P-ISSN: 2617-9806
E-ISSN: 2617-9814

Impact Factor: RJIF 5.89
www.nursingjournal.net

International Journal of Advance Research in Nursing

Volume 8; Issue 2; Jul-Dec 2025; Page No. 478-485

Received: 06-09-2025
Accepted: 08-10-2025

Indexed Journal
Peer Reviewed Journal

Knowledge and practice of postnatal mothers regarding neonatal care admitted at gynecological & obstetrical ward in Chattogram Medical College Hospital

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DOI: https://www.doi.org/10.33545/nursing.2025.v8.i2.G.578

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Abstract

Neonatal mortality remains a critical public health concern in Bangladesh, currently estimated at 17.4 per 1,000 live births. Despite improved postnatal care coverage, significant gaps persist between maternal knowledge and practice, as early bathing, pre-lacteal feeding, and inadequate hygiene remain common. Cultural beliefs and limited maternal education, especially in rural areas, further hinder optimal neonatal care. In tertiary hospitals such as Chattogram Medical College Hospital, evidence regarding mothers' neonatal care knowledge and practices is scarce, though their demographic and socioeconomic contexts differ from community populations. Understanding this knowledge-practice gap is vital for developing focused, facility-based interventions to improve neonatal outcomes. This study included 256 postnatal mothers with a mean age of 26 and (±SD) = 5 years; most were aged 21-25 years (39.8%), housewives (78.1%), and Muslims (70.3%). About half (50.4%) earned BDT 10,001-20,000 monthly, and most (69.5%) lived in joint families. Over half (54.3%) were primiparous. Overall, 54.7% demonstrated good knowledge and 36.7% good practice. Knowledge was significantly associated with education ($\chi^2 = 18.140$, $P<0.001$) and practice ($\chi^2 = 15.030$, $p = 0.001$). Higher maternal education positively influences knowledge and practice of essential newborn care. Strengthening educational interventions can help bridge this gap and improve neonatal survival outcomes.

Keywords: Mothers, knowledge, practice, neonatal care (NC), gynecological ward, CMCH

Introduction

Neonatal mortality, defined as deaths within the first 28 days of life, remains a pressing and alarming issue globally as well as in Bangladesh. In 2022, around 2.3 million newborns died worldwide, comprising nearly 47% of the 4.9 million under-five deaths [1, 2]. Although Bangladesh has made remarkable progress, its neonatal mortality rate was estimated at approximately 16 per 1,000 live births in 2020 [3], with country-level reports indicating around 17.4 per 1,000 in 2022 according to Healthy Newborn Network, 2023 [4]. This heavy burden underscores the importance of evaluating maternal knowledge and practices in essential neonatal care.

According to study of Shrestha *et al.*, 2013 maternal knowledge of essential newborn care practices does not always implement into action. For instance, a descriptive study carried out among postnatal mothers observed that although around 60% were aware of the need to wash hands before breastfeeding and after diaper change care, only 10% actually practiced it [5]. This gap highlights that awareness alone is insufficient to ensure proper caregiving behaviors.

In rural Bangladesh, cultural or religious beliefs and traditional practices significantly influence neonatal care practices. A qualitative study conducted in rural communities establishes that many mothers favored traditional customs, early bathing, cutting hair instantly after birth, and depended on traditional healers rather than seeking healthcare agency-based care during complications [6]. These deeply rooted practices pose challenges to implementing technically recommended neonatal care.

Understanding of neonatal care knowledge and practices among postnatal mothers is a vital issue. We can enable the design of tailored interventions, such as post-natal care-focused education modules, strengthened focused support systems, and optimized resource distribution within hospital settings. Such targeted strategies are essential to bridge the knowledge-behavior gap and enhance the quality of postnatal care, ultimately reducing neonatal morbidity and mortality in a tertiary healthcare atmosphere.

Problem Statement: A study to assess the level of knowledge of postnatal mothers regarding neonatal care admitted at the Gynecological Ward in Chattogram Medical College Hospital (CMCH), Chattogram.

Objectives of study

- To determine the knowledge about breastfeeding among postnatal mothers;
- To assess the knowledge of infant immunization among the respondents;
- To identify the knowledge on cord care among the respondents;
- To determine the knowledge about neonatal danger signs among the respondents;
- To level the overall Knowledge regarding neonatal care;
- To determine the practice regarding breastfeeding.
- To examine the relationship between socio-demographic characteristics and level of knowledge of neonatal care;
- To examine the relationship between socio-demographic characteristics neonatal practice;
- To examine the relationship between knowledge and practice of neonatal care.

Literature Review: According to (World Health Organization, 2014) Neonatal outcomes are strongly influenced by care provided in the immediate postnatal period. Mothers' knowledge and home practices of essential newborn care (ENC), including thermal care, breastfeeding, umbilical cord care, and recognition of danger signs, are key determinants of neonatal morbidity and mortality [7]. Hospital admission of newborns or maternal admission to gynecological/obstetric wards provides a critical opportunity for counselling and skills transfer. However, studies highlight persistent gaps between maternal knowledge and actual practice [8].

Global Perspective

Magnitude and Patterns: Global evidence shows wide variation in ENC knowledge and practice, particularly in low and middle-income countries (LMICs). While many mothers are aware of recommended postnatal practices such as early breastfeeding, knowledge of neonatal danger signs (poor feeding, fast breathing, lethargy, jaundice) is often limited. Harmful practices, including early bathing after birth and applications of unsafe cord care, are also common [7, 9]. The gap between awareness and correct practice is a recurrent theme in cross-national studies.

Determinants of Knowledge and Practice

Across regions, maternal education, antenatal care (ANC) visits, postnatal care (PNC) contacts, urban residence, and counselling exposure are associated with better ENC knowledge and adherence to safe practices [8, 9]. According to (WHO, 2014) Cultural norms and family influence, particularly from elder women, play decisive roles in shaping maternal practice or behavior. Health system factors such as staff shortages, limited counselling on discharge, and time constraints further hinder the adoption of recommended newborn care practices [7].

Interventions that Work: Evidence from LMICs by (UNICEF, 2019) [8] shows that structured postnatal care counselling before discharge, supplemented with pictorial or written materials, improves maternal ENC knowledge and short-term adherence [8]. As (WHO, 2014) community-based reinforcement, such as home visits by community health workers, sustains the effect of hospital counseling on discharge [7]. However, according to (Ayele *et al.*, 2022) the quality of counselling, particularly clarity, demonstration, and opportunities for hands-on practice, determines its effectiveness [9].

Bangladesh: National Perspective

Current Situation and Cultural Context

According to the study conducted by (Abdullah *et al.*, 2021), Bangladesh has made progress in reducing under-five mortality, yet neonatal mortality remains a major contributor to child deaths [10]. Traditional practices, such as early bathing after birth, use of substances on the umbilical stump, and delayed recognition of danger signs, continue to expose newborns to risks [8, 10]**.** These practices are often justified by cultural beliefs and reinforced by family members, especially in rural community areas.

Findings from Facility-Based Studies: Facility-based studies in Bangladesh reveal mixed results. While many mothers demonstrate adequate knowledge of breastfeeding practices, awareness of danger signs, thermal care, and safe cord care knowledge remains limited [11]**.** Counselling at discharge is inconsistently delivered, and retention of information depends on the method used (oral only versus demonstration plus written materials) and maternal characteristics such as educational level and parity [10, 11]**.**

Determinants within Bangladesh: Similar to global findings, Bangladeshi evidence highlights maternal schooling, socio-economic status, parity, ANC/PNC attendance, and structured counselling as significant predictors of ENC knowledge and practice [10, 11]. According to (UNICEF, 2019). Urban mothers and those delivering at higher-level facilities generally demonstrate better knowledge, but adherence to recommended practices is often constrained by cultural influences and household decision-making dynamics [8]**.**

Relevance to Chattogram Medical College Hospital (CMCH): Ward-specific research from CMCH remains limited, yet national and international findings suggest likely patterns. Mothers admitted to CMCH, a tertiary facility, may receive more clinical attention due to high-risk pregnancies or neonatal complications, but not necessarily better counselling on ENC. Expected patterns include (a) relatively good knowledge in breastfeeding, (b) persistent gaps in danger sign recognition and cord/thermal care, and (c) knowledge-practice discrepancies shaped by education, parity, ANC/PNC contact, and quality of discharge counseling [7, 11].

Gaps and Implications for Research

Several gaps remain. First, little is known about how hospital-based counselling translates into home practices once mothers are discharged. Second, systematic evaluation

of counselling content and delivery, whether demonstrations, pictorial aids, or structured follow-up are provided, is lacking [9, 11]. Finally, culturally tailored interventions that involve family decision-makers and combine hospital counselling with community-based reinforcement could strengthen ENC outcomes in CMCH's catchment area as (WHO, 2014; UNICEF, 2019) [7, 8].

Global and Bangladeshi literature consistently shows that maternal knowledge and practice of ENC are variable, with a persistent gap between knowing and applying recommended behaviors. Determinants such as maternal education, ANC/PNC attendance, and quality of counselling significantly influence outcomes. For CMCH, research and interventions should focus on evaluating and improving counselling quality, developing culturally appropriate educational tools, and linking hospital care with community reinforcement. Addressing these gaps could help close the knowledge-practice divide and improve neonatal survival.

Methodology: This study followed a descriptive, cross-sectional design at Chattogram Medical College and Hospital (CMCH) to assess postnatal mothers' knowledge and practices of neonatal care. Purposive sampling and a semi-structured, interviewer-administered questionnaire, validated through expert review and pretesting were used for data collection. Ethical standards, including informed consent and confidentiality, were upheld. Data were analyzed using SPSS, with rigorous procedures ensuring validity, reliability, and reproducibility.

Study Design and Setting: A descriptive, cross-sectional study was conducted at the Gynecological Ward of Chattogram Medical College and Hospital (CMCH), the largest and central hospital in Bangladesh providing maternal and child health services to families of civil employees.

Study Period: This study was carried out from July to December, 2024.

Study Population: The target population consisted of postnatal mothers admitted to the Gynecological Ward at CMCH came from around this tertiary level hospital, situated in the center of Chattogram district during the study period.

Data Collection Methods: Data were collected from 256 purposively selected postnatal mothers through face-to-face interviews using a semi-structured, interviewer-administered questionnaire. The tool, developed from literature and aligned with research objectives, covered socio-demographic details, pregnancy information, and knowledge on breastfeeding, vaccination, umbilical cord care, neonatal danger signs, and postnatal practices. Knowledge was assessed response to correct or incorrect 10 items and a 5-point Likert scale used for 10 items, while practices were measured through response to correct and incorrect items. Responses meeting ≥75% accuracy denoted good knowledge and practice [12].

Data Analysis: Descriptive statistics (mean, standard deviation, percentages) were computed. The chi-square test was used for analyzing associations between categorical variables. All analyses were carried out using SPSS Version 22 with a significance level set at $p < 0.05$.

Ethical Considerations: Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the respective university. Permission to conduct the study was secured from the Director of Chattogram Medical College Hospital (CMCH) and the Head of the Department concerned. All participants were informed about the study's purpose, procedures, and their rights before data collection. Written informed consent was obtained voluntarily. Confidentiality and anonymity were strictly maintained, and participants were assured they could withdraw at any stage without negative consequences. The study posed no physical, emotional, or economic harm to the respondents.

Limitations of the Study

- The use of purposive sampling and inclusion of only one tertiary hospital (CMCH) limit the generalizability of findings to wider populations, especially rural or community-based mothers.
- The cross-sectional study design captures information at a single point in time, which prevents drawing causal inferences.
- Reliance on self-reported data may have introduced recall bias and social desirability bias, leading to overestimation of positive practices.
- Time and logistical constraints restricted the sample size, possibly limiting the statistical power to detect smaller associations.

Results

This chapter presents demographic data and findings on 256 postnatal mothers. Higher education significantly improved knowledge (χ^2=18.140, p<0.001) and practices (χ^2=31.562, p<0.001) regarding neonatal care. A strong knowledge-practice link (χ^2=15.030, p=0.001) highlights the vital role of maternal education in promoting effective newborn care.

Demographic Characteristics of the Respondents

A total of 256 women participated in the quantitative survey, with the following demographic characteristics:

1. Age Distribution

- ≤ 20: 16.4%
- 21-25 Years: 39.8%
- 26-30 Years: 32.0%
- 31-35 Years: 4.7%
- 36-45 Years: 7.0%

2. Religion

- Islam: 70.3%
- Hinduism: 20.3%
- Buddhism: 9.4%

3. Educational Level

- Primary & Below: 8.6%
- Secondary education: 18.8%
- Higher education: 43.0%

4. Occupation of respondents
- House wives: 78.1%
- Service Holder: 14.1%
- Business: 7.8%

5. Family Income/Month (BDT)
- ≤10,000: 5.5%
- 10,001-20,000: 50.4%
- 20,001-30,000: 26.2%
- 30.001-40,000: 4.7%
- 40,001-50,000: 9.4%
- ≥50,001: 3.9%

[Mena, Median, Mode & (±SD): 25777, 20000, 20000 & (±12824)]

6. Types of Family
- Nuclear Family: 30.5%
- Joint Family: 69.5%

7. Number of Family Member
- ≤ 4 Members: 52.7%
- 5-9 Members: 42.6%
- ≥ 10 Members: 4.7%

[Median, Mode, Max & Min: 4, 4, 13, 2]

8. Pregnancy related Information
- Primipara: 54.3%
- Multipara: 45.7%

9. Number of Pregnancy
- Once: 46.1
- Twice: 35.2
- Thrice: 14.1
- ≥ Four: 4.7%

In this quantitative survey 256 postnatal mothers participated. About forty percent (39.8%) of respondents were between the ages of 21 and 25, with 32.0% being between the ages of 26 and 30. The majority of participants (70.3%) were Muslims, followed by Hindus (20.3%) and Buddhists (9.4%). In terms of education, 43.0% respondents of those surveyed had completed college, 18.8% had completed high school, and 8.6% had completed elementary school or less.

In terms of occupation housewives made up the majority (78.1%), followed by service members (14.1%) and businesswomen (7.8%). Half of the respondents (50.4%) made between BDT 10,001 and 20,000 per month, with the average family income being BDT 25,777 (Median: 20,000; Mode: 20, 000; ±SD: 12, 824).

More than half (52.7%) had families with four or fewer members (Median: 4), and the majority of respondents (69.5%) lived in joint families. In terms of reproductive data, 45.7% were multipara and 54.3% were primipara. Just 4.7% had been pregnant four or more times, compared to nearly half (46.1%) who had been pregnant once, 35.2% twice, and 14.1% three times.

Knowledge of Postnatal Mothers Regarding Neonatal Care: Newborn survival depends on the mother's understanding of neonatal care, which allows for prompt interventions, infection control, and healthy growth. There are still gaps in danger sign recognition, vaccination, and cord care despite awareness campaigns. Hospital-based evaluation aids in determining strengths and shortcomings, directing focused instruction to enhance neonatal results.

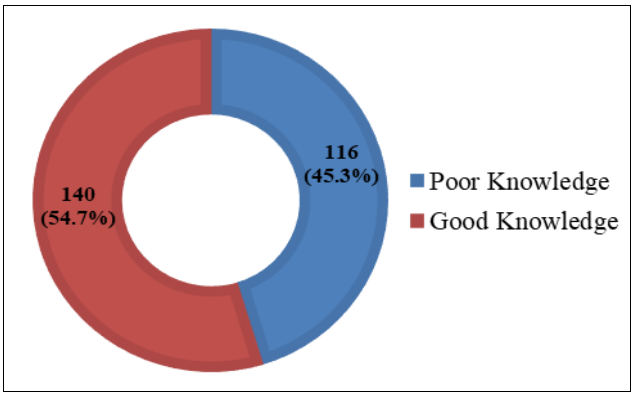

Fig 1: Knowledge level of neonatal care

Figure 1 illustrates the distribution of respondents based on their level of knowledge regarding postnatal care, categorized as Poor and Good Knowledge. The figure shows that the majority 140 (54.7%) respondents demonstrated Good Knowledge, demonstrating a strong understanding of crucial postnatal care practices such as vaccination, umbilical cord care, neonatal danger signs, and breastfeeding. Additionally, 116 (45.3%) participants showed a Poor Level of Knowledge. However, the substantial portion with poor knowledge highlights the need for continuous awareness and educational initiatives to enhance understanding and ensure better maternal and neonatal health outcomes.

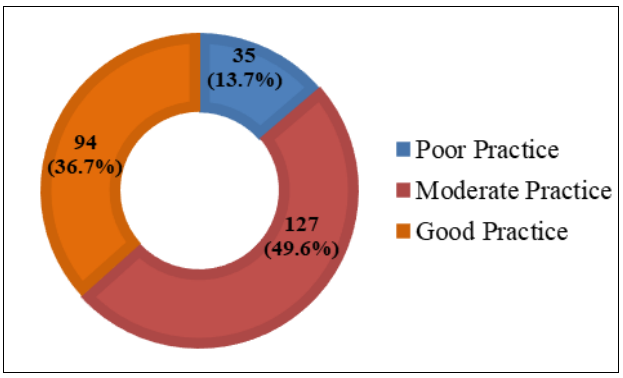

Fig 2: Practice Level of Postnatal Care

The figure 2 demonstrates the distribution of respondents based on their level of postnatal care practice. It shows that the majority of respondents 127(49.6%) confirmed a Moderate Level of Practice, indicating partial observance to recommended postnatal care behaviors such as appropriate breastfeeding and hygiene practices. A substantial proportion 94 (36.7%) exhibited Good Practice Level. However, 35 (13.7%) of respondents were found to have

Poor Postnatal Care Practices, suggesting a lack of awareness or access to appropriate guidance. Overall, while most respondents practice postnatal care to a satisfactory extent, the presence of a group with poor practices underscores the need for targeted health education and support interventions.

Association between Variables: The relationships between all socio-demographic characteristics and the research variables were examined. A significant association was found only between the mother's educational level and knowledge regarding neonatal care. On the other hand, when the relationship between knowledge and practice was examined, a significant association was also observed.

Table 1: Relationship between Educational Status and Knowledge of Neonatal Care (N = 256)

Education	Poor Knowledge n (%)	Good Knowledge n(%)	Total n (%)
Primary/<	14 (12.1)	8 (5.7)	22 (8.6)
SSC	32 (27.6)	16 (11.4)	48 (18.8)
HSC	46 (39.6)	64 (45.7)	110 (42.9)
Graduation	24 (20.7)	52 (37.2)	76 (29.7)
Total	116 (100)	140 (100)	256 (100)
Test Statistics:		χ^2= 18.140, *P*<0.001	

The association between mothers' educational attainment and their neonatal care knowledge is displayed in Table 1. The majority of the 256 participants who were knowledgeable had higher educational backgrounds. In particular, 37.2% of mothers with good knowledge were graduates, and 45.7% had finished HSC. On the other hand, people with lower educational backgrounds were more likely to have inadequate knowledge; of these, 27.6% had completed the SSC, while 12.1% had only completed primary school or less. There is a statistically significant correlation between education and neonatal care knowledge, according to the Chi-square test (χ^2 = 18.140, *P*<0.001). This suggests that mothers are more likely to know more about neonatal care as their educational attainment rises.

There is a statistically significant association between educational status and knowledge level, indicating that higher education is linked to better neonatal care knowledge.

Table 2: Relationship between Educational Status and Neonatal Practice (N = 256)

Educational Level	Poor n(%)	Moderate n (%)	Good n (%)	Total n (%)
Primary/below	10 (45.5)	10 (45.5)	2 (9.1)	22 (8.6)
SSC	6 (12.5)	18 (37.5)	24 (50.0)	48 (18.8)
HSC	10 (9.1)	64 (58.2)	36 (32.7)	110 (43.0)
Graduation	9 (11.8)	35 (46.1)	32 (42.1)	76 (29.7)
Total	35 (13.7)	127 (49.6)	94 (36.7)	256 (100)
Test Statistics:		χ^2 = 31.562, *P*<0.001		

Table 2 shows that postnatal care practices and educational status are significantly correlated (χ^2 = 31.562, *P*<0.001). Higher education appears to have a positive impact on postnatal care behavior, as evidenced by the 42.1% of graduates who displayed good practices compared to just 9.1% of mothers with only a primary education or less. Mothers with more education typically have better postnatal care practices, according to a statistically significant correlation between educational attainment and postnatal care practices.

Table 3: Relationship between Knowledge and Neonatal Care Practices (N = 256)

Knowledge	Poor Practice	Moderate Practice	Good Practice	Total n(%)
Poor	21 (18.1%)	67 (57.8%)	28 (24.1%)	116 (100)
Good	14 (10.0%)	60 (42.9%)	66 (47.1%)	140 (100)
Total	35 (13.7%)	127 (49.6%)	94 (36.7%)	256 (100)
Test Statistics:		χ^2 =15.030, *P*<0.001		

Table 3 shows a significant association between knowledge and postnatal care practices (χ^2 = 15.030, *p* = 0.001). Mothers with good knowledge demonstrated better practices, with 47.1% showing good practice compared to only 24.1% among those with poor knowledge, indicating that higher knowledge levels lead to improved postnatal care behavior. There is a statistically significant association between maternal knowledge and postnatal care practice, indicating that mothers with higher knowledge levels are more likely to demonstrate appropriate postnatal care behaviors.

Discussion: The study's findings are interpreted in the discussion chapter in the light of prior research, emphasizing their applicability to health education, neonatal care, and maternal education. With comparisons to previous research, socio-demographic characteristics, postnatal care knowledge and practices, and influencing factors are investigated. Evidence-based suggestions to enhance maternal education and positive or negative neonatal outcomes in Bangladesh are presented, along with implications for nursing practice, maternal-child health programs, and policy.

Discussion on Sociodemographic Characteristics of Respondents: Understanding the socio-demographic profile of postnatal mothers is essential for interpreting their knowledge and practices regarding neonatal care. In the present study, a total of 256 women participated in this study, representing diverse age groups, religions, education levels, occupations, and family structures and size.

Age Distribution": The majority of respondents (71.8%) were aged between 21-30 years, which aligns with the national reproductive age trend reported by the Bangladesh Demographic and Health Survey (BDHS, 2022) [13]. A study conducted by (Islam *et al.*, 2021) Mothers in this age range are generally physically mature and more receptive to healthcare advice [14], which positively influences neonatal outcomes [15]. Younger mothers (≤20 years) represented 16.4%, reflecting the persistence of early pregnancies in some communities, which may contribute to lower awareness and poorer neonatal care practices.

Religion: Most respondents were Muslim (70.3%)**,** followed by Hindu (20.3%) and Buddhist (9.4%)**,** consistent with the regional demographic composition of Chattogram. Religious beliefs often shape postnatal practices, including dietary restrictions, hygiene habits, and care-seeking behavior [16]. While religious orientation can influence cultural practices, the current hospital-based setting likely mitigated extreme variation in neonatal care behaviors.

Educational Level: A substantial proportion of respondents (43.0%) had higher education**,** while 18.8% completed secondary education, and 8.6% had primary or lower levels of education. Education showed a significant association with neonatal care knowledge and practice in this study (χ^2 = 18.140, P<0.001; χ^2 = 31.562, P<0.001), indicating that higher education enhances understanding and application of essential newborn care [15]. Educated mothers are more likely to follow evidence-based practices such as exclusive breastfeeding, hygienic cord care, and timely vaccination.

Occupation: The majority of mothers were housewives (78.1%)**,** with 14.1% being employed and 7.8% engaged in business activities. Homemakers generally have more time for newborn care but may lack access to health information unless supported by community health workers or family networks as (Rahman & Sultana, 2019) conducted study [17]. Employed mothers often benefit from exposure to formal health information and peer networks, which can positively influence neonatal care knowledge and practices.

Family Income: Most families (50.4%) had a monthly income of BDT 10,001-20,000**,** indicating lower-middle-income status, while only 3.9% earned more than BDT 50,000. Family income affects access to healthcare services, nutrition, and sanitation, all critical factors for neonatal health [18]. Financial constraints may limit mothers' ability to seek timely postnatal care or afford hospital services, highlighting the importance of subsidized maternal and child health programs.

Family Type and Size: A study conducted by (Uddin *et al.*, 2020) [19] a significant proportion of respondents (69.5%) lived in joint families**,** reflecting traditional Bangladeshi social structures. Joint families provide support for maternal and neonatal care but may also perpetuate non-evidence-based practices [19]. Regarding family size, 52.7% had ≤4 members, and 42.6% had 5-9 members. Smaller households may allow more focused attention on the newborn, whereas larger families require shared caregiving, which can dilute maternal attention but enhance experiential knowledge through family support.

Parity and Pregnancy History: Primiparous mothers comprised 54.3% of respondents, while multiparous mothers accounted for 45.7%. Primiparity has been associated with lower neonatal care experience, whereas multiparous mothers often demonstrate improved caregiving behaviors based on previous pregnancies [14]. Regarding pregnancy frequency, 46.1% of mothers had one pregnancy, 35.2% had two, and 14.1% had three, highlighting that the study population had diverse maternal experiences. Notably, knowledge and practice levels were significantly associated, indicating that even first-time mothers can perform optimal neonatal care when adequately informed (χ^2 = 15.030, P<0.001).

Implications: The socio-demographic characteristics highlight the influence of age, education, family structure, occupation, and economic status on maternal capacity for neonatal care. Higher education, in particular, was strongly linked to better knowledge and practices, emphasizing the need for targeted education programs. Primiparous mothers and mothers from low-income households may require additional support to ensure adherence to essential newborn care practices. Moreover, culturally sensitive interventions considering religious and family norms are critical for improving neonatal health outcomes in Bangladesh.

Relationship between Knowledge of Neonatal Care and Educational Status: The study's conclusions show a statistically significant correlation between mothers' neonatal care knowledge and their level of education (χ^2 = 18.140, P<0.001). Compared to mothers with lower educational backgrounds, those with higher education levels, especially those who had graduated or completed HSC, showed a greater understanding of neonatal care. This outcome is in line with a number of earlier investigations carried out in comparable settings. For example, women with higher levels of education were more knowledgeable about the complications and necessary neonatal care practices [20]. In a similar vein, was evident in study conducted by (Eluri *et al.* 2022) [21] found that maternal education had a significant impact on the degree of knowledge and practice surrounding critical newborn care, with mothers who received education being more likely to follow advised health practices [21]. Targeted educational interventions could enhance postnatal knowledge even among mothers with lower levels of education, improving maternal and neonatal outcomes, according to study conducted by (Subramanian *et al.* 2020) [22]. Azad *et al.* (2023) found that mothers with less education were less likely to identify neonatal danger signs and seek prompt medical attention in Bangladesh [23]. The World Health Organization (2022) emphasizes the significance of

providing sufficient health education both during and after childbirth, highlighting education as a critical factor in attaining a positive postnatal experience [24]. Thus, this study lends credence to the idea that maternal education is essential for enhancing mothers' comprehension and implementation of postpartum care practices, which in turn leads to better health outcomes for both mothers and newborns.

Relationship between Educational Status and Practice of Post-natal: The results in Table 2 show that mothers' postnatal care practices and their educational status are significantly correlated ($\chi^2 = 31.562$, $P<0.001$). Compared to mothers with lower levels of education, those with higher levels demonstrated superior postnatal care practices. In particular, only 9.1% of people with only a primary education or less demonstrated good postnatal care practices, whereas 42.1% of graduates did. The findings of a number of previous studies, which consistently show that maternal education is essential in influencing postpartum health-related behaviors, are consistent with this pattern. Islam *et al.* (2021), for example, discovered that mothers who had completed secondary and higher education were more likely to adhere to postnatal care recommendations and seek medical attention when they needed it [14]. Similarly, Eluri *et al.* (2022) [21] showed that health education interventions for mothers greatly enhanced critical newborn and postnatal care practices [21]. According to a study conducted in Ethiopia by Assefa and Berhe (2020), appropriate postnatal care practices were positively correlated with higher educational attainment [25]. Additionally, the World Health Organization (2022) highlights that raising women's educational attainment improves maternal health outcomes because educated mothers are more likely to adopt healthy habits and be open to receiving health information [24]. Therefore, the current study supports the evidence that education improves postnatal care behaviors and increases knowledge, both of which support the health of the mother and the newborn.

Table 3's findings show a statistically significant correlation between mothers' neonatal care practices and their knowledge ($\chi^2 = 15.030$, $P<0.001$). Appropriate care practices were more likely to be displayed by mothers who knew more about postnatal care. In particular, only 24.1% of mothers with inadequate knowledge demonstrated good postnatal care practices, compared to 47.1% of mothers with adequate knowledge. This result is consistent with earlier research showing that a key factor influencing effective postnatal care behavior is sufficient maternal knowledge. For example, Aswathy and Binoo (2019) found that mothers who knew more were more likely to maintain hygiene during the postpartum period and to practice essential newborn care [26]. Similarly, Haile and Tafese (2018) discovered a strong positive correlation between Ethiopian mothers' postnatal care practices and their knowledge, indicating that behavior is directly influenced by knowledge [27]. Eluri *et al.* (2022) [21] also showed that structured maternal education interventions led to significant improvements in newborn and postnatal care knowledge and practice scores [21]. According to Akter *et al.* (2021), mothers in Bangladesh who knew enough about postpartum care were more likely to seek professional assistance and adhere to advised medical procedures [28]. In keeping with these conclusions, the current study emphasizes how raising maternal awareness can successfully improve postnatal care procedures, which will ultimately improve the health of both the mother and the newborn.

Conclusion: The education, knowledge, and neonatal care practices of mothers were found to be strongly correlated in this study. Better knowledge and healthier neonatal care were associated with higher education, suggesting that education plays a significant role in influencing maternal health awareness and behavior. Knowledgeable mothers were more likely to adhere to proper neonatal care procedures. These results emphasize the need for community-based interventions, prenatal counseling, and postnatal follow-up to improve health education programs, particularly for mothers with lower levels of education. To encourage safe and efficient postpartum or neonatal care for all moms, policymakers and healthcare professionals should give priority to educational programs and awareness campaigns.

Recommendations

1. During prenatal and postnatal visits, reinforce maternal health education regarding postnatal care.
2. Give mothers with less education specialized health education.
3. Assure that skilled nurses and midwives provide appropriate postnatal counseling.
4. Run community-based initiatives to raise awareness of crucial postpartum procedures.
5. Include programs for maternal education in national health policies.
6. To assist mothers, include family members in postnatal care education.
7. Recommendations are made for conducting further comprehensive research adhering to all the characteristics of scientific investigation.

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How to Cite This Article
Gupta TD, Hoq MI, Uddin MB, Sarker MMK, Jannat M, Chakma A, Aktar F. Knowledge and practice of postnatal mothers regarding neonatal care admitted at gynecological & obstetrical ward in Chattogram Medical College Hospital. International Journal of Advance Research in Nursing. 2025;8(2):478-4485

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