

Raising the Confidence of Mothers in Preterm Birth Care: Exploring the Secondary Role of the Internet

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Abstract: Adequate family education and knowledge regarding basic preterm baby care is essential to enhance parents' experience and alleviate the quality of life with preterm babies. Our study looks at the extent to which knowledge affects the confidence of new mothers. It explores other potential factors, sources of knowledge, and the role of technology and online content. The research model for our empirical investigation takes the foundations of the knowledge, attitudes, and practices (KAP) theory as the central survey framework of the theory of planned behaviour. The study results showed that NICU training has a significant impact on mothers' knowledge levels regarding the care of preterm babies after their discharge from the NICU. Findings revealed a prevalent reliance on unofficial online sources such as Google, social media, and other informal websites, rather than official resources like the WHO, CDC, or similar trusted platforms. Knowledge level emerged as a significant predictor of the dependent variable, maternal confidence, with a predictability score of 43.6%. This suggests that improved knowledge fosters greater confidence, particularly among first-time mothers who often rely on secondary internet sources to bridge their knowledge gaps and boost their confidence. These findings highlight opportunities for healthcare providers and health authorities to improve information generation and dissemination and foster support systems for parents.

1 INTRODUCTION


Every year more than 15 million tiny creatures are born prematurely or earlier than their expected arrival. Pre-term birth or Premature birth (PB) refers to births that occur earlier than 37 weeks or equivalent to 259 days of gestation. It accounts for more than one million neonatal deaths per year at the global level¹ And presents a major challenge to perinatal health as it significantly contributes to various morbidities that may extend to adulthood (Pinto F.a, 2019). PB may drastically affect the little bundles of joy, their mothers, and family members caring for them (O'Donovan & Nixon, 2019).


Adequate family education and knowledge regarding the basic preterm baby care is essential to enhance parents' experience and alleviate the quality of life with the premiee (Sedigheh Khanjari, 2022). This is when parents become the primary caregivers


who provide the basic and sometimes more complicated care that may require a certain level of training and monitoring (José Granero-Molina, 2019). Understanding parents' challenges and the support they need would help achieve optimal outcomes for babies (Ma RH, 2021; Amorim, 2018).


In 2012, the prevalence of preterm births in Lebanon was around 9.6% as per the National Collaborative Perinatal Neonatal Network (NCPNN) which analysed 35% of the national birth data. This accounts for around 8656 neonates per year of the total 90,167 births reported by the Ministry of Public Health.

We are interested to learn about the extent to which knowledge affects the confidence of the new mothers attitude and explore the relevant indicators for that. We aim to explore the sources of knowledge parents seek for care of their preterm babies in a context of a Low-or Middle-Income Country (LMIC)

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¹ <https://www.who.int/news-room/fact-sheets/detail/preterm-birth>

like Lebanon, where resources are scarce and research is limited. Furthermore, as Information and Communication Technology (ICT) modalities, also known as digital tools, are becoming more popular, employing them to educate and support parents of preterm babies would be a way forward to address those needs. Preterm birth disproportionately affects minority and low-income groups and is associated with high infant morbidity and mortality rates. In the neonatal intensive care unit and elsewhere in the postpartum period, healthcare teams can use digital solutions to fulfil the needs of mothers and infants (Jani, et al, 2021). Solutions like e-health, telemedicine, and digital education can also be substantial to secure support to health centres and patients in rural areas and maybe less developed countries who have little access to advanced facilities (Ruxwana NL, 2010). Our research question explores the extent that new mothers rely on the use of information and communication technology ICT, digital resources, and how they are combined with direct training of parents caring for their preterm babies after they are discharged from the NICU.

2 BACKGROUND

We are interested to explore the extent to which knowledge affects attitude and explore the relevant indicators for that. We set the stage for our empirical investigation through a research model that takes the foundations of the theory of knowledge, attitudes, and practices (KAP) theory as the central survey framework of the theory of planned behaviour (Ajzen, I. 2011), Fig 1.

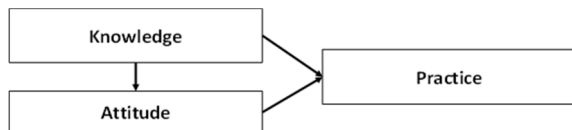


Figure 1: KAP Conceptual Model from Ajzen, I. (2011).

The theory postulates that knowledge acquisition modifies human health-related behaviors in preterm postnatal care (Herzog-Petropaki et al, 2022; Parker et al, 2020; McMillan et al, 2009). We follow the example of other research in this context to understand mother’s confidence and competency in preterm infant care (Kusumaningrum et al, 2019; Bajoulvand et al, 2019; Hwang et al, 2023). Our choice of KAP theory and model offers a deeper dive into antecedents of knowledge and attitudes and investigate knowledge levels acquired from online information sources, NICU training and other factors

would influence the confidence of preterm infants’ mothers, especially testing for the impact of the ICT use and online information sources that these new mothers find relevant.

3 RESEARCH MODEL

3.1 Antecedents and Hypotheses

3.1.1 Confidence/ Attitude

The confidence of new mothers in caring for their preterm baby has a significant impact on their ability to handle their preemie at home. Maternal confidence alleviates self-empowerment and capability in handling the caretaking tasks with less stress and anxiety (Premji, 2018). Mothers’ attitude and confidence in taking control over caring for their preterm baby at home is highly affected by the level of knowledge and education they have (Parhiz Z, 2016). As such, mothers of preterm infants rather feel unprepared to assume the full responsibility for their babies after their discharge from the NICU because they lack the proper education and confidence (Kadiroğlu, 2021). Hence, inadequate knowledge of mothers about caring for their preterm babies would in turn associate with post-discharge complications and sometimes readmission (Aldirawi, 2019). Our inquiry into the confidence level of the new mothers is modelled after Rinehimer, M. A. (2017), we attempt to detect the new mother’s comfort interacting with their infant at home, their reliance on the information received and their understanding of the baby’s developmental milestones.

We build a model (Fig. 2) where Confidence is the dependent variable (CONF 4.1 – 4.10).

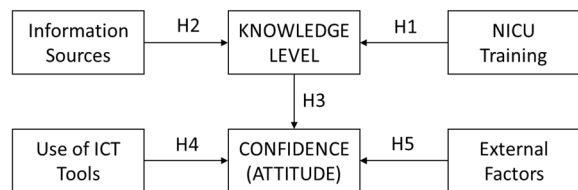


Figure 2: Our Model.

We consider the following variables as latent independent variables:

- (KNOW_LVL) - Scored knowledge level as reported by the survey instrument (See Appendix)
- (NICU_T1 – T10) - Represents the training provided by NICU staff to preterm mothers
- (INFO_SOURCE) – designates the source of information on caring for preterm infant and whether

it is official online sources/websites like the World Health Organization, Center for Disease Control, and other scientific societies (ONLINE_1); or unofficial online sources like Google and other websites and mobile applications (ONLINE_2) and finally (F&F) - Family and friends.

(ICT_USE) is the variable that represents the use of electronic platforms or mobile applications by new mothers to get care information. Finally, (EXT_FACTORS), include factors such as Maternal age (AGE); Education level (EDU); length of the infant stays in the NICU (NICU_DAYS) and whether this was the mother's first pregnancy (1ST_PREG).

3.1.2 NICU Training

Patient and family education is a core practice in health care to improve health outcomes and foster self-efficacy and confidence. When empowered with knowledge about their health situation, treatment and preventive alternatives, patients and their families become more engaged in their care plan, which positively affects their adherence (Paterick TE, 2017). Structured family-centred education of the mothers and fathers not only improves the health outcomes of the baby but also enhances the quality of life of parents (Sedigheh Khanjari, 2022). Patient and Family Education in general, and care for babies on specific is highly recognized as a basic requirement in Lebanon's Hospital national accreditation standards under the Patient and Family Rights domain. Hospitals are required to establish policies, procedures, and mechanisms to realize this requirement and put in place measures to assess its effectiveness. Discharge education for NICU graduates constitutes fundamental care aspects like basic care, feeding, follow-up care among others (Sedigheh Khanjari E. F., 2022). Our first (H1) hypothesis states that NICU training, as a fundamental knowledge base, is an important antecedent to increasing the knowledge level of new mothers in the care of their preterm infant.

3.1.3 Sources of Information

Upon the transition of the preterm baby home after spending days or weeks in the NICU, parents experience a significant level of anxiety and stress to face the responsibility of being the primary caregivers to the baby (Abiuty Omwenga Omwari, 2024). After being passive recipients of information while at the NICU, they become active seekers of various types of information as they move home. Parents explore a wide range of information from various sources including computer-based or digital resources to fulfil

their needs in caring for the preterm baby at home (Brazy, 2001). For instance, social media platforms, like Google Search (Dol et al, 2019) and Facebook, are reported as frequently utilized resources to look out medical information and seek advice (Taylor K, 2023; Erika Frey, 2022). We are also interested in exploring the interest in information available from official health authority websites like the World Health Organization (WHO), Centre for Disease Control (CDC), National Health Authorities, Medical Societies, which might be seen as a triangulated source that might have a certain degree of reliability and usefulness.

For our model, we therefore hypothesize (H2), that, information sources on caring for preterm infants are antecedents to increasing the knowledge level of new mothers in the care of their preterm infant. These sources could be either official online sources/websites like the World Health Organization, Center for Disease Control, and other scientific societies, or unofficial online sources like Google and other websites and mobile applications. They also could be information offered by friends and family members.

3.1.4 Knowledge Acquisition

For the third hypothesis, H3, we postulate the knowledge level of new mothers is an important antecedent to their confidence level in caring for their preterm infants.

Parents of preterm babies need a wide range of support services, among which education and information prevail. The results of a systematic review published in 2011 by Brett et al reflected that parents of preterm babies need accessible, individualized, and up-to-date education programs to help them cater to their baby's needs and support their development (Brett J, 2011). Traditional education and training programs that include physical presence and face-to-face meetings may help parents to some extent however, they also incur several logistical challenges that affect the level of attendance and response (Valérie Lebel, 2021). In addition, educational resources that include verbal education and/or printed pamphlets may not account for the factors of interaction, individualization, and parents' stress and well-being (Valérie Lebel, 2021).

For our inquiry, we conducted a desktop review of available guidelines and resources for the basic care information that parents should know about caring for their preterm baby after discharge from the NICU. We compiled references of publications by (Furtak, 2021; WHO, 2022), and triangulated our

information by articles of the American Academy of Paediatrics parenting website², Canadian Paediatric Society, Foetus and Newborn Committee, Alberta Health Services³, and the Center for Disease Prevention and Control⁴. We use these references to build a questionnaire that would explicitly assess the level of knowledge parents acquire on basic preterm baby care. We run our questionnaire by 30 preterm babies' parents and neonatal care practitioners to obtain a relative validation or the relevance of the questions (Appendix).

3.1.5 Use of Technology Tools

Digital tools may offer comfort, adaptability and autonomy in providing care and the effectiveness of care. The literature advocates including parents or primary caregivers of infants requiring care in a neonatal intensive care unit, when assessing the relevance of exploiting technology in the circle of care (Dol et al, 2017; Gibson, 2020). These technologies include means of education (e.g. web-based platforms, mobile applications); communication (e.g. videos, SMS or text messaging), or a combination of both.

The design and implementation of perinatal eHealth programs are emerging as the availability of new eHealth systems (i.e. applications and machine learning-based tailored feedback), and ubiquitous devices (i.e. smartphones and wearables) increases (Auxier et al, 2023). Parents are open to using technology as part of their neonatal intensive care; videoconferencing for instance, is sought after discharge as a means of providing post-departure family assistance. We then propose the hypothesis (H4), that the use of electronic platforms or mobile applications by the new mothers to get care information is an important antecedent to their confidence level in caring for their preterm infants.

3.1.6 External Factors

Our last latent variable summarizes potential external factors of determinants of health, namely age and education that may have an influence on the confidence of mothers to care for caring for a preterm baby after discharge from the hospital (Taraban and Shaw, 2018). The length of the NICU stay would affect the parents' confidence given the exposure that the parents get while shadowing the health care practitioners in the NICU and whether the preterm baby is their first-born (Pinar & Erbaba, 2020). That

said, our last hypothesis (H5) is that external factors such as maternal age, education, length of the infant stay in the NICU and whether this was the mother's first pregnancy are important antecedents to their confidence level in caring for their preterm infants.

3.2 Approach and Study Design

We follow a convenience sampling using data on 26 public and private hospitals that offered NICU services in two of the largest districts in Lebanon, Mount Lebanon (suburb to the capital) and Beirut. The target population included Lebanese parents with preterm babies born earlier 37 weeks of gestation. After securing the required ethical approvals, we conducted the study between December 2023 and September 2024. We approached all mothers who fit the inclusion criteria in coordination with the NICU health doctors or nurses within the discharge week. We enrolled preterm mothers immediately after delivery and contacted again 6-8 weeks after discharge to partake the survey.

Our survey instrument comprises seven sections (Appendix). In the first section, we collect 37 answers to questions and summarize the score into three knowledge levels as preliminary level (scores of <50%), average (Scores 50% - 75%) and advanced (scoring 75% - 100%). Upon data collection we normalize our answers to produce our KNOW_LVL variable values of (0, 1, and 2) respectively (Peterson and Cavanaugh, 2020). Section 2 explores the pre-discharge training that parents were offered in the Neonatal Intensive Care Unit (NICU). Section 3 asks the participants to identify the sources they found helpful to preterm baby care. Next, section 4 investigates new mothers' attitudes and confidence level regarding caring for preterm baby. Participants were able to report whether they use electronic platforms or mobile applications to get information about caring for their baby in section 5. Finally, sections six and seven attempt to capture external factors such as maternal age, education, whether it was a case of first pregnancy and the length of stay of preterm baby in the NICU.

4 STATISTICAL ANALYSIS

The participants were mothers fitting the below profile (Table 1). In an interestingly symmetrical normal distribution, our sample show that mothers

² HealthyChildren.org, 2023

³ www.albertahealthservices.ca/scns/page10303.aspx

⁴ www.cdc.gov/maternal-infant-health/about/index.html

(N=78) with an average age of 32, 68% on their first pregnancy, gave birth to their preterm baby within the first 2 weeks of gestation.

Table 1: Sample Profile.

N=78	Average	Median	Mode
Maternal age in years	32	32	32
Gestational age (completed weeks)	31	32	33
First Pregnancy	68%		

4.1 Measurement Model Analysis

We loaded our model in SmartPLS3.0 and ran the PLS algorithm. We then reduced the indicator variables in order to reach convergent validity and reliability. We accepted only the indicators with loadings ≥ 0.708 as significant (Hair et al, 2019). Figure 3 shows our valid model - with outer loading factors.

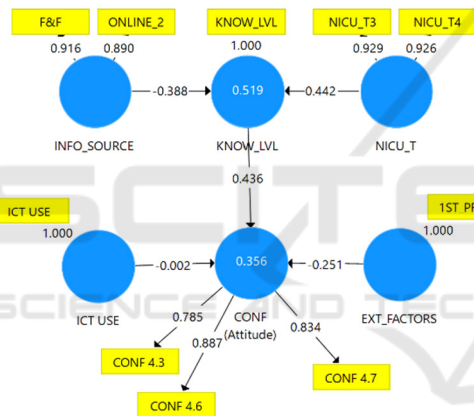


Figure 3: Valid Model - with outer loading factors.

Table 2: Discriminant Validity.

	CONF (Attit...	EXT_FACTORS	ICT USE	INFO_SOUR...	KNOW_LVL	NICU_T
CONF (Attit...	0.836					
EXT_FACTORS	-0.458	1.000				
ICT USE	0.172	-0.218	1.000			
INFO_SOUR...	-0.429	0.627	-0.228	0.903		
KNOW_LVL	0.555	-0.475	0.273	-0.611	1.000	
NICU_T	0.622	-0.387	0.314	-0.503	0.638	0.928

The model is of a reflective construct; therefore, construct validation can be obtained through Confirmatory Factor Analysis (CFA) (i.e. convergent and discriminant validity) and reliability testing (i.e. Cronbach's Alpha) (Hair et al, 2019). We find that the model has good discriminant validity since the AVE squared value of each exogenous construct (the value on the diagonal) exceeds the correlation between this

construct and other constructs - see Fornell-Larcker Criterion Values in Table 2 (values below the diagonal).

Table 3: Construct Reliability and Validity.

Construct Reliability and Validity

Matrix	Cronbach's Alpha	rho_A	Composite Reliability	Average Vari...
CONF (Attitude)	0.785	0.796	0.875	0.700
EXT_FACTORS	1.000	1.000	1.000	1.000
ICT USE	1.000	1.000	1.000	1.000
INFO_SOURCE	0.776	0.784	0.899	0.816
KNOW_LVL	1.000	1.000	1.000	1.000
NICU_T	0.838	0.839	0.925	0.861

Subsequently, following Hair et al (2019), we perform a convergent validity test by looking at the loading factor value of each indicator against the construct. We accept the indicators with loadings ≥ 0.708 as significant with an AVE value for each construct > 0.5 . Subsequently, we assess the construct reliability. The reliability test results in table 3 show that all constructs have composite reliability and Cronbach's alpha values greater than 0.7 (Hair et al, 2019). In conclusion, all constructs have met the required validity and reliability.

Further, our model produced R2 values of .519 and .356 for Knowledge level and Confidence. These moderate to substantial values reinforce the value of our study and the findings (Hair et al, 2019). They indicate that 51.9% of the variability in the outcome in Knowledge Level and 35.6 % of the variability in the confidence latent variable may be explained by this study.

4.2 Supported Hypotheses

We found that two significant indicators inform the NICU Training latent variable in our model. These indicators relate to training on how to interact with the preterm baby (NICU_T4) and how to position the preterm baby in bed (NICU_T3). NICU training as a fundamental knowledge base is an important

Table 4: Bootstrapping results.

Path Coefficients	Mean, STDEV, T-Values, P-Values	Confidence Intervals	Confidence Intervals Bias Corrected		
	Original Sa...	Sample Mea...	Standard De...	T Statistics (I...	P Values
EXT_FACTORS -> CONF (Attitude)	-0.251	-0.258	0.119	2.109	0.035
ICT USE -> CONF (Attitude)	-0.002	0.001	0.111	0.017	0.986
INFO_SOURCE -> KNOW_LVL	-0.388	-0.388	0.104	3.724	0.000
KNOW_LVL -> CONF (Attitude)	0.436	0.443	0.091	4.766	0.000
NICU_T -> KNOW_LVL	0.442	0.448	0.113	3.901	0.000

antecedent to increasing the knowledge level of new mothers in the care of their preterm infant (H1).

Table 4 provides evidence of the statistical findings to support hypothesis H1, H2, H3 and H5.

Information sources on caring for preterm infants are antecedents to increasing the knowledge level of new mothers in the care of their preterm infant (H2). Mothers of preterm babies found information on caring for their preterm baby from unofficial online sources like Google and other websites and mobile applications. Some have received information from family and friends. What is interesting is that information sources from official bodies such as WHO or CDC did not seem as relevant.

The knowledge level of mothers with preterm infants emerged as a significant predictor of maternal confidence, with a predictability score of 43.6%. Improved knowledge fosters greater confidence, particularly among first-time mothers who often rely on secondary internet sources to bridge their knowledge gaps and boost their confidence.

To that effect, the knowledge level of new mothers is an important antecedent to their confidence level in caring for their preterm infants (H3). They believe that the information and instructions they received from the NICU are sufficient to meet their needs to care for their preterm baby (CONF 4.3), the general knowledge they acquired through the varied sources have increased their understanding of their baby's developmental milestones (CONF 4.6). They are confident that they know how to care for their newborn and the details of follow-up assessments needed following discharge. Our model analysis supports this hypothesis with a predictability of 43.6 % (path coefficient = 0.436) and high level of confidence ($t= 4.766$).

The maternal age, education, length of the infant stay in the NICU, are not significant indicators. However, the fact whether this was the mother's first pregnancy was important antecedent to their confidence level in caring for their preterm infants with a predictability of 25.1 % (path coefficient = -0.255) and high level of confidence ($t= 2.109$).

Finally, there was no support for the hypothesis that the use of electronic platforms or mobile applications by the new mothers to get care information is an important antecedent to their confidence level in caring for their preterm infants.

5 RESULTS AND CONCLUSION

In summary, our effort identified support for four hypotheses (H1, H2, H3 and H5) while H4, that states

the use of electronic platforms or mobile applications by the new mothers to get care information is an important antecedent to their confidence level in caring for their preterm infants, was not supported. We find our results surprising. Information sources from official bodies, such as WHO or CDC were not found as relevant. Additionally, using formal electronic platforms was not an important factor affecting new mothers' confidence in caring for their preterm infants. While, an essential source of knowledge is still the support of friends and family, mothers of preterm babies found information on caring for their preterm baby from unofficial online sources like Google and other websites and mobile applications. Nevertheless, the study demonstrates that NICU training has a significant impact on mothers' knowledge levels regarding the care of preterm babies after their discharge from the NICU. This aligns with the knowledge, attitudes, and practice (KAP) framework, where knowledge serves as a critical foundation for shaping positive attitudes and informed practices.

5.1 Emerging Crowdsourcing Platform

The internet promises to be an effective crowdsourcing platform among preterm baby mothers. By exploring the dynamics of how mothers seek and utilize knowledge for the care of their preterm baby(ies), the study provides valuable insights into the complexities of knowledge acquisition in terms of how mothers of preterm infants acquire and use knowledge, particularly highlighting the unexpected prominence of unofficial online sources like google and social media. Mothers' attitudes toward credible sources and the accessibility or perceived relevance of the preference to seek non-official information underscore the mothers' information-navigation habits and the importance of fostering effective management of crowdsourced online information. Our findings highlight opportunities for healthcare providers and health authorities to improve information generation and dissemination and eventually fostering support systems for parents. One could propose forums and open-source blogs that collect, disseminate, and connect information from preterm baby mothers, and help shape better support systems. Such a sociotechnical approach could integrate unofficial experiences, sourced from preterm mothers for the support of their peers focused on the specific needs of these parents.

What was not surprising, was the finding that women on their first pregnancy have found a source

of confidence boost in searching secondary sources on the Internet. The internet is rich with informal sites on neonatal care (Alderdice, et al, 2018). Albeit, the quality of information in these sources may not be verified, they seem to offer a confidence level boost to mothers. For the setting of our study, we issue a genuine invitation to the Lebanese National Health Authority in collaboration with the health care organizations to enhance their online presence and support parents with the consistent information and advice in terms of handling preterm babies after discharge from the NICU.

5.2 Limitations and Further Research

The sample size used is narrow. Nonetheless, it is effective in supporting our study. A retrospective sample size verification using the minimum R squared method showed that our sample size was satisfactory (Kock, and Hadaya, 2018).

Still, the use of convenient sampling, in terms of choosing two of the most populous districts among the other districts of Lebanon to conduct the study, may bring forth a form of bias. The study was conducted in Beirut and Mount Lebanon only which may not represent all regions of Lebanon, especially the rural ones. However, Mount Lebanon, which is the largest district, includes some rural areas, especially in the mountain villages that are relatively far from the capital cities. Nevertheless, our sampling was inclusive to all hospitals who offer NICU services in these two districts and were invited to take part in the study and while exhaustive sampling was used to reach out to every potential candidate who is eligible to participate.

As such, our study captures insights from parents of preterm babies residing in these rural areas. Simultaneously, parents seeking neonatal services at the referral hospitals in Beirut and Mount Lebanon come from diverse regions in Lebanon including areas outside these two big districts.

Acknowledging that the empirical part of this effort was still in progress at the time of writing this paper, we were motivated by interesting findings from the questionnaire section of this study that mothers' reliance on informal online sources to seek information regarding their preterm babies, we decided to disclose these findings early as they could provide valuable insights and prompt timely discussions on this critical aspect of information-navigation or seeking behaviors.

We are proceeding with an extension of the sample to other geographies of the country, while adding a qualitative extension for the inquiry, to

deepen the understanding of the matter. Once complete, we will share the expanded findings, as we are positive, will shed more light on the complex subject of preterm birth care.

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APPENDIX

Section 1. Knowledge Level Score (KNOW_LVL):

Possible answers: Agree=1 Disagree=0

2.1- The preterm baby has a corrected age that accounts for the weeks born earlier than 37 weeks.

2.2- My preterm baby needs to visit his/her doctor one to 2 weeks following discharge from the NICU.

2.3- The mother's milk is the recommended feeding for preterm babies.

2.4- In case breast-feeding is not possible, the preterm baby should be fed only formula milk for the first 4 to 6 months.

2.5- The preterm baby should be fed at least every three to four hours day and night.

2.6- Refrigerated milk must be placed on the counter to warm to room temperature before being given to the baby.

2.7- If the preterm baby is fed formula milk, bottled water should be used to prepare the milk.

2.8- Adding more water to the bottle than required might be dangerous to my preterm baby.

2.9- Extra milk that remains in the bottle can be used for the next feed.

2.10-Prepared formula milk should be stored in the refrigerator and used within 24-48 hours.

2.11-Milk bottles need to be cleaned with hot and soapy water (or on the top rack of the dishwasher).

2.12-I know if my preterm baby is getting enough breast milk or formula milk through the daily number of wet.

2.13-Preterm babies do not need to be bathed every day.

2.14-The preterm baby should be bathed either before feeding or at least one hour after feeding.

2.15-A baby should always be transported in a rear-facing infant-only car safety seat.

2.16-My preterm baby should have routine monthly or bimonthly visits to the doctor up till the age of 12 months.

2.17-My preterm baby needs to be assessed by a pediatric neurologist.

2.18-My preterm baby may need neuro-developmental therapy like physical therapy, psychomotor therapy, feeding therapy...

2.19-My preterm baby may need eye screening/exam

2.20-Rectal temperature 38°C or above is an alarming sign of illness that requires doctor consultation.

2.21-The decreased activity is an alarming sign of illness that requires doctor's consultation.

2.22-At 1 to 2 months, taking less than 6 feeds of milk per day is an alarming sign that requires doctor's consultation.

2.23-The absence of wet diapers for more than 6 hours is an alarming sign that requires doctor's consultation.

2.24-Diarrhea (more stools than the baby's usual) for more than one day is an alarming sign that requires doctor's consultation.

2.25-Unusual (more than the usual spitting) vomiting is an alarming sign that requires doctor's consultation.

2.26-Yellowish eyes or skin is an alarming sign that requires doctor's consultation.

2.27-Fast or difficult breathing is an alarming sign that requires doctor's consultation.

2.28-Common cold can cause severe respiratory illness in preterm babies.

2.29-Preterm babies are vulnerable and more prone to infections.

2.30-Preterm babies' vaccination schedule is different from that of term babies.

2.31-Crowded places and visits increase preterm babies' exposure to infections.

2.32-The number of people who provide care/interact with my preterm baby at home should be limited.

2.33- Baby should be placed on the back and not on the stomach while sleeping to avoid the risk of sudden infant death syndrome (SIDS)

2.34-I should log my baby' (temperature, milk intake, daily wet diaper...) to share with the doctor during the follow-up visits.

2.35-Mother and father skin-to-skin contact with the preterm baby is beneficial for the baby's well-being and development.

2.36-Play has an important role in the development of my preterm baby.

2.37-Tummy time is essential for the baby's development, provided that it is supervised.

Section 2. NICU training and post-discharge services (NICU T1-T10): Possible answers: 1: Yes 2: No 3: Not Applicable .

NICU_T1: 1.1-I was given instructions about caring for my preterm baby at home by the NICU team before discharge.

NICU_T2: 1.2-The NICU staff taught me how to hold my preterm baby

NICU_T3: 1.3-The NICU staff taught me how to position (place) my preterm baby in bed.

NICU_T4: 1.4- The NICU staff prepared me to interact with my preterm baby

NICU_T5: 1.5- The NICU staff taught me how to feed my preterm baby

NICU_T6: 1.6- The NICU staff taught me how to identify early signs of illness in my preterm baby

NICU_T7: 1.7- The NICU staff taught me how to identify signs of discomfort (like colic pain, hunger, diaper rash) in my preterm baby

NICU_T8: 1.8-The NICU team guided me to who to call if I have questions after discharge

Section 3. Source of Knowledge: Possible answers: Never, 2: Rarely, 3: Sometimes, 4: Often, 5: Always.

NICU_T9 3.1- I seek information on caring for my preterm baby from the NICU nurses

NICU_T10 3.2- I seek information on caring for my preterm baby from my baby's doctor

ONLINE_1 3.3- I seek information on caring for my preterm baby from official online sources/websites like the World Health Organization (WHO), Center for Disease Control (CDC), and other scientific societies.

ONLINE_2 3.4- I seek information on caring for my baby from online sources like Google and other websites and mobile applications ...

F&F 3.5- I seek information on caring for my preterm baby from family and friends.

Section 4. Attitudes (Confidence) Possible answers: 5 Point Likert Scale

Scale: 1: Strongly Disagree – 2: Disagree- 3: Neither disagree nor agree - 4: Agree – 5: Strongly Agree

CONF 4.1: 4.1- Given the information I received from the NICU, I feel comfortable interacting with my infant at home

CONF 4.2: 4.2- I understand the information that healthcare professionals gave me about my baby's general health condition.

CONF 4.3: 4.3- I believe that the information and instructions I received from the NICU are sufficient for care for my preterm baby.

CONF 4.4 4.4- I believe I need additional information to feel more comfortable interacting/caring for my infant at home.

CONF 4.5 4.5- I am afraid to touch my baby because I may hurt or upset the baby.

CONF 4.6 4.6- I am confident in my understanding of my baby's developmental milestones.

CONF 4.7 4.7- I am confident that I know the screening and follow-up assessments needed following discharge.

CONF 4.8 4.8- I am confident that I know about the early signs of illness when my baby needs medical follow-up.

CONF 4.9 4.9- I am confident I know what to do when I detect early signs of illness.

CONF 4.10 4.10- Overall, I am confident handling and caring for my infant at home

Section 5. Technology Use. Possible answers: Agree=1 Disagree=0

ICT_USE I use electronic platforms or mobile applications to get information about caring for my baby to help me care for my baby.

Section 6. External factors

AGE 6.1- Maternal age in years: _____

EDU 6.2- Highest education/degree: < Pre-High School; High School+; Higher Education>

NICU_DAYS 6.4- How many days did your preterm baby spend in the NICU? -----

1ST_PREG 6.5- Is this your first pregnancy? 1: Yes – 2: No; if no, please go to question 6.5.