

NAVIGATING PARENTAL STRESS IN THE NICU: A MIXED-METHODS STUDY ON COPING STRATEGIES AND THE ROLE OF NURSING SUPPORT INTERVENTIONS.

Yasmin lamuel¹, Zartasha², Naseem Akhtar³, Atif Rahim⁴, Dr. Shah Hussain⁵,
Dr. Adeesa Muzaffar⁶

¹BSN, ICU Specialization, RN II, Shaukat khanum Cancer Memorial Hospital

²MSN, Principal, Rehman College of Nursing Khanewal.

³RN, RM, Post RN, BSN, Dip in Nephrourology, MSN Senior Nurse Manager, Shifa International Hospitals
Islamabad.

⁴Nurse Internee, Saidu Teaching Hospital Swat.

⁵PhD Scholar, MSN, Principal, Assistant Professor, Janber College of Nursing, Swat

⁶MBBS, House Officer, Saidu Teaching Hospital Swat.

¹yasminlamuel@gmail.com, ²zari.kiran@gmail.com, ³Naseem1043@gmail.com, ⁵shahpicu@gmail.com,
⁶adeesasyed466@gmail.com

DOI: <https://doi.org/10.5281/zenodo.17337700>

Keywords

NICU, parental stress, coping strategies, nursing support, mixed-methods, family-centered care

Article History

Received: 01 September 2025

Accepted: 02 October 2025

Published: 13 October 2025

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Corresponding Author: *

Dr. Shah Hussain

Abstract

Background

Parental stress in the Neonatal Intensive Care Unit (NICU) is a common challenge, as hospitalization of newborns creates emotional, psychological, and social strain on families. Effective coping strategies and nursing support interventions are crucial in mitigating these stresses and improving parental well-being.

Aim

The study aimed to assess parental stress levels, identify coping strategies, and explore the role of nursing support interventions among parents of neonates admitted to the NICU at Saidu Teaching Hospital, Swat.

Methods

A mixed-methods design was employed, integrating quantitative and qualitative approaches. The quantitative arm included 290 parents selected through convenience sampling. Data were collected using the Parental Stressor Scale: NICU (PSS: NICU) and the COPE Inventory. The qualitative arm involved semi-structured interviews with 15 purposively selected parents. Quantitative data were analyzed using SPSS version 25 with descriptive and inferential statistics, while qualitative data underwent thematic analysis.

Results

Findings revealed that 53.4% of parents experienced moderate stress, 25.9% high stress, and 20.7% low stress. Problem-focused coping was most frequently used ($M = 3.85$, $SD = 0.72$), followed by emotion-focused ($M = 3.41$, $SD = 0.81$), with avoidance strategies least adopted ($M = 2.96$, $SD = 0.69$). Education was significantly associated with stress ($\chi^2 = 9.56$, $p = 0.04$). Qualitative themes

emphasized the importance of nursing support, communication, and emotional reassurance in alleviating stress.

Conclusion

Parental stress in the NICU is prevalent and shaped by educational background and coping mechanisms. Strengthening family-centered care and nursing support interventions is essential to reduce parental stress and promote well-being.

INTRODUCTION

Parental stress is the emotional and psychological stress of having an infant who is placed in the Neonatal Intensive Care Unit (NICU). It is marked by panic, anxiety and doubt on the health outcomes of the infant. Coping strategies: It is deliberate stress management that parents employ in order to remain stable (Tilahun, 2024). Nursing support interventions are specialized activities that are offered by nurses, which are communication, education, and emotional support to help families in this challenging journey. These three constructs are related to each other, as they define parental and neonatal outcomes and include stress, coping, and support (Herini, Hartini, and Kusuma, 2023).

The stress caused by parents in the NICU is very high and it is an international issue. Studies have shown that 30 and 60 percent of parents of preterm born are clinically stressed. This can readily result in post-traumatic stress disorder, anxiety, or depression (Hendy et al., 2024). The effects are usually more acute on the mothers but even the fathers can be affected and the stress may continue even after discharge. The long-term effects affect parental relationship and family wellbeing (Situmbeko, 2025). The whole environment of the NICU is a significant source of family stress. Constant alarms, medical equipment and new technical environment are exposed to the parents. Hopelessness and powerlessness are prevalent, particularly when parents are unable to take care of their child as it is supposed to be (Masumo, 2021). The emotional load is exacerbated by long hospitalization and limited contact with the newborn, which is why the methods of reducing stress become urgently required (Loutfy et al., 2024).

Various coping strategies are used by parents in order to cope with NICU stress. Problem-oriented solutions involve pursuing knowledge and taking an active part in taking care of the infant. Such emotion-oriented strategies can include prayer, withdrawal, or the use of

social nets (Lian, Amin, Sensaki, and Aishworiya, 2021). Adaptive strategies improve the resilience and confidence, whereas maladaptive strategies increase the mental distress and impair the caregiving, demonstrating the significance of specific support (Ocloo, 2021; Shaw et al., 2023).

Nursing support is very crucial in supporting the parents in the NICU. Some of the significant nursing interventions include emotional support, information sharing, and promotion of parental involvement. Kangaroo mother care and structured counseling are the techniques to decrease anxiety and make parents feel more confident (Hofmeyer and Taylor, 2021; Stephany, 2022). Having empathetic and skilled nurses contributes to building trust in the parents and improves their ability to cope with stress (Kiwanuka et al., 2022).

It has been shown that family-centered structured nursing care works to the advantage of both parents and the baby. Emotional wellbeing interventions enhance parental satisfaction, coping and bonding results. When parents are regularly informed by the nurses, they also note reduced anxiety and more evinced participation in the care of the neonates (César-Santos, Bastos, Dias, and Campos, 2024; Lee, 2023). These results indicate the necessity to provide these strategies as standard care to NICUs practices to enhance overall outcomes (Herini, Hartini, and Kusuma, 2023; Loutfy et al., 2024).

The mixed-methods research approach would be appropriate when investigating this issue. The quantitative analysis facilitates the measurement of the stress levels, coping styles and the intervention outcomes. Qualitative methods can assist in getting a deeper insight into the lived experiences and perceptions of parents (Tilahun, 2024; Vasilescu et al., 2024). Such a combination will make the findings statistically reliable and meaningful at the same time to shape effective, family-centered NICU policies (Hendy et al., 2024).

Methodology

This research project utilized a mixed-method design, where both the quantitative and qualitative research methods were used to explore the issue of parental stress, stress coping strategies, and nursing support intervention effects in the Neonatal Intensive Care Unit (NICU). To assess parental stress and coping in a quantitative way and examine lived experiences in a qualitative manner, the mixed-methods approach was chosen. The research took place in the NICU of Saidu Teaching Hospital, Swat, which is a tertiary care hospital and dedicated to the provision of specialized neonatal services to patients in Swat and the nearby areas. This environment provided a good access to a heterogenic group of stressed parents with a neonatal hospitalization.

The research population included parents of the infants in the NICU. The inclusion criteria were parents who had their infants admitted at least 48 hours, were able to speak Urdu or Pashto, and had agreed to take part. Parents who had a psychiatric history or patients whose babies were in the palliative/end-of-life care were excluded. Raosoft sample size calculator was used to determine the sample size at the 95 percent level of confidence, 5 percent margin of error, and a 50 percent response distribution. Skipping to the calculation of the minimum required sample size based on an estimated population of 1, 000 NICU admissions annually, the required sample size was 278 participants. A total of 290 parents were to be selected to represent the quantitative arm, in order to cover the possible non-responses. In the qualitative arm, purposive selection of 15 parents was done up to data saturation.

The quantitative survey utilized a convenience sampling method, where the parents who were recruited during the visiting hours at NICUs were eligible. To achieve the qualitative element, the purposive sampling was used to guarantee that various demographic backgrounds and clinical cases are

represented, and this will bring diversity in the viewpoints.

The collected data were in the form of structured questionnaires, the Parental Stressor Scale: NICU (PSS:NICU) used to measure stress, and the COPE Inventory used to measure coping strategies. Besides, a demographic data sheet was employed. The qualitative aspect was carried out via semi-structured interviews, which were aimed at exploring coping experiences of parents and their perception of nursing support interventions.

The process of data collection was conducted in two months. The administration of questionnaires was done in a room that was private to the NICU. The semi-structured interviews were taped and with consent and took time ranging between 30 and 45 minutes.

The SPSS version 27 was used to analyze quantitative data. Descriptive statistics was used to sum up demographic characteristics, stress, and coping scores. Associations were tested using the inferential tests like chi-square tests, t-tests, and ANOVA. Thematic analysis was done under the six steps of analysis provided by Braun and Clarke and the qualitative data were transcribed verbatim and analyzed through the thematic analysis. The Institutional Review Board of Saidu Teaching Hospital, Swat was used to get ethical approval. All the participants gave informed consent, which was written with the promise of confidentiality and voluntary involvement.

Results and Analysis

The demographic data show that the majority of participants were male (58.6%), with a significant proportion belonging to the 26–35 years age group (48.3%). More than half had primary to secondary education (51.7%), while 27.6% were graduates or above. The sample was fairly balanced in residence, though slightly more participants were from rural areas (55.2%) than urban (44.8%). This distribution highlights a diverse but predominantly young, male, and moderately educated rural population [Table 1].

Table 1: Demographic Characteristics of Parents (n = 290)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	170	58.6
	Female	120	41.4
Age Group	18–25 years	95	32.8

	26–35 years	140	48.3
	36 and above	55	18.9
Education	No formal education	60	20.7
	Primary–Secondary	150	51.7
	Graduate and above	80	27.6
Residence	Urban	130	44.8
	Rural	160	55.2

The findings reveal that more than half of the parents (53.4%) experienced moderate stress while their child was admitted to the NICU. A considerable proportion (25.9%) reported high stress, indicating a significant psychological burden. Only 20.7% of

parents experienced low stress, suggesting that stress was a common issue among the majority of participants. This highlights the urgent need for effective nursing support interventions to reduce stress levels in NICU parents [Figure 1].

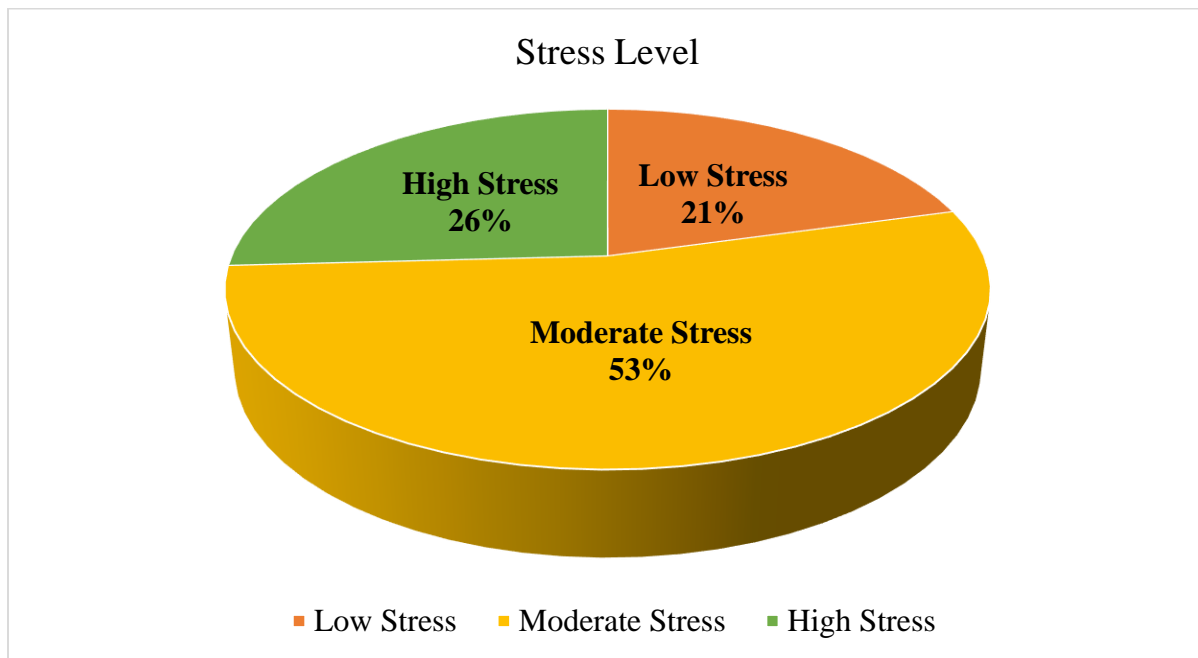


Figure 1: Parental Stress Levels (PSS: NICU scores)

The results show that parents most commonly used problem-focused coping strategies ($M = 3.85$, $SD = 0.72$), reflecting active efforts to manage the NICU-related stress. Emotion-focused coping was also frequent ($M = 3.41$, $SD = 0.81$), suggesting reliance on emotional regulation to handle distress. Avoidance

coping was the least adopted strategy ($M = 2.96$, $SD = 0.69$), indicating that parents generally preferred constructive approaches over withdrawal or denial. This pattern highlights the importance of strengthening problem-focused and emotional support interventions in NICU care [Table 2].

Table 2: Coping Strategies (COPE Inventory Scores)

Coping Strategy	Mean \pm SD	Minimum	Maximum
Problem-focused	3.85 \pm 0.72	2.0	5.0
Emotion-focused	3.41 \pm 0.81	1.5	5.0
Avoidance	2.96 \pm 0.69	1.0	4.5

The chi-square analysis showed no significant association between gender, age group, or residence with parental stress levels ($p > 0.05$). However, education was significantly associated with stress ($\chi^2 = 9.56$, $p = 0.04$), indicating that parental education

influences stress experiences in the NICU. Parents with lower education levels were more vulnerable to higher stress. This highlights the importance of targeted educational and counseling interventions for less-educated parents [Table 3].

Table 3: Association Between Demographics and Stress (Chi-square Test Results)

Variable	χ^2	df	p-value
Gender	2.14	2	0.34
Age Group	4.82	4	0.31
Education	9.56	4	0.04*
Residence	1.87	2	0.39

It was found that NICU parents reported being subjected to extreme emotional turbulence, which is a high level of fear, anxiety, and helplessness. This was accompanied by the evolution of both adaptive coping strategies, including faith dependence and information seeking, and maladaptive strategies, including avoidance. Nursing support was a life-saving

factor, and understanding communication and involvement in the process have played a significant role in reducing stress among parents. At the center of this experience was a deep search of certainty and control, with parents actively trying to find information and a specific role to fight the sense of powerlessness in the high-stakes NICU setting.

Table 4: Thematic Analysis of Parental Experiences in the NICU

Theme	Description	Example Quote
1. Overwhelming Emotional Turbulence	Parents described an intense cycle of fear, anxiety, helplessness, and guilt triggered by the infant's critical condition and the alienating NICU environment.	"It's a rollercoaster. One day he is better, the next day he is back on the oxygen. The constant beeping of machines is a sound of fear for me now."
2. Adaptive and Maladaptive Coping Mechanisms	Parents utilized various strategies to manage stress. Positive coping included seeking information and faith, while negative coping included withdrawal and avoidance.	"I just sit in the prayer room; it is the only thing that gives me peace. I can't talk to anyone else." (Adaptive) "Sometimes I don't visit for a day because it is too painful to see him like that." (Maladaptive)
3. Nursing Support as a Lifeline	The attitude and communication of the nursing staff were consistently identified as a critical factor in mitigating parental stress. Clarity, empathy, and inclusion in care were highly valued.	"The nurse who explained everything to me, what each wire was for, made me feel like I was still his mother. She made me feel capable."
4. The Quest for Certainty and Control	A pervasive sense of powerlessness led parents to actively seek information and a defined role in their infant's care to regain a sense of control and predictability.	"I constantly ask about his weight, his feeds, everything. I need to know what the plan is. Not knowing is the worst part."

Discussion

The study shows that the stress experienced by the parents at the NICU is high, and most of them belong

to the moderate to high stress group. This is similar to former research that has shown that parental stress levels in NICUs are always high than those in the

general pediatric wards because of the uncertainty of the neonatal outcomes and the daunting medical atmosphere (Ginsberg, Alsweler, Rogers, Ross, and Serlachius, 2025). On the other hand, parental distress can be reduced through structured nursing care and family-centered care interventions (Hofmeyer and Taylor, 2021). The differences can be explained by the differences in institutional resources and the level of the implementation of the family-centered practices.

The demographic statistics showed that younger age and lower educational level were correlated with increased level of stress. This aligns with the results of the research that suggest that young and less educated parents find the NICU experiences more overwhelming and do not always have the resources to cope with them (Shaw, Givrad, Poe, Loi, Hoge, and Scala, 2023). Nevertheless, other reports show no significant change in the educational level and stress, which suggests that cultural and contextual factors could also change the perceptions of parents toward the NICU-based setting (Blake Jr., 2024).

On coping strategies, the main coping strategies embraced by parents were problem-focused, emotion-focused, and least applied were avoidance strategies. Problem-oriented coping, information seeking, and engagement with care providers are examples of coping that makes parents feel more in control and is deemed desirable in stressful medical conditions (Lee, 2023). On the contrary, other researches mentioned avoidance strategies which were largely associated with emotional exhaustion and cultural disengagement preferences in uncontrollable conditions (Clemons, 2025; Benchimol-Elkaim, Khoury, and Tsimicalis, 2024).

Qualitative results brought more information on parental coping and the role of nursing support. According to parents, emotional reassurance and effective communication with nurses are comforting and stress-relieving. These remarks resonate with the role of nurse-parent relations as a key to a minimum of stress and maximum coping (Stephany, 2022; Loutfy et al., 2024). Conversely, in the environment with the high nurse workloads, neglect was noted in some parents, which decreases the quality of the nursing support, highlighting the importance of staffing and institutional infrastructure (Vasilescu et al., 2024).

Anxiety and resilience were also demonstrated by the parents in this research and they often had active roles in caring about their infants. This two-sidedness is consistent with the findings of research that structured parent-support interventions lower stress and empower parents (Hofmeyer and Taylor, 2021; Lee, 2023). Nevertheless, the uncontrolled stress of parents with children in NICU can lead to psychological long-term consequences, as Shaw et al. (2023) also mention.

The participants emphasized the necessity of better training, orientation, and support of infrastructure, which is why full literature supports the family-centered NICU interventions. Models of family-integrated care have been demonstrated to improve the coping ability of parents and the outcomes of the newborn (Loutfy et al., 2024). However, the results of such interventions are low in case of a lack of institutional resources (Ginsberg et al., 2025). These results underline the fact that an effective parental support needs to be systematically invested and organizationally dedicated.

Altogether, the research confirms previous data according to which NICU parental stress is high but can be reduced with the help of structured nursing care, family approach, and proper institutional support. It is imperative to incorporate these strategies into the daily practice of NICUs in order to support the wellbeing of parents and the health outcomes of neonatal patients (Hofmeyer and Taylor, 2021; Loutfy et al., 2024).

Conclusion

This research indicated that the parents of patients who had been admitted to the NICU in Saidu Teaching Hospital, Swat, had moderate to high degrees of stress, and the less-educated and younger parents were specifically prone to the stressor. The approach was the problem-oriented strategy and then emotion-oriented and avoidance was less common. The qualitative results identified the central role of nursing support to reduce stress because parents appreciated clear communication, emotional reassurance, and involvement in child care. Nevertheless, the effectiveness of such support was usually minimized by the resource limitations, inadequate training access, and workload stressors. The mixed methods approach made the knowledge

more insightful by refining the knowledge of measurability of the stress levels with the lived experience, which indicates that parental stress is a multifactorial problem that depends on the personal, cultural, and institutional factors. The results confirm the importance of enhancing family-centered care practices to assist parents going through the emotionally stressful NICU experience.

Recommendations

1. **Strengthen Family-Centered Care Models:** NICUs should integrate structured programs that actively involve parents in neonatal care, fostering a sense of control and reducing stress.
2. **Provide Parental Orientation and Counseling:** Regular workshops and counseling sessions should be offered to parents to enhance understanding of NICU procedures and available coping mechanisms.
3. **Enhance Nursing Support Training:** Continuous professional development should be provided to nurses to equip them with skills in communication, psychological support, and family engagement.
4. **Improve Infrastructure and Resources:** Investment in NICU facilities, standardized equipment, and staff support systems is critical for ensuring effective delivery of family-centered interventions.
5. **Develop Stress Management Interventions:** Tailored stress-reduction strategies, such as peer support groups and relaxation techniques, should be introduced to support parental well-being.
6. **Promote Research and Monitoring:** Further studies should assess the long-term psychological impact of NICU experiences on parents and evaluate the effectiveness of targeted nursing interventions.
7. **Policy-Level Support:** Healthcare authorities should prioritize policies that allocate sufficient funding and staffing to NICUs in resource-limited settings like Swat to sustain supportive care practices.

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