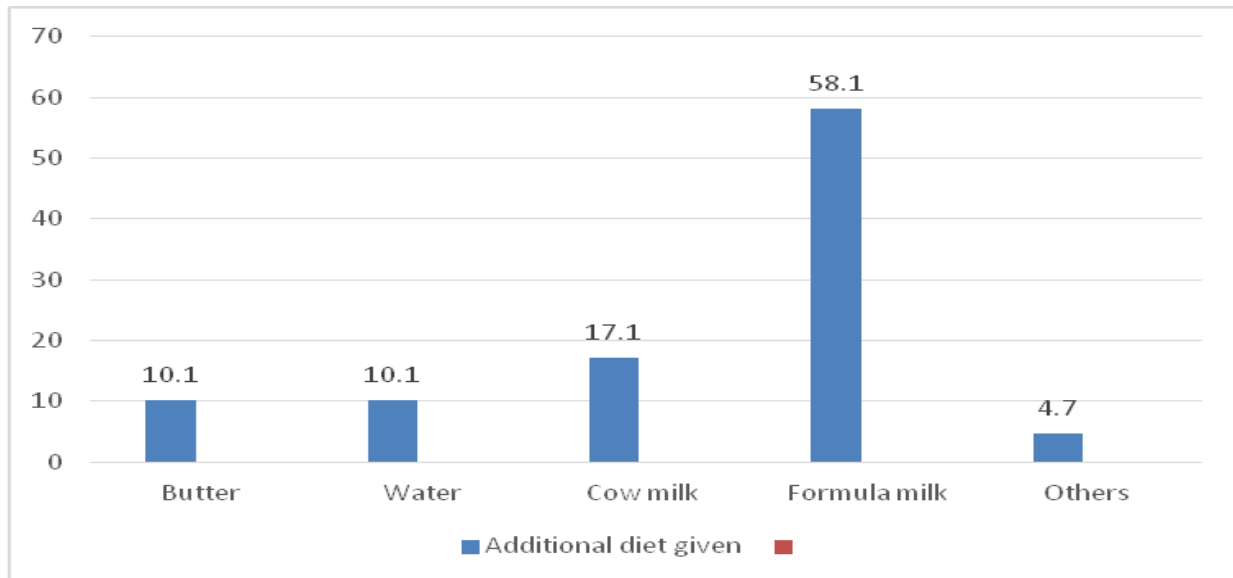
Table 8 : Essential newborn care practices of respondents, in BG, Assosa zone, Western Ethiopia, 2022

Variable	Frequency (%)
Exclusive breast feeding	
Yes	376(76.4%)
No	116(23.6%)
Time to initiate EBF	
Within first one hours	380(77.2%)
After one hours	75(15.2%)
After 2 hours	33(6.7%)
Others*	4(.8%)
Prelacteal feeding	

Yes	128(26%)
No	364(74%)

Others: - * those said they don't know the time to initiate EBF.

About 58.1% of respondents were used formula milk for neonate or use formula milk than initiating exclusive breast milk (see figure 7).



Others: Borage, soup

Figure 6 : shows additional diet given to neonate before 6 month in BG, Assosa zone Western Ethiopia 2022

About 334 (67.9%) of the women gave their newborns their first milk, and 402 (81.7%) of the respondents breastfed their newborns more than eight times daily. More than half of the respondents 344 women or 69.9% remembered taking the time to bathe their newborns as soon as they were born. Following 24 hours after birth, the majority of the 330 respondents (67.1%) were bathing the newborn. 388 of the respondents, or 78.9%, were aware that skin-to-skin contact is beneficial for newborns (table 9).

Table 9: Essential newborn care practices of respondents, in BG, Assosa zone, Western Ethiopia, 2022

Variable	Frequency (%)
Give first milk	
Yes	334(67.9%)
No	158(32.1%)

Frequency of breast feeding	
< 8 times per day	90(18.3%)
>=8 times per day	402(81.7%)
Delay bathing	
Yes	344(69.9%)
No	148(30.1%)
Time of bath	
Within 24hrs	65(13.2%)
After 24 hrs.	330(67.1%)
After 72 hrs.	67(13.2%)
I Don't know	30(6.1)
Skin to skin contact	
Yes	388(78.9%)
No	104(21.1%)

5.6. THE PREVALENCE OF ESSENTIAL NEWBORN CARE PRACTICES

For a total of 492 women, the prevalence of cord cutting, the start of breastfeeding, and thermal care were examined. The study found that 339 (75.7%), 376 (76.4%), and 330 (67.1%) of the participants, respectively, displayed the practices.

The majority of responders (75.4%) start breastfeeding promptly, and the majority (75.7%) practice cord preservation by keeping the cord dry and clean and applying nothing else to it. (figure7).

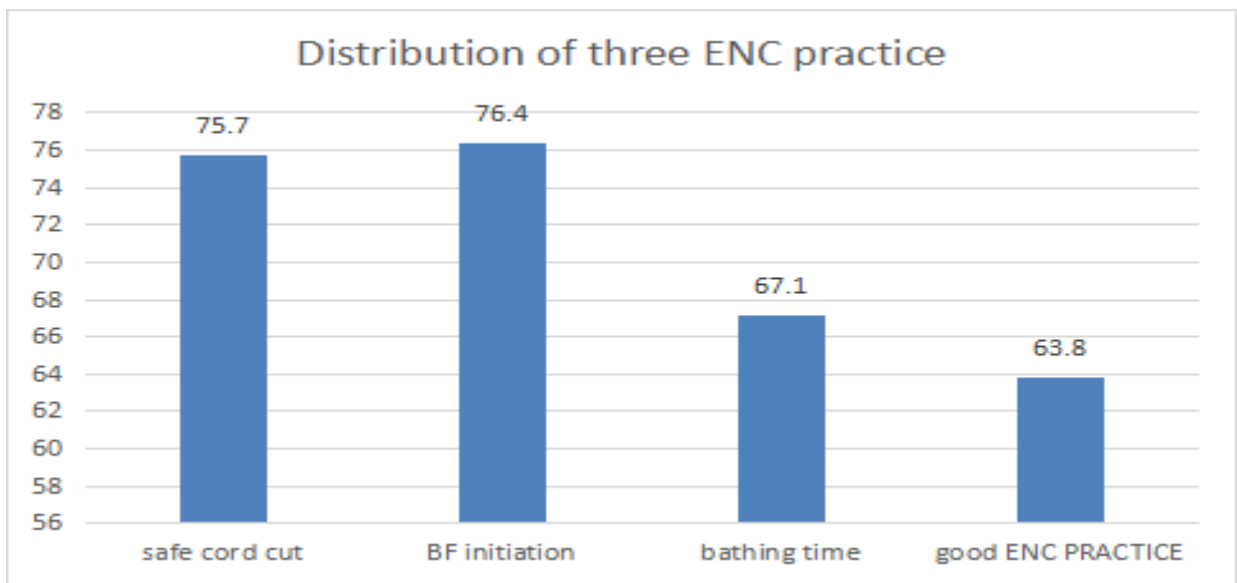


Figure 7 : The distribution of ENC practice in BG, Assosa zone, Western Ethiopia, 2022

About (63.8%) of the respondents had good Essential newborn care practice (see figure 8).

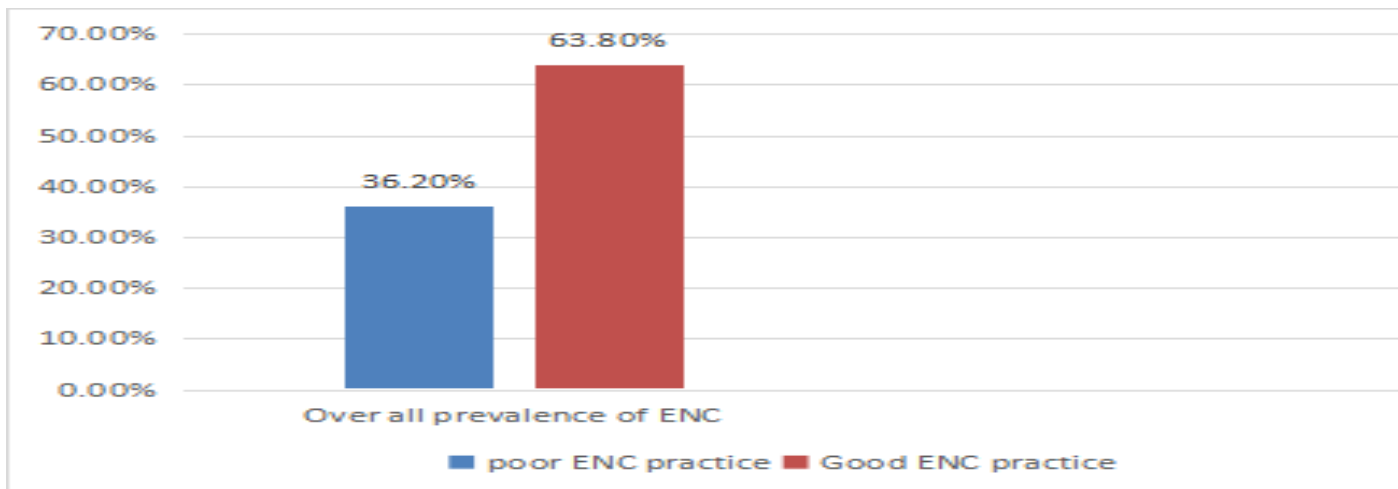


Figure 8 : The overall prevalence of ENC in Assosa zone, Benishangul Gumuz, Western Ethiopia 2022

Essential Newborn Care knowledge and associated Factors

Assessment of knowledge and practice of essential newborn care of mothers are made by a logistic regression model with the assumption that it helps to predict the extent by which knowledge and practice of essential newborn care could be explained by independent variable.

In bivariate analysis, variables at p-value of less than 0.2 were selected for multivariate analysis.

Crude analysis revealed that variables like: ANC visit, planned pregnancy, Advise on BF during ANC visit, place of delivery, educational status of the mother, availability of health facilities near to mother home and Postnatal care visits were felt to be the key predictors of essential newborn care knowledge in bivariate logistic regression analysis and were used to for multivariable logistic regression analysis.

Multivariate logistic regression analysis revealed that variables like: educational status of the mother, availability of health facility near distance to mother home and postnatal care visit were significantly associated with essential newborn care knowledge after potential controlling of the confounders. Analysis revealed that mothers who had formal educational status were 3.26 times more likely to had essential newborn care knowledge as compared to mother who had no formal education with (AOR = 3.26, 95% CI: 1.38- 7.66). In addition, mothers who received postnatal care visits were 1.52 times more likely to be knowledgeable with the essentials of newborn care than mothers who did not (AOR 1.52 = 95% CI: 1.008- 2.29). Additionally, mothers who had health services close to their home were 2.59 times more likely to know about ENC than mothers who had health facilities far from their home (AOR 2.59 = 95% CI: 1.400 - 4.806)(table 10).

Table 10 : Factors associated with the knowledge of essential newborn care by bivariate and multiple logistic analyses in BG, Assosa zone, western Ethiopia, 2022 (n= 492).

S.n o.	Variable	ENC practice		P- value	COR(95% CI)	AOR(95% CI)	P- value
		Good	Poor				
1	Educational status of the mother						
	No formal education	66(56%)	32(40%)		1	1	
	Formal education	51(44%)	47(60%)	0.002	3.71(1.62 -8.53)	3.26(1.38 -7.66)	0.007*
2	Availability of HF near to mother home						
	Yes	154(86.5%)	290(92.3%)		1	1	
	No	24(13.4%)	24(13.4%)	0.002	2.59(1.42-4.75)	2.59(1.400-4.80)	0.002*
3	Postnatal Visits						
	Yes	154(87%)	290(92%)		1	1	
	No	24(13%)	24(8%)	0.022	1.58(1.068-2.34)	1.52(1.008-2.29)	0.046*

* Where * significant at $p < 0.05$, COR= Crude odd ratio, AOR= Adjusted odd ratio.

Practice of essential newborn care and associated factors

In order to determine the association of independent variables with practices of essential newborn care both bivariate and multivariate analysis were used.

In bivariate analysis, variables at p-value of less than 0.2 were selected for multivariate analysis. Crude analysis revealed that variables like: residence ANC visits, planned pregnancy, place of delivery, Knowledge about essential newborn care and postnatal care visit were the independent predictors of ENC practice in bivariate logistic regression analysis. All variable that show association in bivariate analysis is selected as a candidate for multivariate analysis.

Multivariate logistic regression analysis revealed that variables like: Residence, early ANC visits and planned pregnancy were significantly associated with essential newborn care practice after controlling the potential confounders. However, analysis revealed that mothers who lived in urban areas were 2.60 times more likely to provide essential newborn care than women who resided in rural settings (AOR= 2.60 95% CI 1.15 - 5.87).

Additionally, mothers who received ANC visits were 5.04 times more likely to practice essential newborn care than mothers who did not receive ANC visits (AOR= 5.04 95% CI 1.48-17.08). When compared to mothers who did not plan their pregnancy, those who did were 3.14 times more likely to practice essential newborn care (AOR= 3.14 95% CI 1.20 - 8.22) (table 11).

Table 11: Factors associated with the essential newborn care practices by bivariate and multiple logistic analyses in BG, Assosa zone, western Ethiopia, 2022(n= 492).

S. no	Variable	ENC practice		P-value	COR(95% CI)	AOR(95% CI)	p-value
		Good	Poor				
1	Place for delivery						
	Home	8(57%)	6(43%)		1	1	
	HFs	477(99.7%)	1(.3%)	0.012	6.2(1.49-25.82)	2.6(.37-19.13)	0.330
2	Postnatal care visits						
	Yes	410(99.7%)	1(.3%)		1	1	
	No	75(93%)	6(7%)	0.188	1.69(.77-3.73)	2.06(.69- 6.06)	.190
3	Educational status						
	No formal education	452(99.7%)	33(85%)		1	1	
	Formal education	1(.3%)	6(15%)	0.007	3.45(1.39 - 8.53)	4.84 (.09 -6.10)	0.59

4	Residence							
	Urban	236(98%)	5(2%)		1	1		
	Rural	2(1%)	249(99%)	0.001	3.38(1.61-7.11)	2.60(1.15-5.87)	0.021*	
5	Having plan for pregnancy							
	Yes	448(99.5%)	37(88%)		1	1		
	No	2(.5%)	5(12%)	0.001	4.23(1.84-9.71)	3.14(1.20-8.22)	0.019*	
6	ENC knowledge							
	Poor knowledge	151(96.7%)	5(3.3%)		1	1		
	Good knowledge	334(99.4%)	2(.6%)	0.065	4.8(.09-25.82)	4.44(.52- 38.14)	0.17	
7	ANC visit							
	Yes	466(99%)	1(1%)		1	1		
	No	6(17%)	19(54%)	0.000	7.409(2.76-19.85)	5.04 (1.48-17.08)	0.009*	

Where * significant at $p < 0.05$, COR= Crude odd ratio, AOR= Adjusted odd ratio

6. Discussion

This study demonstrated that mothers' knowledge and practice of all aspects of basic newborn care are generally quite inadequate. According to this study, 74.4% of the respondents are knowledgeable about the essential newborn care. When compared to studies done in Jimma Zone, Ethiopia (45), the Upper Himalayas (41), rural Ethiopia (34), and Wolaita Zone, southern Ethiopia (46), which indicated 52.2%, 51.3%, 33.5%, and 57.9%, respectively, the findings are higher. But the study's findings were lower than those of a community-based survey carried out in the Eastern Tigray District of Gulomekada, Ethiopia (3), which was 80.4%. This difference might be due to study set up, the degree of acceptance of the health extension program by the community and the individual competencies of professionals in both settings.

In the current study, the overall good ENBC knowledge was higher as compared to the studies conducted in : Bonke district (44), Eastern province Rwanda (47) which revealed 65.6% and 65.1% respectively. This might be due to the differences in socio economic and geographical location of the community, study set up, around half of the participants were urban population that may have better access to health information and service.

When it came to ENC practice, this study found that 63.8% of the respondents had good ENC practices, which is in line with studies done in Awi Zone North, western Ethiopia (9), which showed 62.7%, and Eastern Province, Rwanda (47), which showed 65.1%. This can be due to similarities in study design, the model we used, and overall socioeconomic conditions. The study found a greater prevalence of ENC practice than studies conducted in Aksum Town (42), Gedeo Zone, Southern Ethiopia (28), Addis Ababa City (44), and Chench District, Southern Ethiopia (13), which found respective prevalence rates of 26.7%, 24%, 38.8%, and 38.4%. However, the practice of the study was less when compared to the studies carried out in Mekele, North Ethiopia (39), Adigrat, Tigray, Ethiopia (21), and Gulomegada, Eastern Tigray, Ethiopia (3), which revealed 81.1%, 92.9%, and 78.9%, respectively. The reason might be the community's better health-seeking behavior or increased awareness of the importance of newborn care, and the operational definition.

According to the study, 68.9% of those interviewed were knowledgeable about bathing newborns after 24 hours. This result was comparable to studies conducted in Bahirdar City (50), which found 66.4% of respondents had good bathing knowledge, and Jimma Zone, Ethiopia (45), which found 67.3% of respondents, had strong bathing knowledge. This might be because studies were conducted similarly, women were more aware of the value of

postponing baths, and mothers had more access to maternity and child health services throughout time. But the study's findings, however, were less significant than those of studies carried out in the Eastern Province of Rwanda (47), which showed 92.7%, in Gulomekada Eastern Tigray (3), which showed 78.4%, and in Addis Abeba, Ethiopia (44), which showed 72%. This could be as a result of regional variation, socioeconomic conditions in the community, accessibility to health care, health-seeking behavior across cultures, or cultural beliefs and community knowledge.

According to the study, 67.1% of the respondents had good ENC bathing habits. Compared to the study conducted in Gulomekada, eastern Tigray (3), where bathing practice was 78.4%, the study had a lower rate. However, the results are better than those of research conducted in Bahirdar City and the Eastern Province of Rwanda, where they were 49.3% and 7.3%, respectively. The difference may be the result of a different study design, operational definitions, and improved maternal understanding of the value of postponing bathing.

The level of knowledge about when to start breastfeeding in this study was 70.3%, which is lower than the results of studies conducted in Rwanda's Eastern Province (47) and the Gulomekada Eastern Tigray (3), Bahirdar City (24) and Ethiopia's Jimma Zone (45), which revealed 90.1%, 93.9%, 80%, and 80.4%, respectively. However, the results are better than those of studies conducted in the Abaya district (1) (58.1%) and the upper Himalayas (41.1%) (67.2%). This may be because women are becoming more aware of the benefits of early BF introduction and because access to maternal and child health care has become easier over time.

In a similar manner, the research area's level of practice with the timely commencement of breastfeeding was 77.2%, which is lower than the study conducted in Rwanda's Eastern Province (21) where the rate was 90.1%, Study conducted in Bonke District, Gamo Zone, Southern Ethiopia (15), which was (96.3%), and the study conducted in Gulomekada District, Eastern Tigray Ethiopia (3), which was (93.2%). This discrepancy may be explained by the fact that effective new-born care practices are influenced by the socioeconomic situation of the mother, the study's setting, her access to better health care, and her educational status.

The study revealed that 75.7% of the women practice safe cord care, keeping it clean and dry; however, this finding is higher than those of studies conducted in the West Guji Zone, Oromia Regional State, Abaya District, Chenchu District, Nekemte City, Western Ethiopia, and Addis Ababa City Health Centers, Ethiopia, which revealed 28.9%, 30%, 68.3%, and 63.9%, respectively, in those regions of Ethiopia. The possible reason might be the growth of

maternal health services. Increased knowledge, information sharing, and increased health service coverage are all potential causes of the difference. However, this study's findings are lower than those of studies in Rwanda's Eastern Province (47) that discovered 83.3 percent and in Bahirdar City Administration in North West Ethiopia (49) that discovered 87%. The study conducted in the southern Ethiopian region of Damot Pulsa Woreda (48) found 96.4%. This might be brought on by variations in sample size, study design, and geographic and multi-cultural diversity among nations and regions.

However, study revealed mothers who lived close to a health facility, on the other hand, were 2.59 times more likely to be aware of ENC than mothers who lived far away (AOR 2.59 = 95% CI: 1.400–4.806). This conclusion is supported by a study conducted in the Upper Himalayas, which found that mothers who lived close to a health facility were more than three times as likely to show acceptable understanding of newborn care (AOR 3.66 at 95% CI 1.43–9.33) than mothers who lived far away. This may be because women who live farther from health institutions have better access to the media and can learn or obtain information more easily through posters, magazines, and HWs.

Additionally, the research demonstrates that mothers with formal educational status were 3.26 times more likely to acquire essential newborn care knowledge compared to mothers without formal education (AOR = 3.26, 95% CI: 1.38- 7.66), which is supported by a study conducted in Sindh, Pakistan, which demonstrates that women without formal education had lower knowledge scores compared to the women with higher education ($B = -14.3$; $p = 0.001$). The family may become more aware of maternal and newborn ailments, health-seeking behavior, and service availability as a result of education, making them more likely to choose and utilize the medical care offered at various medical institutions.

The results of the study showed that mothers who attended ANC visits were 5.04 times more likely to provide essential newborn care than mothers who did not attend ANC visits (AOR = 5.04, 95% CI: 1.48–17.08), which is comparable to studies conducted in rural Gedeo zones in southern Ethiopia (28) and rural Ethiopia (34) with adjusted OR = 5.7, 95% CI: 3.9–7.9, and [AOR: 2.42; 95% CI: 1.50, 3.88] respectively. Which shows mothers who had antenatal care follow-up had strong newborn care practices (5.7 and 2 times higher than mothers who did not have antenatal care follow-up). The possible justification could be that mothers who attended ANC have the chance of getting information about the components and the importance of newborn care practice from health professionals.

Additionally, analysis revealed that respondents who resided in urban areas were 2.60 times more likely to practice essential newborn care as compared with mothers who resided in rural settings (AOR= 2.60 95% CI 1.15 - 5.87), which is consistent with studies conducted in Mandura district (37) and Gulomegata eastern Tigray (3), which found that the odds of practicing essential newborn care are 3.26 to 6.57 among urban resident mothers compared to rural resident mothers (AOR=3.26 95% CI: 1.90, 5.57) and [AOR (95 % CI) 6.57; (1.43, 30.26)]. The possible reason might be women who reside in urban area had better access to HFs and media, as well as their increased knowledge of the importance of newborn care and the use of healthcare services.

In this study age of the mother, marital status, occupational status, Advise on BF had not significantly associated with the knowledge and practice of essential newborn care in contrast to a study conducted in Nigeria and Bangladesh that had a significant association. There is also no association with occupational status and marital status in this study. This might be due to HEWs (Professionals maternal and child health care providers at health post level) house to house visit to all mothers regardless of educational status and income, could be due to mothers' better awareness, socio- demographic difference.

7. Conclusions

The present study indicated that the level of comprehensive essential newborn care practice is low. Even though majority of the respondent's individual knowledge variables (Accessibility of HFs, educational status of the mother and postnatal visits) and respondents individual practice variables (Residence, planned pregnancy and ANC visit) were independent positive predictors for good ENC practice. Most of the respondents practiced the main essential newborn care except a substance (oil and butter) application to the cord stump. About 59% of the respondents also gave formula milk for neonate. Giving Additional diet for neonate may make neonate prone to acute respiratory infections (ARI), otitis media, allergies, gastroenteritis, diarrhea, pneumonia, diabetes mellitus, decreased cognitive development, increase risk of obesity, and sudden infant death syndrome.

As indicated by this study, knowledge of essential newborn care practice, marital status, Advice on BF, birth order, age of mother, and occupation of the mother were not significantly associated with good ENC practice. This key finding has important implications for the training of essential newborn care providers and health extension workers who are tasked with improving essential newborn care delivery and uptake. Community-based strategies are also essential as knowledge dissemination measures. Female education is also very important to reduce home delivery as it is seen that deliveries of educated mothers are taking place in health center or hospital. High risk traditional newborn care practices like delayed wrapping, early bathing, use of oil or butter in umbilical stump and prelacteal feeding need to be addressed.

7.1. Recommendation

Based on the finding of the study the following recommendations were forwarded:

Assosa Zone Health Bureau: to work hard on the promotion of health facility delivery system and to increase the level of newborn care practice and involve health extension workers to apply home to-home visit program to convince all childbearing women on the positive outcome of health facility delivery service to have good newborn care practice.

Health workers: To provide an ongoing education and counseling to mothers regarding essential newborn care during antenatal follow up and postnatal care visit in order to aware the mothers about harmful effect of malpractice to newborn baby.

Health extension workers: To ensure home visit to every mother during their postpartum period in order to provide appropriate information regarding newborn feeding method,

newborn cord care until umbilical stump falls off, well wrapping of the baby's head with dry cloth and to postpone baby bath until 24 hours of life, neonatal danger signs and so on.

Future researcher: Newborn care is relatively crucial research topic and is of government concern in order to substantially decrease morbidity and mortality of newborn and to achieve sustainable development goal by 2030.

Therefore, it is suggested that for the future researchers to undertake a repeatable studies in different part of the country in order to identify nationally representative information. As the study lacks Qualitative information that can underpin the quantitative study results, hence it is suggested that qualitative studies to be conducted to fill the gap of this study design.

Strength

The study covers wide area of essential new-born care components which are basically practiced by mothers at home such as: Neonatal feeding, safe cord care and thermal care. Even though it is facility based study, the study finding can be generalized to the target population due to the fact that currently, almost all mothers who have less than 42 days child attend immunization service for their infant.

Limitations

This study is at a risk of social desirability bias as mothers may not report what they really practiced. In addition since data collection time was extended period, the study is not without recall bias as well. Difficulty of inferring casual association due to cross sectional nature of the study is also another limitation of this study.

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ASSURANCE OF INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific, ethical and technical conduct of the research Project and for provision of required progress reports as per terms and conditions of the Research and Publication Directorate or /and Department of Public Health of St Paul's Hospital Millennium Medical College.

NAME OF STUDENT	SIGNATURE	DATE
Almahadi Halifa	_____	/ ____/ ____

Approval of the Primary Advisor

Name of the primary advisor: -----

Signature: _____

Date: _____

Approval of the Co-advisor

Name of the co-advisor advisor: -----

Signature: _____

Date: _____

9. Informed Consents

Hello, Hello and good afternoon. Sir/Madam, My name is -----I am a 2nd-degree general MPH in St. Paul's Hospital Millennium Medical College's department of public health. The research is on essential newborn care practice and associated factors in the Assosa Zone, Benishangul Gumuz, and western Ethiopia. The study was conducted through interviews based on a semi-structured questionnaire. From September to January 2021, the questionnaire were designed to collect data from permanent residents of the Assosa zone mothers with neonates under 28 days old who visit health facilities. The questionnaire was prepared to identify factors associated with poor essential newborn care practice in the Assosa zone. The information you give us would help us to know how to sustain community control efforts over a long period to achieve success in neonatal death and improve the lives of neonates not as a public health or socioeconomic problem, so that we can find ways of managing this problem. Your selection to participate in this study was by chance alone. Your responses given would be confidential, and hence you do not need to tell us your name. The responses you give were not reveal your identity to anyone not part of this study. Any publications of such information were concealed or hide your identity. You were free to withdraw or interrupt your participation at any time during the study without any penalty. We request that you participate in this study. If you agree to participate, please give us your true opinion and knowledge of the questions that was asked. If you do not understand what were asked, you can ask us to clarify the question. This would take about 15 to 30 minutes of your time. Do you agree to participate? Agree? I disagree. If not agreed upon, say thanks and go to the next one.

Questionnaire Identification number_____ Name of interviewer

Signature of interviewer_____ Date of Questionnaire filled
_____ Time started _____ Time completed_____ Checked by supervisor:
Name _____ Signature_____ date_____

10. ANNEX II: ENGLISH VERSION QUESTIONNAIRE

Questionnaire code _____ Kebele _____ House number _____

No.	Question	Response	Skip
101	Religion?	1. Orthodox Christian 2. Muslim 3. Protestant 4. Catholic 5. Other, specify	
102	Educational status?	1. Illiterates 2. 1-6 grade 3. 7-8 grade 4. 9-12 grades. 5. College/ university graduate	
103	Occupational status?	1. Housewife 2. Farmer 3. Merchant/Trade 4. Government employee 5. Other (specify)	
104	Marital status?	1. Single 2. Married 3. Divorced 4. Widowed 5. Other (specify)	
105	Place of residence?	1. Urban 2. Rural	

Part 2: Maternal health services (obstetric factors)

201	Do you have children?	1. Yes 2. no	If no skip to 205
202	If yes, how many of them are a live?		
203	How old were you at your 1st pregnancy in completed years?		
204	Did you plan for your pregnancy?	1. yes 2. no	
205	How old were you when you were pregnant this child?		
206	Did you receive antenatal care when you were pregnant this child?	1. Yes..... 2. No.....	If no skip to 211
207	Which type of health facility did you visits for ANC?	1. HC 2. Hospital 3. health post 4. private clinic	
208	How many times you visit health facilities for ANC?	1. One times 2. two times 3. three times 4. four times 5. Never	
209	During antenatal care visit, have you ever	1. Yes	

	been informed /advised about breast feeding initiation and safe cord care for the babies?	2. no	
210	Would you tell me how to keep cord clean (not to be infected)?	1. Apply dung on the cord 2. Applying anything on the cord like ash is good 3. Chlohexidine application 4. I don't know 5. Other specify	
211	What preparations did you make for the delivery? (More than one answer is possible)	1. Financial 2. Transport 3. Food 4. Clothes for new born. 5. Other (specify)	
212	According to your birth order, where does this baby belong?	1. 1, 2. 2, 3. 3 4. 4, 5. 5 +	
213	Where is the place of your delivery?	1. Home 2. HC 3. Hospital 4. forest	
214	Who conduct delivery for this baby?	1. No assistant 2. Nurse/midwife nurse 3. TBAs 4. Health extension worker 5. Other (specify)	
215	Did you see health workers use delivery kit during your last delivery?	1. Yes 2. No	If no skip to
216	If yes, what type of the instrument they used for your delivery?	1. Razor blade 2. Cord tie 3. Ambubag 4. I don't know 5. others(specify)	
217	How do you say this delivery instrument is clean?	1. If the instrument is packed 2. Have no dirty material 3. If cannot used by somebody else 4. If sterilized	
218	Have you visited a health facility for PNC or where visited by a health professional after you gave birth?	1. Yes 2. No	If no skip to 301
219	If yes, when did you attend PNC?	1. Less than 4 hours 2. 4-23 hours 3. 1-2 days 4. 3-6 days 5. 7-41 days	

Part 3: Health service utilization

301	Is there health facility in your vicinity?	1. Yes 2. No	If no skip to 304
302	What type of health facility is it?	1. Health post 2. Health center 3. Hospital 4. Private clinic 5. Other, specify	
303	Does the health facility provide delivery service?	1. Yes 2. No 3. I do not know	
304	What reason makes you not to give birth at health facility?	1. Too much cost of HFs 2. Facilities not open regularly 3. Facility too far 4. Poor quality service of HFs 5. Other, specify	
305	Who decides place for child birth?	1. Self-2. Husband 3. Relatives 4. Religious leader 5. Other (specify)	

Part 4: knowledge questions on newborn care

401	Do you have information about immediate newborn care practice?	1. yes 2. no	If no skip to question 404
402	If yes, mention the source of information about newborn care (more than one answer is possible).	1. Family/relatives 2. Neighbors 3. Health professional 4. TV/Radio 5. Newspaper/magazines	
403	What type of immediate newborn care do you know?	1. Deliver baby on to mother's abdomen or into her arms 2. Cutting cord 3. Drying and wrapping the baby 4. Place the baby in skin to skin contact	
404	Do you have information about when to	1. Yes 2. no	

	start breast feeding after birth?		
405	Did you mention the time when should breast feeding be started	-----hours	
406	Do you know about the first breast milk?	1. Yes 2. no	If no skip to Q408
407	If yes, is the first milk advantageous or disadvantageous?	1. Advantageous 2. Disadvantageous	
408	Is exposing the neonates for morning sunlight important?	1. Yes 2. no	
409	Is it possible to expose neonate for vaccination	1. Yes 2. no	
410	If no, mention the reasons(more than one answer is possible)	1. Culture 2. Lack of health facility 3. Lack of knowledge 4. Other (specify)	
411	Do you have information when to bath the neonate after birth?	1. Yes 2. No	
412	If yes, when did the new born should be bathed, mention time?	-----hours	
413	Do you have information about the use of Vit. K?	1. To stop vaginal bleeding 2. Preventing infection 3. For being healthy 4. Other (specify)	
414	Do you have information about the use of covering head and other body parts of neonate?	1. To maintain body temperature 2. To increase body temperature 3. to make neonate healthy 4. Other (specify)	
415	What neonatal health problems do you know? (more than one answer is possible)	1. Fever 2. low body temperature 3. Diarrhea 4. Other specify	

Part 5: newborn care practice questions

501	Did you remember where to position the neonate/s after delivery?	1. Yes 2. No	If no skip to 503
502	If yes, where neonate/s is positioned after delivery?	1. On the mother's abdomen 2. Near the delivery surface 3. On another bed separately 4. Transferred to father/relatives 5. Others (specify)	
503	Did you dry /wrapping neonate after	1. Yes	If no skip

	delivery /bathing?	2. No	to 506
504	If yes when did you dry/wrap the neonate?	1. Before delivery of placenta 2. Immediately after delivery of placenta, 3. I did not remember 4. Other specify	
505	What material did you use to dry the neonate/body?	1. Pre-prepared towel 2. Piece of blanket/Gabi 3. Available material 4. I don't remember 5. Other (specify)	
506	Did you remember the material used to cut the cord?	1. Yes 2. No	If no skip to 508
507	If yes, what material was used to cut the cord?	1. Un-boiled new razor blade 2. Boiled new razor blade 3. Available sharp instrument 4. Others (specify)	
508	Did you remember the use of counting breathing for neonate?	1. Yes 2. No	
509	What is the material you used to tie the cord?	1. Thread 2. Cord tie 3. Cord clamp 4. Others (specify)	
510	Did you apply any material on the cord after cutting?	1. Yes 2. No	If no skip to Q512
511	If yes, mention type of material applied on the cord	1. Cow dung 2. Dust 3. Butter 4. Ash 5. Others (specify) -----	
512	Did you initiate exclusive breast feeding immediately after birth?	1. Yes 2. No	If no skip to 514
513	When did you initiate exclusive breast feeding?	1. First one hour 2. After one hour 3. After 2 hour 4. Others (specify) -----	
514	Did you give additional diet (pre-lacteal) within 28 days	1. Yes 2. No	If no skip to Q516
515	If yes, what did you give for the neonate?	1. Water 2. Butter	

		3. Cow milk/ commercial milk 4. Formula milk 5. Other (specify	
516	Did you give the 1st milk for your neonate?	1. Yes 2. No	
517	How often did you breast feed the neonate per day?	1. < 8 times 2. >= 8 times	
518	Did you give immunization for this neonate	1. Yes 2. No	If no skip to 520
519	If yes when it is given?	1. immediately after birth- 2. After One moth 3. After 12 month 4. I don't know	
520	Did you remember the time you bathed your neonate?	1. Yes 2. No	If no skip to 522
521	How long after birth was your baby bathed for the first time?	1. In the First 24 hours 2. After 24 hours	
522	Did you keep your neonate immediate skin to skin contact?	1. Yes 2. No	Close the inquiry

Part 1: socio-demographic and socio-economic variables

Thank you for your cooperation!!!

9. ቃለ መጠይቅ የአማራጭ ይዘት ቃለ መጠይቅ ስምምነት ቅፅ

ሰላምታ፡ እንደምን አለ? እኔ-----እባላለሁ። እዚህ የመጣሁት ይህንን ጥናት የሚያካሂድ የቅዱስ ጳውሎስ ሆስፒታል ሚሊንየም ሜዲካል ኮሌጅ የማህበረተሰብ ጤና ትምህርት ክፍል የሁለተኛ ደግሪ ተማሪ ሁኔ ነው። ጥናቱም በአሰሳ ዞን ጤና ተቋማት ውስጥ የሚሰጠውን የጨቅላ ህፃናት እንክብካቤ አሰጣጥ ዙሪያ እና ያለውን ችግሮች እንዲሁም ተያያዥ የሆኑ ምክኒያቶችን ለማጥናት ሲሆን ጥናቱም የሚካሄደው በተዘጋ የቃለ መጠየቅ ጥያቄ ነው። በዚህ በተዘጋጀው ቃለ መጠየቅ የሚሳተፉት ከ28 ቀናት በታች ጨቅላ ህፃናት ያላቸው እናቶች ስሆን በዘናችን መከላከል በምንችላቸው ችግሮች (የመተንፈስ ችግር፣ የሰውነት ሙቀት መቀዝቀዝ) የሚሞቱ ጨቅላ ህፃናት ቁጥር በጣም ከፍተኛ መሆኑና ይህንን ችግር በዘላቅነት ለመፍታት እንዲያስችለን ነው።

እርሶዎ በዚህ ጥናት የሚሰጡን መረጃ የሚጠቅመው የጨቅላ ህፃናት ጤና አገልግሎት ለማሻሻል እና መከላከል በምንችላቸው ችግሮች የሚሞቱትን የህፃናት ቁጥር በዘላቂነት ለመቀነስ እንዲሁም የተቀመጠውን ግብ መድረስ እንድቻልና ለተለዩት ችግሮች የመፍትሄ አቅጣጫ ለማስቀመጥ ይረዳን ዘንድ ነው።

እርሶዎ የሚሰጡት ሐሳብ ምስጢራዊነቱ የተጠበቀ ሲሆን የተመረጡትም ለሁሉም በተሰጠ ዕድል ወይም በዕጣ ስለሆነ በጥናቱ በመሳተፍዎ የሚደረስብዎት ችግር አይኖርም። ስም ወይም ማንነትዎ መግለፅ አያስፈልግም። እንዲሁም የሚሰጡት መረጃ በምስጢር የተጠበቀና ሙሉ በሙሉ ጠቀሜታው ለዚህ ጥናት ብቻ ነው። ማንኛውም የዚህ ጥናት ዕትም ሲኖር የእርሶዎ ማንነት አይጠቀስም። ቃለ መጠይቁ የሚደረገው በእርሶዎ በሙሉ ፍቃደኝነትዎ ሲሆን ነው። መመለስ የማይፈልጉት ማንኛውም ዓይነት ጥያቄ ሲኖር መተው ይችላሉ፤ እንዲሁም በፈለጉት ጊዜ መረጃውን ከመስጠት ማቋረጥ ይችላሉ። መጠየቁን ባለመሙላትዎ ሆነ መሳተፍዎን በማቋረጥዎ በቀጣይ ምንም ዓይነት ተፅዕኖ ወይም ቅጣት ወይም ሌላ ችግር አይኖረውም። ለቃለ መጠይቁ ፈቃደኛ ከሆኑ የሚያውቁትን ጥያቄ ይመልሱ። ያልገባዎት ጥያቄ ሲኖር በማንኛውም ሰዓት ማብራሪያ መጠየቅ ይችላሉ። ቃለ መጠየቁ ከ15 አስከ 30 ደቂቃ ገደማ የሚወስድ ሊሆን ይችላል።

የቃለመጠይቁ ኮድ-----የጠያቂው ስም-----ፍርማ-----ቃለ መጠይቁ የተሞላበት ቀን----- የተሞላበት ሠዓት----- በሱፐርቫይዘር የታዩ፡ ፍርማ--
-----ቀን-----

10. አባሪ II: የአማራጭ ቋንቋ መጠይቅ

የመጠይቁ ኮድ _____ ቀበሌ _____ የቤት ቁጥር _____

ቁጥር	ጥያቄ	መልስ	መዝለል
101	ሀይማኖት?	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌሎች	
102	የትምህርት ደረጃ	1. አልተማርኩም 2. ከ1-6 ኛ 3. ከ7-8 ኛ 4. ከ9-12 ኛ 5. የኮሌጅ /ፎኒሽርሲቲ ምሩቅ	
103	የሥራ ድርሻዎ?	1. የቤት እመቤት 2. ገበሬ 3. ነጋዴ 4. የመንግስት ሠራተኛ 5. ሌላ ካለ ይገለጽ	
104	የጋብቻ ሁኔታ?	1. ያላገባች 2. ያገባች 3. የፈታች 4. ባል የሞተባት 5. ሌላ ካለ ይገለጽ	
105	የመኖሪያ አከባቢ?	1. ከተማ 2. ገጠር	

ክፍል 2: የእናቶች ጤና አገልግሎት

201	ልጆች አለዎት?	1. አዎ 2. አይደለም	የለም ከሆነ ወደ 205 ዝለል
202	አዎ ከሆነ በህይወት ስንት ይኖራሉ?		
203	የመጀመሪያ እርግዝና በስንት ዓመትሽ ነበር?		
204	በእቅድ የተያዘ እርግዝና ነበር ወይ?	1. አዎ 2. አይደለም	
205	ይህ ጨቅላ በስንት ዓመትሽ ነዉ ያረገዝሸዉ?		
206	የፅንስ ክትትል በዚህ እርግዝናሽ አድርገሻል?	1. አዎ 2. የለም	የለም ከሆነ ወደ 211 መዝለል
207	መልስዎ አዎ ከሆነ የት ነዉ ክትትል ያደረግሸዉ?	1. ጤና ኬላ 2. ጤና ጣቢያ 3. ሆስፒታል 4. የግል ክሊንክ 5. አላደረግኩም	
208	ስንት ጊዜ ክትትል አድርጌሻል?	1. አንድ ጊዜ 2. ሁለት ጊዜ 3. ሦስት ጊዜ 4. አራት ጊዜ 5. በፍፁም አላደረግኩም	

209	በቅድመ ወሊድ እንክብካቤ ጉብኝት ወቅት ስለ ድህንነቱ የተጠበቀ የእትብት አጠባበቅ ሁኔታ አስተምሮዎታል?	1. አዎ 2. የለም	
210	መልስዎ አዎ ከሆነ የእትብት ንጽህና እንዴት እንደሚጠበቅ ልነግሩኝ ይችላሉ?	1. እትብት ላይ የከብት ፍግ መቀባት 2. ዓመድ መጨመር 3. ክሎርሄክሲዲን ቅባት መቀባት 4. ሌላ ካለ ይገለፅ	
211	ይህ ልጅ ልወለድ ስቃረብ ምን ቅድመ ዝግጅት አድርጎ ነበሩ?	1. ገንዘብ 2. ትራንስፖርት 3. የህጻን መሸፈኛ ልብስ 4. ሌላ ካለ ይገለፅ	
212	በትዉልድ ቅድመ ተከተልዎ መሠረት ይህ ህፃን በስንተኛዉ ህፃን መካከል ይሆናል?	1. 1 ኛ ፣ 2. 2 ኛ 3. 3 ኛ፣ 4. 4 ኛ 5. 5 ኛና ከዛ በላይ	
213	በእርግዝናዎ ወቅት የት ለመዉለድ ነበር የሚያስቡት?	1. በቤቴ 2. ጤና ጣቢያ 3. ሆስፒታል 4. ጫካ ዉስጥ	
214	ማን ነዉ ያዋለደዎት?	1. ያለማንም እገዛ 2. ነርስ /ሚድዋይፍሪ 3. ልምድ አዋላጅ 4. ጤና እክስቴንሽ 5. ሌላ ካለ ይገለፅ	
215	በወሊድ ወቅት ጤና ባለሙያዎች የተጠቀሙት የወሊድ መሳሪያ አይተዋል?	1. አዎ 2. አይደለም	አይደለም ወደ 216 ይለሉ
216	መልስዎ አዎ ከሆነ ለወሊድ የተጠቀሙት መሳሪያ አይነት ይንገሩኝ?	1. ምላጭ 2. የእትብት መቁጠሪያ 3. አምቡባግ 4. ሌላ ካለ ይገለፅ	
217	ለወሊድ አገልግሎት የሚዉለዉ የህክምና መሳሪያ ንጹህ ነዉ የሚባለዉ ምን ስሆን ነዉ?	1. የታሸገ ከሆነ 2. ያልቆሸሸ ከሆነ 3. ለሌላ ያልተጠቀሙት ከሆነ 4. በማሞቅ 5. ሌላ ካለ ይገለፅ	
218	ከወሊድ በኋላ ድህረ-ወሊድ በጤና ተቋም ወይም በቤትዎ በጤና ባለሙያ ታይቷል ወይ?	1. አዎ 2. አይደለም	ወደ 301 መዝለል
219	መልስዎ አዎ ከሆነ መች ነዉ ድህረ-ወሊድ ያደረጉት?	1.ከ4 ሠዓት በፍት 2. ከ4-23 ሠዓት ዉስጥ 3.ከ1-2 ቀናት መሀከል 4. ከ3-6 ቀናት መሀከል 5. ከ7-41	

		ቀናት መሀከል	
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ክፍል 3: የጤና አገልግሎት አስተዳደር

301	በአከባቢያችሁ ጤና ተቋም ይኖራል?	1. አዎ 2. አይደለም	ከሌላ ወደ 304 መዝለል
302	መልስዎ አዎ ከሆነ ምን ዓይነት ጤና ተቋም ይኖራል?	1. ጤና ኬላ 2. ጤና አጠ/ጣቢያ 3. ሆስፒታል 4. የግል ክሊንክ 5. ሌላ ካለ ይገለጽ	
303	ተቋሙ የወሊድ አገልግሎት እየሠጠ ይገኛል?	1. አዎ 2. አይደለም 3. አላውቅም	
304	እናቶች በጤና ተቋም እንዳይወልዱ ሊያደርጉ የምችሉ ምክንያቶች ምን ሊሆኑ ይችላሉ ብሎ ያስባሉ?	1. የህክምና ወጪ 2. የተቋም መዘጋት 3. የተቋሙ አከባቢያች መራቅ 4. የአገልግሎት ጥራ ጉድለት 5. ሌላ ካለ ይገለጽ	
305	የወሊድ ቦታ ወይም ተቋም ምርጫ የማነወጣት?	1. ሴትዬዎ ራስዎ 2. ባል 3. ዘመድ 4. የሃይማኖት አባት 5. ሌላ ካለ ይገለጽ	

ክፍል 4 : የዕውቀት መለኪያ መጠይቆች

401	ስለጨቅላ ህፃናት እንክብካቤ ያዉቃሉ	1. አዎ 2. አይደለም	የለም ከሆነ ወደ 404 ይለፉ
402	አዎ ከሆነ መረጃውን ከየት አግኝት	1. ከዘመድ /ቤተሰብ 2. ከጎረቤት 3. ከጤና ባለሙያ 4. ከተለሻዥን 5. ሌላ ካለ ይገለጽ	
403	ለጨቅላ ህፃናት እንደተወለደ ልደረግ የምገቡ እንክብካቤዎች ምን ምንድናቸው?	1. ጨቅላው እናት ሆድ ላይ ማዋለድ 2. እትብት መቁረጥ 3. ሰውነቱ ማደራረቅ 4. ሰውነት ንክኪ ለረጅም ጊዜ ማድረግ 5. ሌላ ካለ ይገለጽ	
404	ጡት ከስንት ሰዓት እንደሚጀመር ያዉቃሉ?	1. አዎ 2. የለም አላውቅም	
405	አዎ ከሆነ በስንት ሰዓት ይጀመራል?	-----	
406	ከወሊድ በኋላ ወዲያውኑ የሚወጣው የእናት ጡት ወተት አይተው ያዉቃሉ?	1. አዎ 2. አይደለም	

407	መልስ አዎ ከሆነ የመጀመሪያዉ የእናት ጡት ወተት ይጠቅማል ወይስ አይጠቅምም	1. አዎ 2. አይደለም	
408	ጨቅላ ህፃናት ለጧት ፀሓይ ማጋለጥ ጥሩ ይመስልዎታ?	1. አዎ 2. አይደለም	
409	ህፃናትን ክትባት ማስከተብ ጠቃሚ ነዉ ብሎ ያምናሉ?	1. አዎ 2. አይደለም	
410	መልስዎ አይደልም ከሆነ ምክንያቱ ይገለፅ	1. ባህል 2. ጤና ተቋም ባለመኖሩ 3. የዕውቀት ማነስ 4. ሌላ ካለ ይገለፅ	
411	የጨቅላ ህፃን ሰውነት መቼ እንደሚታጠብ መረጃ አለዎት	1. አዎ 2. አይደለም	
412	ጨቅላ ህፃን በስንት ሰዓት ዉስጥ ይታጠባል	-----	
413	እናት ወዲያዉኑ እንደወለዱ ሻይታሚን ኬ መዉጋት ጥቅም ምን ይመስልዎታል?	1. ከማህፀን ብዙ ደም እንዳፈስ 2. እንፌክሽን ለመከላከል 3. ለልጅ ጤንነት 4. ሌላ ካለ ይገለፅ	
414	የጨቅላ ህፃን ሰውነት መሸፈን ለምን ይጠቅማል?	1. ከብርድ ይከላከላል 2. የሰውነት ሙቀት ለመጨመር 3. ለጤንነታቸዉ 4. ሌላ ካለ ይገለፅ-----	
415	የጨቅላ ህፃናት የጤና ችግሮች ምን ምንድናቸዉ	1. ትኩሳት 2. የሰውነትመቀስቀስ 3. ተቅማጥ 4. ሌላ ካለ ይገለፅ	

ክፍል 5: አዲስ የተወለደ ጨቅላ እንክብካቤ ልምምድ

501	የጨቅላ ህፃን እንደተወለደ የት እንደተቀመጠ ያስታወሳሉ?	1. አዎ 2. አይደለም	አይደለም ከሆነ ወደ 503 መዝለል
502	አዎ ከሆነ ጨቅላዉ እንደተወለደ የት ተቀመጠ?	1. በእናት ሆድ 2. በቅርብ በሚገኝ ቦታ ላይ 3. አልጋ ላይ 4. ለአባት /ዘመድ ይሰጣል 5. ሌላ ካለ ይገለፅ	
503	ጨቅላ ህፃን እንደተወለደ ወይም ገላ ከታጠበ በኋላ ማደራረቅ/ ይሸፈናል?	1.አዎ 2. አይደለም	አይደል ከሆነ 506 መዝለል
504	መልሱ አዎ ከሆነ የጨቅላ ህፃን ማደራረቅ/መሸፈን በጣም የሚያስፈልጋቸዉ ጊዜ መች ነዉ?	1. እንግዲልጅ ሳይወለድ 2. እንግዲልጅ እንደወጣ 3. አላስታወስም 4. ሌላ ካለ ይገለጽ	
505	ጨቅላ ህፃን በምን ማደራረቅ ይቻላል?	1. በተዘጋጀ ፎጣ 2. በብርድ ልብስ	

		3. በሚገኝ ማንኛውም ጨርቅ 4. አላስታወስም 5. ሌላ ካለ ይገለጽ	
506	እትብት በምን እንደሚቆረጥ ያስታውሳሉ?	1. አዎ 2. አይደለም	አይደልም ከሆነ ወደ 508 መዝለል
507	አዎ ከሆነ እትብት በምን ይቆረጣል?	1. ባልተቀቀለ ምላጭ 2. በተቀቀለ ምላጭ 3. በማንኛውም ስለታማ ነገር 4. ሌላ ካለ ይገለጽ	
508	የጨቅላ ህፃናት ትንፋሽ መቁጠር ይጠቅማል ብሌሽ ታስብዋለሽ	1. አዎ 2. አይደለም	
509	እትብት በምን ይቋጠራል?	1. በገመድ 2. በተዘጋጀ የእትብት መቋጠሪያ 3. በማንኛውም ማሰሪያ 4. ሌላ ካለ ይገለጽ	
510	እትብት ከተቆረጠ በኋላ ወዲያውኑ የሚቀባ ነገር አለውን?	1. አዎ 2. አላውቅም	አላውቅም ወደ512 መዝ
511	መልስዎ አዎ ከሆነ እትብት ላይ ምን ይቀባል;	1. እበት 2. ጭቃ 3. ቅቤ 4. አመድ 5. ሌላ ካለ ይገለጽ	
512	ጨቅላ እንደተወለደ ወዲያውኑ ጡት ታስጀምረዋለሽ?	1. አዎ 2. አይደለም	አይደለም ከሆነ ወደ 514 መዝለል
513	መቼ ነዉ ጡት የሚታስጀምረው?	1. በመጀመሪያ አንድ ሰዓት 2. ከ1ሠዓት ቆይታ በኋላ 3. ከ2ሠዓት ቆይታ በኋላ	
514	ለጨቅላ ህፃን ከ 6ወራት በፍት ከእናት ጡት ውጭ ሌላ ነገር ማስጀመር ይቻላል	1. አዎ 2. አይደለም	አይደለም ከሆነ ወደ 516 መዝለል
515	አዎ ከሆነ ምን ማስጀመር ይቻላል?	1. ዉሃ 2. ቅቤ 3. የላም ወተት 4. የታሸገ ወተት 5. ሌላ ካለ ይገለጽ	

516	የመጀመሪያዉ ወፍራም የጡት ወተት ለጨቅላ ህፃን ሠጥቼሻል?	1. አዎ 2. አይደለም	
517	ጨቅላዉ በ24ሠዓት ዉስጥ ስንት ጊዜ ይጠባል?	1. ከ8 ጊዜ በታች 2. 8 ጊዜና ከ8 ጊዜ በላይ	
518	ጨቅላ ህፃን ክትባት ማስከተብ ጠቃሚ ነዉ	1. አዎ 2. አይደለም	አይደለም ወደ 520 ጉለ
519	መልስዎ አዎ ከሆነ መቼ ነዉ ክትባት የጀመረዉ?	1. ከተወለደ በ1ሠዓት ዉስጥ 2. በ1 ወር ዉስጥ 3. በ12 ወር ዉስጥ 4. አላዉቅም	
520	የጨቅላዉ ህፃን ገላ በስንት ሠዓት እንደታጠበ ዉስጥ ታስታዉሻለሽ?	1. አዎ 2. አላስታዉስም	አላስታዉስም ከሆነ ወደ ዝለል
521	የጨቅላዉ ህፃን ገላ በስንት ሠዓት ዉስጥ ታጠበ?	1. በ1ሠዓት ዉስጥ 2. ከ24ሠዓት በኋላ 3. ከ72ሠዓት በኋላ 4. አላስታዉስም	
522	ጨቅላ ህፃን እንደተወለደ እናት ሆድ ላይ ቆይቷል?	1. አዎ 2. አይደለም	መጠይቁ ይዝጉት

ክፍል 1: ማህበራዊ ስነ-ሕዝብ እና ኢኮኖሚያዊ ተለዋዋጮች

ለትበብሯዎ እናመሰግናለን!!!