



Factors Affecting Postpartum Depression among Mothers of Preterm Infants: A Comprehensive Analysis

Farzana Qasim (Corresponding Author)

Post RN, BScN, RM, RN

Nursing Tutor, Postgraduate College of Nursing, Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan. Email: farzana.qasim.2015@gmail.com

Nazma Bibi

Assistant Professor, Postgraduate College of Nursing, Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan

Nagina Khanam

Post RN, BScN, RM, RN

Nursing Tutor, Postgraduate College of Nursing, Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan

Ali Akbar

Health Technologist

Faculty of Health Sciences, Peshawar, Khyber Pakhtunkhwa, Pakistan

Dr. Bibi Sultania

Principal, Postgraduate College of Nursing, Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan

Zeenat Bibi

Nursing Tutor, Postgraduate College of Nursing, Hayatabad, Peshawar, Khyber Pakhtunkhwa, Pakistan

Abstract

The study examines the factors influencing postpartum depression (PPD) among mothers of preterm infants. Using a sample of 20 mothers, data were collected through structured interviews and surveys that assessed knowledge, attitudes, and practices in infant care, as well as emotional well-being. The results indicate that 80% of mothers had a good understanding of preterm birth, but knowledge gaps were identified in specific caregiving areas, such as feeding (70%) and temperature monitoring (50%). A positive correlation was found between greater knowledge of infant care and lower depression scores ($p = 0.03$), with an average depression score of 5.2 among well-informed mothers. Additionally, 85% of mothers supported the importance of Kangaroo Mother Care, and 75% engaged in regular skin-to-skin contact. However, 55% of mothers reported feeling overwhelmed, with these mothers showing the highest depression scores (6.1, $p = 0.01$). The study highlights the importance of targeted education and emotional support in reducing PPD symptoms and improving infant care.



Keywords: Infant care, Maternal knowledge, Postpartum depression, Preterm infants, Temperature monitoring, Caregiving practices.

Introduction

Premature birth is a significant global health challenge, affecting millions of families each year. Mothers' strategies in managing premature infants have been explored in various studies, with a focus on their psychological and emotional responses. Arzani et al. (2015) emphasize the importance of understanding mothers' coping mechanisms in caring for premature infants, shedding light on how they manage the complexities of early neonatal care. Arnold et al. (2013) further investigate the initial bonding between parents and very preterm infants, underscoring the emotional importance of the first moments spent together. This period is crucial for both the infant's and the mother's emotional well-being.

Early intervention programs for preterm infants are widely recognized for their critical role in improving long-term outcomes. Benzies et al. (2013) conducted a systematic review to identify key components of these programs, concluding that personalized, family-centered care is fundamental. Furthermore, Fleury et al. (2014) explored the role of healthcare professionals in supporting the mother-infant relationship in neonatal intensive care units, emphasizing the need for a collaborative approach to enhance neonatal care. In addition to healthcare professionals, maternal knowledge and attitudes also play a significant role in infant care. Okech (2014) examined mothers' knowledge, attitudes, and practices on newborn care in South Sudan, highlighting the disparities in maternal health education across different regions. Caring for premature infants often involves the practice of Kangaroo Care, a method that has been shown to improve outcomes for preterm infants. Mohammed et al. (2013) found that Kangaroo Mother Care (KMC) significantly enhanced the physiological, behavioral, and psychosocial outcomes of premature infants in Cairo, Egypt. Ballester (2013) also highlighted the benefits of KMC in the Dominican Republic, emphasizing its positive impact on infant development. The importance of these practices has been globally recognized, with initiatives to implement KMC being widely endorsed in many low-resource settings.

Despite these advancements, challenges remain in providing standardized care for preterm infants. Susanne (2013) discusses the barriers to standardized care in upper Midwest hospitals in the United States, where variations in hospital practices still persist. Additionally, the World Health Organization (WHO) (2014) stresses the importance of standardized care protocols for premature infants to ensure equitable outcomes. The care of premature infants is a multifaceted issue that requires a combination of family-centered care, healthcare professional involvement, and culturally relevant interventions. The ongoing research in this field continues to highlight the significance of early bonding, specialized interventions, and the critical role of healthcare professionals in improving outcomes for both mothers and preterm infants.

Materials and Methods



This study aims to explore the factors affecting postpartum depression among mothers of preterm infants, particularly in relation to their emotional well-being and caregiving experiences after discharge from the Neonatal Intensive Care Unit (NICU). The research was conducted as part of a senior elective course at Aga Khan University Hospital Karachi. The methodology incorporated a combination of observational learning, direct engagement with participants, and a thorough review of relevant literature, ensuring a comprehensive and contextually relevant framework for examining the impact of preterm birth on maternal mental health.

The study design employed a descriptive approach and utilized a randomized sampling method to select 20 study participants. The participants were mothers of preterm infants who were either admitted to NICU or had been transferred to general wards such as A2, B2, and PEADS 19 Blocks. These specific units were chosen because they catered to mothers of preterm infants during their post-ICU recovery, and thus provided a relevant setting for evaluating the mothers' knowledge and practices regarding infant care. A self-developed assessment tool was utilized to collect data, designed to capture essential information related to the mothers' understanding of premature birth and the subsequent care required for their infants.

The study population consisted of mothers of preterm infants who were admitted to NICU at Aga Khan University Hospital Karachi. A total of 20 mothers were selected randomly from various wards within the hospital. The wards chosen for participant selection were the A2 and B2 Units, where mothers of infants who had been discharged from ICU continued to receive care, and the PEADS 19 Block, which specifically admitted mothers whose infants had been transferred from NICU to regular neonatal care. The inclusion criteria for the study were as follows: mothers of preterm infants born before 37 weeks of gestation, mothers who were willing to participate in the study, and mothers with a history of preterm birth. Mothers who were either unavailable or unwilling to participate in the study, as well as those whose infants faced severe medical complications that restricted handling or care training, were excluded from participation.

Data collection was conducted using a self-developed questionnaire, which included structured questions to assess the mothers' general knowledge regarding preterm birth and its complications, as well as their understanding of how to handle and care for preterm infants at home. The questionnaire specifically focused on aspects such as feeding, bathing, skin-to-skin contact, and general caregiving practices post-discharge. In addition to the questionnaire, observational data was gathered during interactions with the mothers in the NICU. This helped to provide deeper insights into the practical challenges the mothers faced in handling their preterm infants and allowed for a more holistic understanding of their caregiving practices.

Once the data had been collected, it was analyzed using SPSS (Version 23). Descriptive statistics, such as frequency distributions and percentages, were employed to summarize the collected data and identify trends in knowledge, attitudes, and practices. The findings were then compared with existing literature to identify knowledge gaps and areas for improvement in the handling and care of preterm infants. This comparison also allowed for contextualizing the study's results within the broader field of neonatal



care, with an emphasis on the importance of maternal education and support for mothers of preterm infants.

Results

The results of this study provide valuable insights into the knowledge, attitudes, and practices of mothers regarding the care of preterm infants, as well as the psychological impacts of postpartum care. The findings highlight a generally high level of knowledge about preterm birth and its associated care, with a notable emphasis on practices such as skin-to-skin contact and feeding. However, certain areas, such as bathing techniques and temperature monitoring, reveal gaps in knowledge and practices. Additionally, the study examined the attitudes of mothers towards infant care and found that while many mothers feel confident, there is a significant portion who experience stress and overwhelming feelings. This emotional strain is also correlated with postpartum depression symptoms, emphasizing the need for further psychological and emotional support for these mothers.

1: Knowledge of Mothers Regarding Preterm Birth and Infant Care

The findings from Table 1 show that a majority of mothers possess a good level of knowledge regarding preterm birth and infant care, though there are some areas that could benefit from further education. A significant 80% of mothers demonstrated general knowledge about preterm birth, indicating that they are well-informed about the risks and challenges associated with preterm birth. However, when it comes to specific aspects of infant care, such as feeding practices, the level of knowledge decreased slightly, with 70% of mothers being knowledgeable about proper feeding techniques for preterm infants. This suggests that there is still a need for enhanced education in feeding practices for preterm babies, which is crucial for their development. Additionally, knowledge about bathing preterm infants was lower, with only 60% of mothers aware of appropriate bathing techniques. This finding highlights a gap in caregiving knowledge that could be addressed through targeted education. On a positive note, a significant 90% of mothers were aware of the importance of skin-to-skin contact, which is known to improve both the health and emotional bonding between mothers and their preterm infants. Furthermore, 75% of mothers were aware of potential complications such as hypothermia and infections, suggesting that many mothers understand the risks their infants may face, but there is still room for more in-depth education on specific complications.

Table 1: Knowledge of Mothers Regarding Preterm Birth and Infant Care

Knowledge Area+A3:C8	Correct Responses (n=20)	Percentage (%)



General knowledge about preterm birth	16	80%
Understanding of feeding practices for preterm infants	14	70%
Knowledge about bathing preterm infants	12	60%
Importance of skin-to-skin contact	18	90%
Awareness of potential complications in preterm infants (e.g., hypothermia, infections)	15	75%

Attitudes Towards Postpartum Care and Infant Handling

The results from Table 2 illustrate that a majority of mothers hold positive attitudes towards handling their preterm infants and postpartum care, although emotional and psychological factors still play a role in their caregiving experience. Sixty-five percent of mothers expressed confidence in handling their preterm infant at home, indicating that



while many feel capable, there is still a notable portion (35%) of mothers who experience doubt or anxiety regarding their ability to care for a preterm infant. This could suggest a need for more support or reassurance to bolster maternal confidence. A stronger consensus was observed in attitudes towards Kangaroo Mother Care (KMC), with 85% of mothers agreeing on its importance for the health of their infant. This reflects a solid understanding of the benefits of KMC, which includes improved weight gain and emotional bonding. In terms of seeking help, 75% of mothers felt comfortable asking healthcare providers for guidance, suggesting that most mothers have established a good relationship with healthcare professionals. However, 55% of mothers reported feeling overwhelmed and stressed when caring for their preterm infant, which is a considerable portion and highlights the emotional strain that many mothers face in this challenging caregiving role. This underscores the importance of providing adequate emotional and mental health support for these mothers, as stress and overwhelming feelings may impact their well-being and caregiving effectiveness.

Table 2: Attitudes Towards Postpartum Care and Infant Handling

Attitude Question	Agree (n=20)	Disagree (n=20)	Percentage Agree (%)
I feel confident in handling my preterm infant at home	13	7	65%
I believe Kangaroo Mother Care is important for my baby's health	17	3	85%



I am comfortable asking healthcare providers for guidance on infant care	15	5	75%
I feel overwhelmed and stressed when caring for my preterm infant	11	9	55%

Practices in Infant Care Post-Discharge

Table 3 reveals that while mothers are practicing several essential infant care techniques, there are certain areas where practices need improvement. A majority, 85%, of mothers were practicing breastfeeding or bottle-feeding on demand, which is highly important for the growth and development of preterm infants, suggesting that many mothers are adhering to feeding guidelines. However, when it comes to bathing their infant using appropriate techniques, only 55% of mothers performed this practice correctly, indicating a gap in knowledge or a lack of proper training in this area. The practice of engaging in skin-to-skin contact regularly was performed correctly by 75% of mothers, which is encouraging as this practice has been shown to significantly benefit preterm infants by regulating their temperature, improving sleep, and fostering bonding. On the other hand, only 50% of mothers were properly monitoring their infant's temperature, which is crucial for preventing hypothermia, a common risk for preterm infants. This suggests that there is a critical need for further education in temperature monitoring, as it is a vital aspect of preterm infant care that is often overlooked.

Table 3: Practices in Infant Care Post-Discharge

Dialogue Social Science Review (DSSR)

www.thedssr.com

ISSN Online: 3007-3154

ISSN Print: 3007-3146

Vol. 3 No. 1 (January) (2025)



DIALOGUE SOCIAL SCIENCE REVIEW

Care Practice	Performed (n=20)	Correctly	Percentage (%)
Breastfeeding or bottle-feeding on demand	17		85%
Bathing the infant using appropriate techniques	11		55%
Engaging in skin-to-skin contact regularly	15		75%
Properly monitoring the infant's temperature	10		50%

Correlation between Knowledge, Attitudes, Practices, and Postpartum Depression Symptoms

The findings from Table 4 highlight significant correlations between knowledge, attitudes, practices, and postpartum depression symptoms. Mothers with greater knowledge of preterm infant care (average depression score = 5.2) had a significant negative correlation with postpartum depression symptoms ($p = 0.03$). This indicates that mothers who are more knowledgeable about preterm infant care experience fewer symptoms of depression, potentially due to increased confidence and less anxiety about caring for their infant. Positive attitudes toward infant handling also had a significant negative correlation with depression symptoms ($p = 0.05$), suggesting that a confident and positive approach to infant care is linked to better mental health outcomes for mothers. Regular skin-to-skin contact was associated with a significant reduction in



depression symptoms ($p = 0.01$), highlighting the emotional benefits of this practice not only for the infant but also for the mother. However, mothers who felt overwhelmed by the challenges of caring for their preterm infant had the highest average depression score (6.1) and a significant positive correlation with depression symptoms ($p = 0.01$). This suggests that feelings of being overwhelmed are strongly associated with higher levels of postpartum depression, emphasizing the need for emotional support and interventions aimed at reducing maternal stress.

Table 4: Correlation between Knowledge, Attitudes, Practices, and Postpartum Depression Symptoms

Factor	Average Depression Score (n=20)	Significant Correlation (p-value)
Knowledge of preterm infant care	5.2	0.03*
Positive attitude towards infant handling	4.6	0.05*
Regular skin-to-skin contact	4.8	0.01*
Perception of feeling overwhelmed	6.1	0.01*

Summary of Results

The study demonstrates that while most mothers of preterm infants possess essential knowledge and exhibit positive attitudes towards infant care, there are areas that require further attention, particularly in terms of education and emotional support. Practices such as breastfeeding on demand and engaging in skin-to-skin contact are widely adopted, yet the challenges of temperature monitoring and infant bathing need to be addressed. The results also indicate a significant correlation between better



knowledge and more positive attitudes toward infant care with reduced postpartum depression symptoms. These findings underscore the importance of providing comprehensive education, along with emotional and psychological support, to improve both maternal well-being and the care provided to preterm infants.

Discussion

The findings of this study offer valuable insights into the knowledge, attitudes, and practices of mothers caring for preterm infants, particularly in the context of postpartum care and emotional challenges. The study reveals that most mothers demonstrate a strong general understanding of preterm birth and its associated complications, with 80% showing knowledge of preterm birth and 90% understanding the importance of skin-to-skin contact. This finding is consistent with Arzani et al. (2015), who found that maternal knowledge plays a critical role in promoting effective care for preterm infants. Similarly, Fleury et al. (2014) emphasize the importance of providing mothers with comprehensive education regarding infant care to improve long-term outcomes. However, the study also identified areas where maternal knowledge could be improved, such as bathing preterm infants (60%) and understanding feeding practices (70%). This aligns with Okech's (2014) observation that access to education and healthcare varies significantly, affecting maternal knowledge, particularly in low-resource settings.

When considering attitudes towards infant care, the study found that most mothers (85%) acknowledged the benefits of Kangaroo Mother Care (KMC) for their preterm infants, which is supported by findings in other studies, such as those by Ballester (2013) and Mohammed et al. (2013). Both studies highlight the importance of KMC in improving the physiological, behavioral, and psychosocial outcomes of preterm infants. Despite this positive view, 55% of mothers reported feeling overwhelmed and stressed when caring for their preterm infant. This suggests a significant emotional burden, even when mothers understand the benefits of practices such as skin-to-skin contact. The emotional challenges mothers face are echoed in Gulamani et al. (2013), who identified that mothers of preterm infants are at a higher risk of experiencing postpartum depression (PPD) due to the heightened care demands and emotional stress associated with preterm birth.

Regarding practices, the study shows that most mothers engaged in positive care behaviors, such as breastfeeding or bottle-feeding on demand (85%) and regular skin-to-skin contact (75%). These practices are crucial for the infant's development and survival, as evidenced by Benzies et al. (2013), who found that early, individualized care significantly contributes to better health outcomes for preterm infants. However, fewer mothers (50%) were found to monitor their infant's temperature properly, suggesting that while mothers may understand the importance of some practices, others may be less familiar or confident in carrying them out. This gap in practices is consistent with Susanne (2013), who pointed out that the standardized care for preterm infants is often not universally implemented, especially in certain healthcare settings.

The study also uncovered significant correlations between knowledge, attitudes, and practices, particularly in relation to postpartum depression. Mothers with a better



understanding of preterm care and more positive attitudes towards infant handling had lower depression scores. This aligns with the findings of Traut and Norr (2013), who suggested that improving maternal knowledge and fostering positive caregiving practices can reduce emotional distress and alleviate symptoms of postpartum depression. Additionally, the correlation between feeling overwhelmed and higher depression scores underscores the need for emotional support and psychological care for mothers, a finding supported by Lawn (2013), who highlighted the emotional strain mothers experience following a preterm birth.

These findings suggest several key implications for healthcare practice. First, there is a clear need for improved maternal education, particularly in areas such as bathing, temperature regulation, and feeding practices, which will empower mothers to provide better care for their preterm infants. Healthcare providers must ensure that mothers receive thorough training and guidance in these areas. Moreover, given the high levels of stress and feelings of being overwhelmed reported by mothers, integrating psychological support into neonatal care programs is essential. The need for such support is echoed by Benzies et al. (2013), who advocated for early intervention programs that address both the physical and emotional needs of mothers. Addressing postpartum depression is crucial for improving both maternal and infant health outcomes.

This study highlights the importance of a holistic approach to supporting mothers of preterm infants. While many mothers exhibit positive knowledge and attitudes, there are still significant areas where improvement is needed, particularly in terms of practical caregiving skills and emotional well-being. Future interventions should focus on enhancing maternal education, providing psychological support, and ensuring the consistent application of standardized care practices. These strategies will improve outcomes for both mothers and their preterm infants, ensuring a healthier, more supportive environment for early development.

Conclusion

This study explored the various factors affecting postpartum depression (PPD) among mothers of preterm infants. The study revealed that a majority of mothers possessed adequate knowledge of preterm birth and its care, with 80% demonstrating a strong understanding of the condition and 90% acknowledging the benefits of skin-to-skin contact. However, significant gaps were identified in specific caregiving practices, such as bathing (60%) and temperature monitoring (50%), indicating that while general knowledge was high, there remains a need for targeted education in these critical areas. The study also highlighted that emotional factors played a significant role in maternal mental health. While 65% of mothers felt confident in handling their preterm infants, a substantial portion (35%) expressed anxiety and uncertainty. Additionally, 55% of mothers reported feeling overwhelmed and stressed, which was strongly associated with higher levels of postpartum depression (average depression score = 6.1). Mothers who felt more confident and held positive attitudes towards caregiving had lower depression scores, with those engaging in skin-to-skin contact showing significant reductions in depressive symptoms (average score = 4.8).



In terms of caregiving practices, 85% of mothers were practicing breastfeeding or bottle-feeding on demand, and 75% engaged in regular skin-to-skin contact. However, only 55% performed infant bathing correctly, and 50% monitored their infant's temperature properly, signaling areas that need further improvement through education and training.

The correlations between maternal knowledge, attitudes, practices, and PPD were particularly revealing. Increased knowledge of preterm infant care was associated with fewer depression symptoms, with a significant negative correlation ($p = 0.03$). Positive attitudes towards caregiving, as well as regular skin-to-skin contact, were also linked to reduced depression scores, underscoring the importance of both cognitive and emotional support in reducing postpartum depression.

In conclusion, this study demonstrates that while mothers of preterm infants generally possess a solid foundation of knowledge and positive attitudes towards infant care, emotional challenges significantly affect their mental health. Addressing gaps in specific caregiving practices, alongside providing robust psychological support and education, is essential for improving both maternal mental health and the quality of care provided to preterm infants. By focusing on enhancing knowledge, promoting positive caregiving attitudes, and offering emotional support, healthcare systems can better support mothers and reduce the prevalence of postpartum depression in this vulnerable population.

Conflict of Interest

The authors affirm that there are no conflicts of interest associated with the publication of this study. No financial, personal, or professional relationships have influenced the research process or outcomes. The authors have no affiliations or involvements with any organizations, institutions, or individuals that could be perceived as having influenced the study's design, data collection, analysis, or interpretation of results. This ensures that the findings presented are unbiased and purely based on the evidence gathered during the study.

References

- Arnold, L., et al. (2013). Parents' first moments with their very preterm babies: A qualitative study. *BMJ Open*, 3(4). Retrieved from <http://bmjopen.bmj.com/content/3/4/e002487.full>
- Arzani, A., et al. (2015). Mothers' strategies in handling the prematurely born infant: A qualitative study. *Journal of Caring Science*, 4(1), 13–24. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4363648/>
- Ballester, R. (2013). Kangaroo care for preterm infants in the Dominican Republic: Quantitative research proposal. Retrieved from <http://www.instituteofmidwifery.org/MSFinalProj.nsf/82fd56378e8efc3c8525684f005bc9f14fb08ffa8521432285257b4a00048b73?OpenDocument>
- Benzies, K., et al. (2013). Key components of early intervention programs for preterm infants and their parents: A systematic review and meta-analysis. *BMC*



- Pregnancy and Childbirth*, 13(1). Retrieved from <http://www.biomedcentral.com/1471-2393/13/S1/S10>
- Fleury, C., et al. (2014). Perceptions and actions of healthcare professionals regarding the mother-child relationship with premature babies in an intermediate neonatal intensive care unit: A qualitative study. *BMC Pregnancy and Childbirth*, 14, 313. Retrieved from <http://www.biomedcentral.com/1471-2393/14/313>
- Gulamani, S., et al. (2013). A review of postpartum depression, preterm birth, and culture. *Journal of Perinatal and Neonatal Nursing*, 27(1), 52–59. Retrieved from http://www.nursingcenter.com/CEArticle?an=00005237-2013010_000013&Journal_ID=54008&Issue_ID=1499839
- Lawn, J. (2013). Born too soon: Care for the preterm baby. *Reproductive Health*, 10(1). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3828583/>
- Mohammed, N., et al. (2013). Effect of kangaroo mother care on premature infants' physiological, behavioral, and psychosocial outcomes in Ain Shams Maternity and Gynecological Hospital, Cairo, Egypt. *Life Science Journal*, 10(1), 703-716. Retrieved from http://www.lifesciencesite.com/ljsj/life1001/111_16483_life1001_703_716.pdf
- Okech, O. (2014). Mother's knowledge, attitudes, and practices (KAPs) on the care of newborn in Maridi Payam, Maridi County, Western Equatoria State, South Sudan.
- Susanne, M. (2013). Barriers to standardized care of late preterm infants in upper Midwest hospitals. *Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University*, 1-75.
- Traut, R., & Norr, K. (2013). An ecological model for premature infant feeding. *PMC Journals*, 38(4), 478–490. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3693753/>
- Save the Children. (2014). *State of the world's mothers 2014*. Retrieved from http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bdo-pdf91d2eba74a%7D/SOWM_2014.PDF