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# IMPACT OF PRE-DISCHARGE HEALTH EDUCATION PROGRAM ON POSTNATAL MOTHERS' KNOWLEDGE AND SATISFACTION RELATED NEONATAL CARE AT NURSERY UNIT, DAMMAM HOSPITAL

[i,*]Thikrayat Al-Sayhati, [i,ii]Nor Aroma Abu Bakar, [i]Eman AL Ahmree, [i]Rajjaa Adam, [i]Amal AL-Sadiq, [i]Fedaa Al-Zaher & [i]Zainab Bazbouz

[i]Imam Abdulrahman Bin Faisal Hospital, National Guard Hospital Affairs Dammam, Saudi Arabia
[ii]Open University Malysia, Kelana Jaya centre, Selangor, Malaysia

*Corresponding author. E-mail: alsayhatith@mngha.med.sa

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## ABSTRACT

The study focuses on promoting maternal and child health by enhancing neonatal care through effective health education for postnatal mothers. The research employed a quantitative observational design to assess the knowledge levels of postnatal mothers regarding neonatal care and their satisfaction with pre-discharge health education provided by nurses. The study involved 300 mothers in the preliminary phase (February to May 2023) and 1,122 mothers in the subsequent phase (June 2023 to June 2024), assessing their knowledge of breastfeeding, cord care, and immunization. Data were collected via a self-administered checklist, with scores indicating low, medium, or high knowledge levels. Results showed that 84% of mothers in the preliminary study had a high level of knowledge, while the follow-up phase showed knowledge levels ranging from 63% to 100%. Additionally, 94% to 100% of mothers reported high satisfaction with the health education provided. The study concludes by recommending that nurses enhance their knowledge of neonatal care and adhere to patient rights policies to meet the educational needs of mothers.

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**Introduction**

Defining health promotion is challenging due to its diversity, complexity, and multifaceted nature (Howard-Grabman et al., 2017). It appears to be an umbrella term which has been used to cover the overlapping fields of health education, prevention, and attempts to protect the public health through social engineering (World Health Organization, 2015). Healthy public policies at both the government and local levels can be achieved through various health promotion activities, such as lobbying.

Nurses, midwives, and health visitors play a significant role in health promotion and education (Dol et al., 2019). Health promotion poses significant ethical dilemmas for nurses and other professionals who aim to promote the health of their clients. This is well expressed by Jones et al. (2017) who highlights 'the need, on the one hand, to prevent disease and safeguard the public health while, on the other hand, respecting individual freedom of choice including the freedom to adopt an unhealthy lifestyle'. Education that assists individuals in making informed decisions and adopting healthy behaviours is commonly praised (Jones et al., 2017; Smith et al., 2022). While some people may change their behaviour when aware of the risks associated with certain activities, it is clear that many others will not alter their lifestyle or habits (Nama one health, 2023).

The health education literature commonly describes it as having several functions and including actions designed to (a) impart health-related information that influences values, beliefs, attitudes and motivations; (b) achieve health-or illness-related learning through knowledge acquisition, assimilation and dissemination and (c) lead to skills development and lifestyle/behaviour modification (Stormacq et al., 2020; WHO, 2015). These activities are usually aimed at individuals and are identified within a framework that encompasses activities that cover information-giving to enabling processes.

According to Almalik et al., (2017), women undergo numerous physiological and psychological changes throughout the postpartum period, which is a crucial transitional period. Experiencing and meeting the needs of women allows them to pass through this period without any complications and enhances the ability of healthcare providers to provide proper care after giving birth. Relation to this, as many as 150 postpartum women have completed perceived learning needs scale prior to hospital discharge, at southern region of Jordan, and have completed perceived met learning needs scale at 6-8 weeks after giving birth have been involved through convenience sampling techniques. Analysis of the study found that women of the study sample reported a high level of concern across all eight learning needs subscales and the most common concerns were related to new baby care, episiotomy care and breastfeeding. In addition, attending postpartum check-up clinics was identified as a significant factor in meeting women's requirements, particularly emotional changes and information related to family planning. Thus, healthcare providers and policymakers should consider women's concerns and needs at early postpartum period to establish patient-centred postpartum care that is based on women's needs and concerns during this transitional period, with a focus on newborn baby care, episiotomy care and breastfeeding.

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Malagon-Maldonado et al., (2017) also emphasized that preparation for hospital discharge after birth became a global concern when hospitals in many developing countries began implementing shorter lengths of stay for uncomplicated deliveries. A mother's perceived readiness for hospital discharge may be influenced by many factors that can ultimately shape post discharge outcomes. Malagon-Maldonado et al., (2017) conducted a descriptive correlational study to explore the antepartum, intrapartum, and postpartum predictors of discharge readiness, including nursing educational practices that are predictive of postpartum mothers' perceptions of readiness for hospital discharge. Results showed mothers with three or more children, delivery mode, bottle-feeding, the delivery of education, and the difference between educational content received and needed, were significant predictors that accounted for 42% of the variance in readiness for hospital discharge. The model exhibited significant predictors of nurses' skill in teaching and receiving educational content, even with parity, feeding, and delivery mode. To enhance patient education, nurse education programs and evidence-based guidelines must be designed with the objective of ensuring the adequacy and delivery of teaching content.

According to Jing et al., (2017), the Newborn and Maternal Health Protection Act of 1996 aims to protect babies and mothers by setting a minimum LOS. As per the 2015 policy of the American Academy of Paediatrics on newborn discharge, the emphasis has shifted from LOS-based decision-making to focusing on the clinical readiness of the baby and the readiness of the mother and family. However, health care providers must take into account the diverse characteristics of the baby and mother when determining the appropriate time to discard the baby, and the mother should be actively involved in the decision-making process. The time of the newborn's discharge should be decided by the mother and the medical professional based on their readiness. Decisions should consider the health status of the baby, the health status of the mother, the mother's perception of readiness, and the availability of social and family support for mother and baby. The study also suggests that accessible and comprehensive post-discharge support is also important to help infants achieve optimal health outcomes.

Whereas, Della et al., (2023) conducted a systematic review to synthesize the evidence on risk factors associated with unplanned 31-day newborn hospital readmission (UHR). Studies examining unplanned readmissions of newborns within 31 days of hospital discharge following initial hospitalization at the time of their birth were included. Characteristics of the included studies examined variables and statistically significant risk factors were extracted from the included studies. The extracted risk factors could not be statistically pooled due to the diversity of the included studies. The most frequently cited risk factors associated with newborn readmission were gestational age, length of stay after delivery, neonatal comorbidities, and feeding methods. The most frequently cited maternal-related risk factors contributing to newborn readmissions were parity, race/ethnicity, and complications in pregnancy and/or the perinatal period. Four factors were maternal (primiparous, mother was Asian, vaginal delivery, maternal complications), and two factors were neonatal (boys and neonatal comorbidities). Implementation of evidence-based clinical practice guidelines for inpatient care and individualized hospital-to-home transition plans, including transition checklists and discharge readiness assessments, are recommended to reduce newborn UHR. Similar to the study of Della et al., (2023), Barnwell et al., (2024) also

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conducted a study to collate and synthesize unplanned within-48-h PICU readmission prevalence and associated risk factors.

Barnwell et al., (2024) also agreed that unplanned pediatric intensive care unit (PICU) readmissions are associated with increased morbidity/mortality, length of hospital stay, and health service costs and are recognized as key performance indicators of quality care delivery. However, research evidence on risk factors for unplanned PICU readmission is limited, and results are inconsistent across studies. Barnwell et al., (2024) found that the twelve risk factors consistently cited were age, body weight, complex chronic conditions, source of admission, unplanned admission, length of PICU stay, positive pressure ventilation, discharge disposition, oxygen requirement, respiratory rate, rate heart rate, and Glasgow Coma Score. during discharge. Of the 12, five predictors were classified as modifiable factors, including discharge disposition, oxygen requirements, abnormal respiratory rate, abnormal heart rate and decreased Glasgow Coma Score at discharge. This review acknowledges the complexity of confounding factors impacting unplanned PICU readmissions and the lack of standardization examining potential risk factors. Five modifiable factors are indicative of clinical instability and premature PICU discharge. Patients with modifiable risk factors should have their readiness for discharge reassessed. Scaffolding support for managing patients at risk of readmission includes provision of bedside nurses, use of PICU outreach services.

The discussion of past studies shows that there is an increase in neonatal readmission due to various reasons such as umbilical cord infection, breastfeeding problems and others. The increase in the readmission rate can cause the risk of adverse implications for the baby and also the mother in various aspects including adverse effects on health status, cost of treatment expenses and prolonged hospitalization, and others. This happens due to non-effective education provided to postnatal mothers causing problems to the unpreparedness among mothers to take care of their babies after returning home so that it can cause complications. It's even worse if the mother is the first experience giving birth to a baby and taking care of her baby. Therefore, health education before discharge is seen as a necessity for the hospital to provide.

Accordingly, this research project was conducted to examine the level of knowledge among postnatal mothers related to neonatal care and their level of satisfaction towards the health education provided to them before returning home.

## Methodology

### *Study Design and Sampling*

Quantitative, descriptive action research type of design was conducted on a total of n=50 postnatal mothers every month for a period of 12 months before their babies are allowed to return home by using a simple random sampling technique from the list of baby mothers' names in the nursery registration book.

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*Sampling Criteria*

All postnatal mothers who delivered at study hospital, mothers with normal deliver, instrument and caesarean section, mothers include primid, multipara and grand multipara, and all babies who admitted in nursery includes premature baby or term baby.

*Data Collection*

Following frequent complaints and phone calls from postpartum mothers regarding the care of their babies such as neonatal care e.g. breast feeding, cord care, medication, post circumcision care and their baby's follow-up; thus, the neonatal care unit has decided to conduct further investigations into this emerging issue. The implementation of the improvement project is to use the quality of the FOCUS-PDCA type tool to carry out strategies based on the root cause analysis.

The project is carried out with the goal of achieving 100% of mother awareness on the Neonatal care education before discharge by the end of March 2024. This project is also carried out to ensure at least 90% patient satisfaction regarding the education program by the end of March 2024.

A preliminary study was conducted on postnatal mothers before they were allowed to discharge home. A total of N=300 postnatal mothers were questioned in this preliminary study in order to assess their level of knowledge related to baby care after returning home. A total of three main topics are given focus based on common complaints from mothers, including breastfeeding, cord care and immunization.

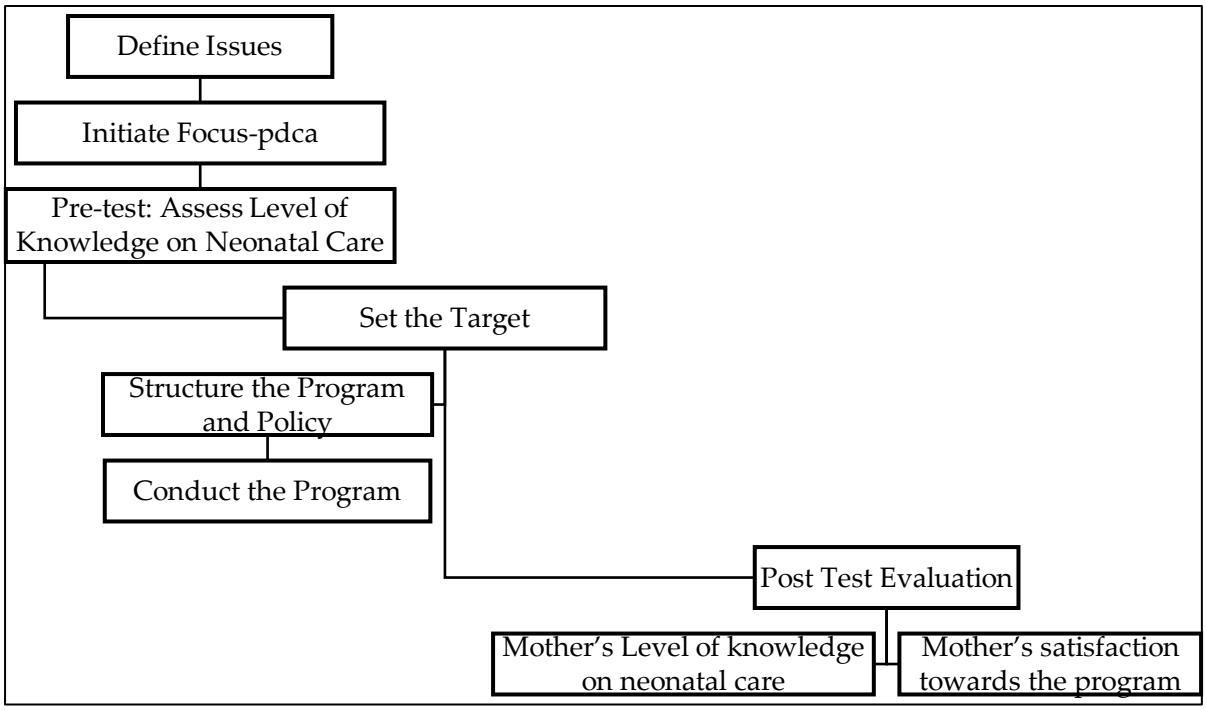


**Figure 1:** The flow of study project framework

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**Data Analysis**

Descriptive type statistics were conducted to answer the research questions, namely in the frequency and percentage distribution, which is the level of satisfaction related to the health education provided and the level of knowledge related to neonatal care in three aspects, namely breastfeeding, cord care and immunization. The mother's level of knowledge is categorized into three, namely low level (0-33%), medium level (34-67%) and high level (68-100%) able to answer correctly. The level of knowledge assessed is through a self-administered questionnaire. Survey questionnaire items were used from the neonatal health education checklist, nursery unit of the study hospital. The nurse will tick 'Yes' if the answer the questions correctly and 'No' if it is wrong. Score (1) for correct answer and score (0) for wrong answer. The level of knowledge was categorized as low, moderate and high level based on the percentage calculated form the score obtained.

This preliminary study which was conducted around February to May 2023 on a total of n=300 mothers after giving birth at the study location. The results of the analysis have shown that postpartum mothers have a high level of knowledge (84%) regarding neonatal care in the three aspects that have been focused on. However, their level of knowledge still does not reach 100% as stated in figure 2 below.

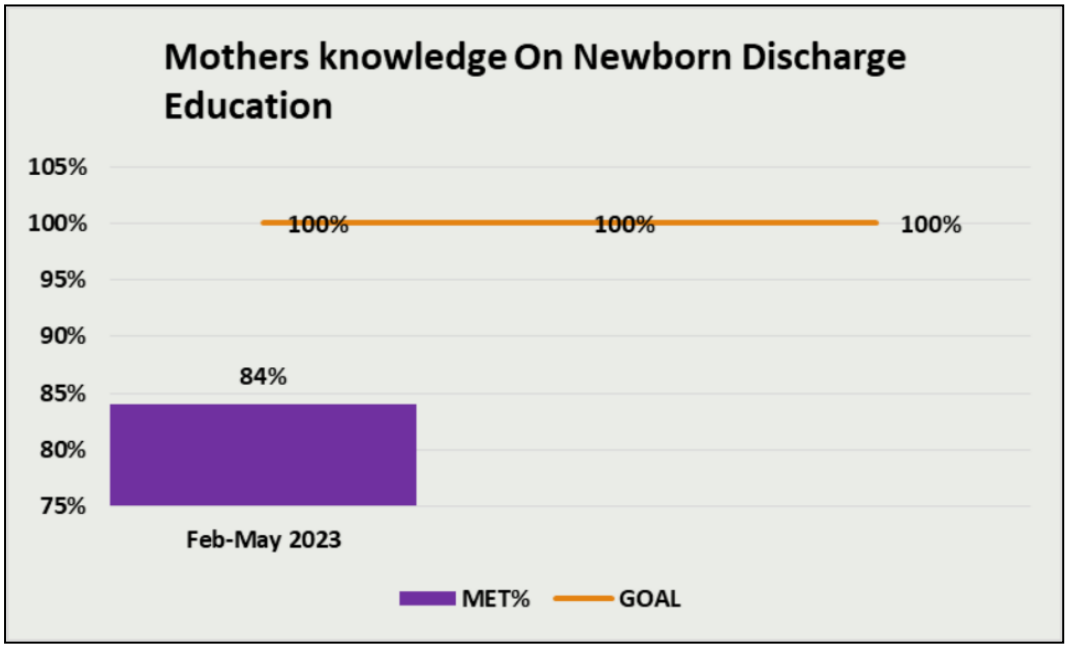


**Figure 2:** Pre-program percentage score on mother's knowledge related neonatal care

Since the results of the analysis show that the mother's knowledge level did not reach the target set at the beginning of the project, it is likely that the health education given by the nurses was ineffective. Therefore, a structured training program related to neonatal care health education was held where a checklist and policy regarding pre-discharge postnatal health education was drawn up to be applied by nurses to postnatal mothers who meet the specified criteria.

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The implementation of this comprehensive pre-discharge postnatal health education training program was carried out on nurses to be delivered to postnatal mothers before taking their baby home. The duration of this training program was carried out over a period of 12 months to assess its impact on the knowledge and satisfaction of mothers related to neonatal care.

The mother's knowledge level is assessed after pre-discharge postnatal health education is conducted to determine the impact of the program. A total of n=1122 mothers are randomly selected every month before they discharge home with their babies. It was carried out for 12 months starting from June 2023 until June 2024. The following are the results of the analysis obtained and presented in the form of frequency and percentage.

The results of the analysis show that the respondents have a moderate to high level of knowledge with a percentage of 63% to 100% as shown in figure 3. This study was also conducted to determine the level of satisfaction of mothers with the postnatal health education program given before the mother returned home. Figure 4 shown also shows that the majority of mothers involved in this study stated that they were very satisfied with the implementation of the health education program given by the nurses at the study location with a satisfaction percentage of 94%-100%.

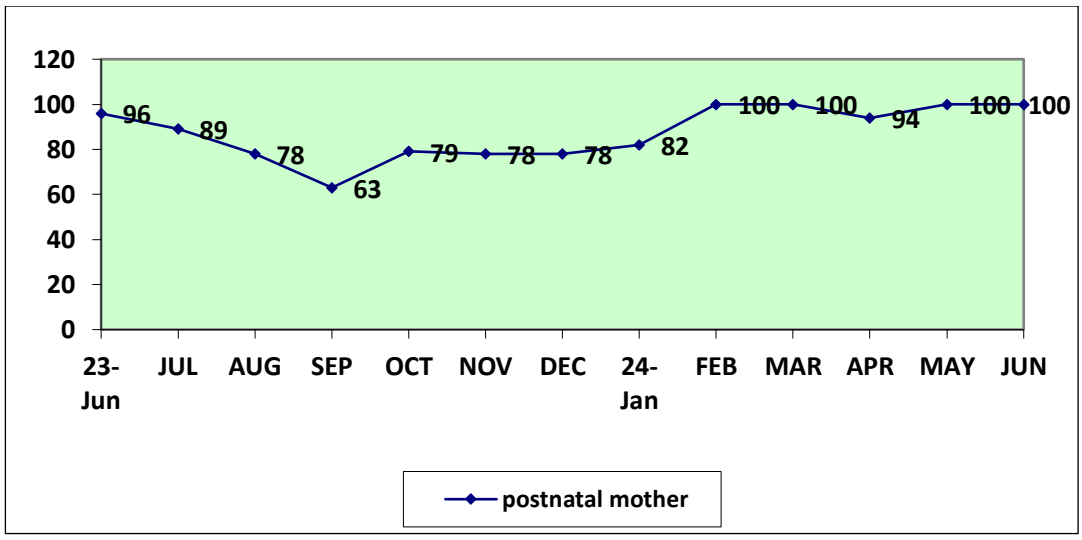


**Figure 3:** Post program percentage score on mother's knowledge related neonatal care

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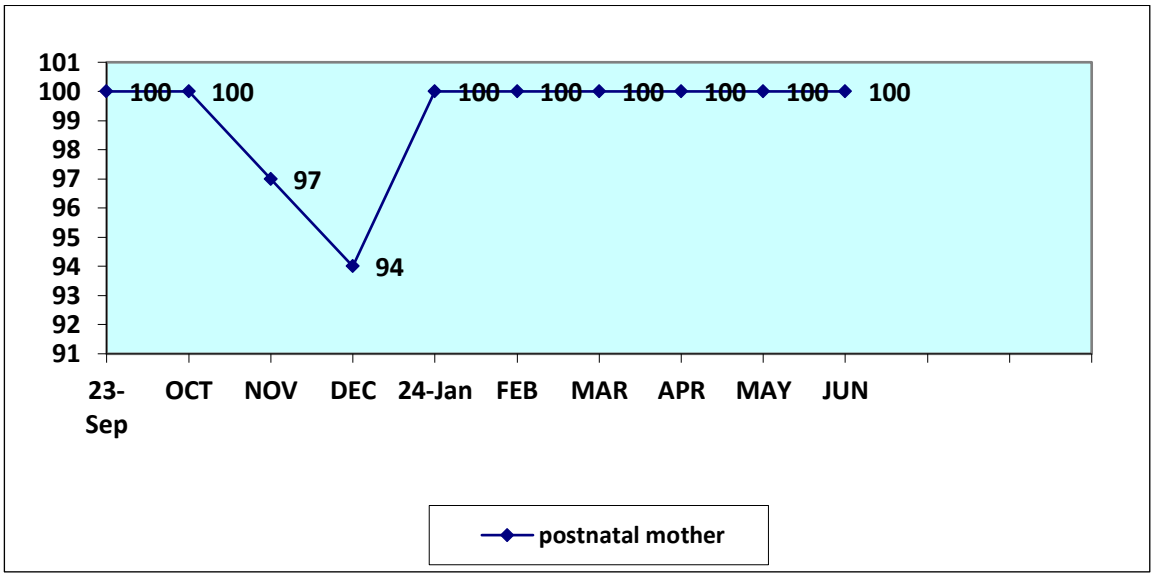


**Figure 4:** Post program percentage score on mother's satisfaction on pre-discharge postnatal health education program related to neonatal care

## Discussion

Complications after birth can happen to mothers and children and these complications can divide individuals, families and the country in general. This is because the treatment expenses due to adverse complications involving the health of mother and child are very high as reported by Ding et al., (2022) and Ran et al., (2022). The past studies discussed above also support that most babies tend to get complications during the puerperium period including infections in the baby's center and skin (Almalik et al., 2017), breastfeeding problems (Malagon-Maldonado et al., 2017), lack of knowledge related to immunization, and infant growth and developmental follow up schedule (Jarrett et al., 2022; Malouf et al., 2019). Some of the literature that has been discussed states that the issue of mothers' willingness to care for their babies is very significant (Smith et al., 2022; Olza et al., 2018; McLeish et al., 2021).

This is evidenced by the increase in readmission prevalence and associated risk factors among the neonatal population as reported in the study by Della et al., (2023) where the most frequently cited risk factors associated with newborn readmissions were gestational age, postnatal length of stay, neonatal comorbidity, and feeding methods. A study by Jarrett et al., (2022) also stated that the most frequently cited maternal-related risk factors which contributed to newborn readmissions were parity, race/ethnicity, and complications in pregnancy and/or perinatal period. Meanwhile, the study reported by Barnwell et al., (2024) also stated that twelve consistently cited risk factors were age, weight, complex chronic conditions, admission source, unplanned admission, length of stay, positive pressure ventilation, discharge disposition, oxygen requirements, respiratory rate, heart rate, and Glasgow Coma Score at discharge.

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The sequence from the presentation of the previous study clearly shows that this will lead to bad implications including increased morbidity/mortality, hospital length of stay, and health service cost and is recognized as a key performance indicator of quality-of-care delivery (Barnwell et al., 2024). In fact, the findings of this study have also proven that the post-natal pre-discharge health education program successfully increased the knowledge of postnatal mothers related to neonatal care with the achievement of 100% in February 2024 until June 2024 (100%). In fact, this study also found that mothers are very satisfied with the health education program which is provided to mothers before they bring their children home with the achievement of a level of satisfaction with the education program provided was 94% to 100% from September 2023 until June 2024.

So, it is clear that it is important that mothers are given health education regarding the effective care of their babies before they are allowed to return home. Among the studies that support this opinion is the study by Almalik et al., (2017) where analysis of the study found that women of the study sample reported a high level of concern across all eight learning needs subscales and the most common concerns were related to new baby care, episiotomy care and breastfeeding. This opinion is also the same as the study of Malagon-Maldonado et al., (2017) where the result of analysis proved that nurses' skill in teaching and educational content received were significant predictors even with parity, feeding, and delivery mode in the model. Therefore, nurse education programs and evidence-based guidelines should be designed to enhance patient education focused on the adequacy and delivery of teaching content.

Likewise with the study by Jing et al., (2017), who also asserted that accessible and comprehensive post-discharge support is also important to help infants achieve optimal health outcomes. Accordingly, Jing et al., (2017) opined that the timing of newborn discharge should be a joint decision made by the mother and health care provider based on readiness and the decisions should consider the health status of the baby, the health status of the mother, the mother's perception of readiness, and the availability of social and family support for mother and baby.

## Conclusion

This study found that the postnatal pre-discharge health education program has successfully increased the level of knowledge related to baby care among postnatal mothers in the location where this study was conducted and achieved the percentage target that had been set. This study also shows that the level of satisfaction with the education program provided to mothers is also high and reduced readmission of neonatal with complications at the study location. Thus, this study has contributed to the field of theory related to health education about baby care as well as to mothers and their contribution in the practical aspect of nursing, which is the improvement of neonatal health care policy. This study has suggested that nurses need to increase knowledge related to neonatal care as well as comply with policies related to the rights of patients/clients to be taught based on their needs.

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