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Review Article

The Silent Struggle: A Comparative Study on Paternal vs Maternal Stress in NICU Settings

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Abstract

This cross section observational study examines and compares stress levels between mothers and fathers of neonates admitted to the Level III NICU at Bedi Hospital, Chandigarh. A total of 172 parents (86 mother–father pairs) were assessed using a 20-item questionnaire rated on a 5-point Likert scale. Results indicate that maternal stress was significantly higher in domains of infant appearance and role disruption, whereas paternal stress was comparably elevated in financial strain, emotional isolation, and caregiving involvement. These findings highlight the importance of incorporating gender-sensitive, family-centered psychosocial interventions within NICU settings to support both maternal and paternal mental health.

Keywords: Parental stress, Neonatal Intensive Care Unit (NICU), Mothers and fathers, Psychosocial interventions, Gender differences.

Introduction:

Parental stress in neonatal intensive care units (NICUs) is a well-established area of study, particularly in relation to mothers. The emotional upheaval faced by mothers due to unexpected separation, medical uncertainty, and disruption of the birth experience has been extensively documented across global and Indian contexts (1). Consequently, the bulk of neonatal psychosocial interventions and parental support frameworks are tailored toward maternal needs. However, emerging research indicates that fathers too experience profound psychological distress in NICU settings — a distress that often remains invisible and unaddressed (2, 6).

Traditionally, societal expectations position fathers as stoic providers — emotionally restrained, financially responsible, and resilient under pressure. This gendered expectation is particularly evident in medical environments where the father's role is often passive and peripheral. In many NICUs, while mothers are invited to engage in kangaroo care, breastfeeding support groups, and maternal counseling, fathers frequently report feeling excluded from caregiving routines and decision-making processes (3, 5). This institutional invisibility, combined with the internalized pressure to remain emotionally composed, creates a psychological burden that is vastly under-acknowledged (6).

Research highlights that fathers in NICU settings often suppress their emotions out of a perceived obligation to be strong for their partners and families (6). This emotional suppression, however, has consequences: it

can lead to chronic anxiety, poor bonding with the infant, and reduced participation in long-term parenting roles (4). Moreover, financial strain, job instability due to repeated hospital visits, and the inability to fulfill the expected 'protector' role can further amplify their stress (7). Fathers have also expressed a lack of emotional outlets and professional spaces to process their fears — such as guilt over the baby's condition, helplessness during medical procedures, or resentment stemming from exclusion (2, 8).

Despite this, standardized screening tools for paternal stress remain scarce, and most NICU staff are not formally trained to identify paternal cues of distress. This study seeks to address this gap by quantifying and comparing the types and levels of stress experienced by both parents in NICU settings. By shining a spotlight on paternal distress, it aims to advocate for a more inclusive, family-centered model of care that validates and supports both parents equally.

Aims and Objectives

- To compare stress levels among mothers and fathers of neonates admitted to NICU.
- To identify unique stressors for fathers that are often overlooked in clinical care.
- To encourage inclusive policy changes for paternal psychological support in NICUs.

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MATERIALS AND METHODS

The present study was conducted in the Neonatal Intensive Care Unit (NICU) of Bedi Hospital, Chandigarh, India. This single-center, observational, cross-sectional study was carried out over a period of 12 months, from January 2024 to January 2025. Ethical approval for this study was obtained from the institutional review board of Bedi Hospital. All protocols followed were in accordance with the ethical standards. A total of 172 parents (86 mother–father pairs) were recruited for the

study. The sample size was derived based on average NICU admissions and average length of stay in the hospital over the past year. Inclusion criteria involved biological mothers and fathers of newborns admitted to the NICU for a minimum duration of 20 days and a maximum of 30 days, with gestational age of the neonate being >28 weeks. Only parents in a cohabiting relationship and residing within 30 km of the hospital were included. Parents of critically ill neonates admitted for <20 days or >30 days, or those whose babies were <28 weeks gestation, were excluded.

After recruitment, demographic details including age, education, and occupation of both parents, along with clinical details such as gestation, birth weight, and reason for NICU admission of the neonates, were recorded. Parental stress levels were assessed using a structured 20-item questionnaire, adapted and validated in both English and Hindi based on existing neonatal stress literature (2, 5). The tool was designed to cover six core domains: (1) infant appearance and medical complexity, (2) role alteration and parental guilt, (3) financial strain, (4) emotional isolation, (5) helplessness, and (6) involvement in caregiving.

Each item was rated on a 5-point Likert scale, ranging from 1 (not

stressful) to 5 (extremely stressful). The responses were averaged to generate domain-wise and total mean stress scores for mothers and fathers separately. Stress levels were classified as low (1.0–1.9), moderate (2.0–3.9), and high (4.0–5.0) in line with standardized cutoffs used in similar studies (3, 6). Data were analyzed using IBM SPSS version 26. Paired t-tests were used to compare maternal and paternal stress scores, as both parents shared the same infant and were linked by their couple status. A p-value <0.05 was considered statistically significant.

RESULTS

Demographic Characteristics

A total of 172 parents (86 mothers and 86 fathers) participated in the study from Bedi Hospital, Chandigarh. The mean maternal age was 28.4 ± 4.2 years, while the mean paternal age was 31.6 ± 5.1 years. Most mothers were homemakers (61.6%), and the majority of fathers were employed in service or business (78.4%). In terms of education, 81.3 % of mothers and 90.6 % of fathers were graduates or above.

Variable	Mothers (n = 86)	Fathers (n = 86)
Age (years, mean $\pm$ SD)	28.4 ± 3.6	31.2 ± 4.2
Age Range (years)	22 – 38	25 – 42
Graduate Education (Yes)	70(81.3%)	78(90.6%)
Employed (Yes)	32 (37.2%)	78 (90.7%)

table 1. Demographic Characteristics of Parents (Bedi Hospital, n = 172)

Neonatal Characteristics

The neonates admitted had a mean gestational age of 34.2 ± 2.1 weeks and mean birth weight of 2.04 ± 0.48 kg. The primary reasons for NICU admission included prematurity (39.5%), respiratory distress (38.3%), neonatal jaundice (27.9%), and sepsis (12.8%).

Variable	Mean $\pm$ SD / n (%)
Gestational age (weeks)	34.2 ± 2.1
Birth weight (kg)	2.04 ± 0.48
Primary reason for NICU admission	
• Prematurity	34 (39.5%)
• Respiratory distress	33(38.3%)
• Sepsis	17 (19.8%)
• Congenital anomalies/surgical conditions	02 (2.3%)

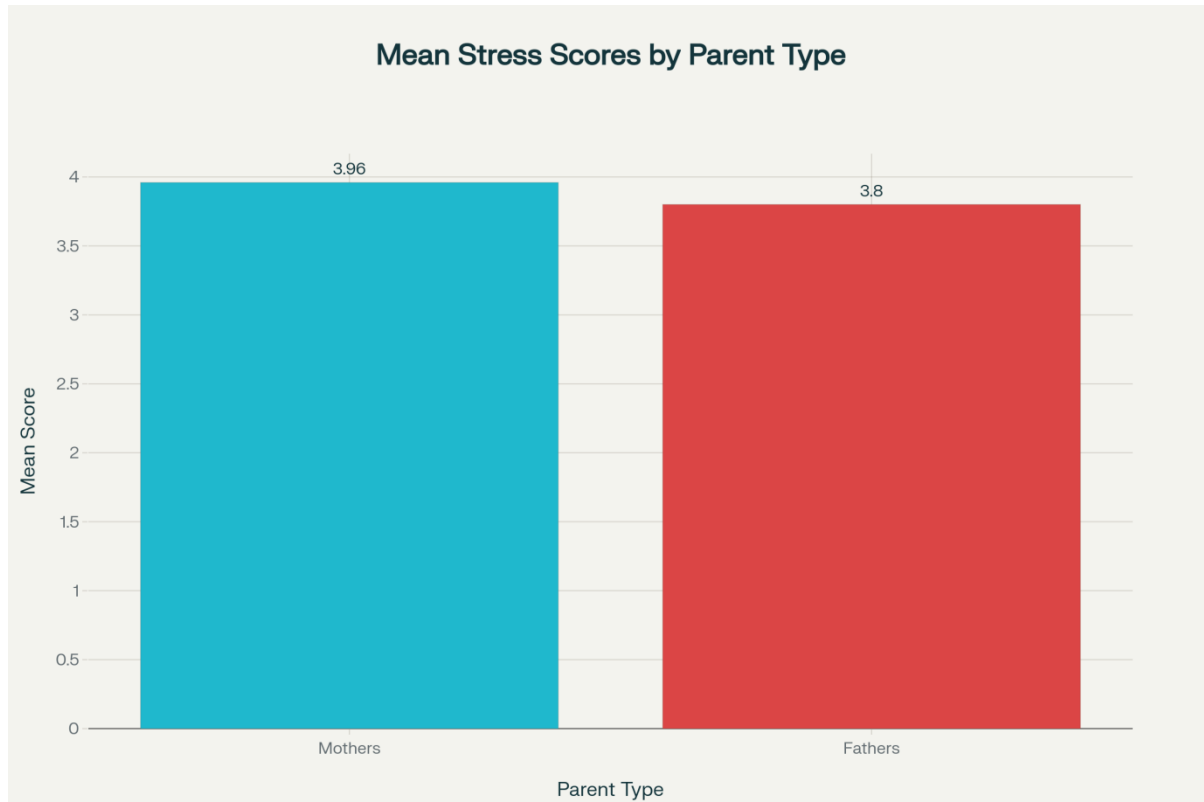
table 2. Clinical Characteristics of Neonates (n = 86)

Comparison of Maternal and Paternal Stress

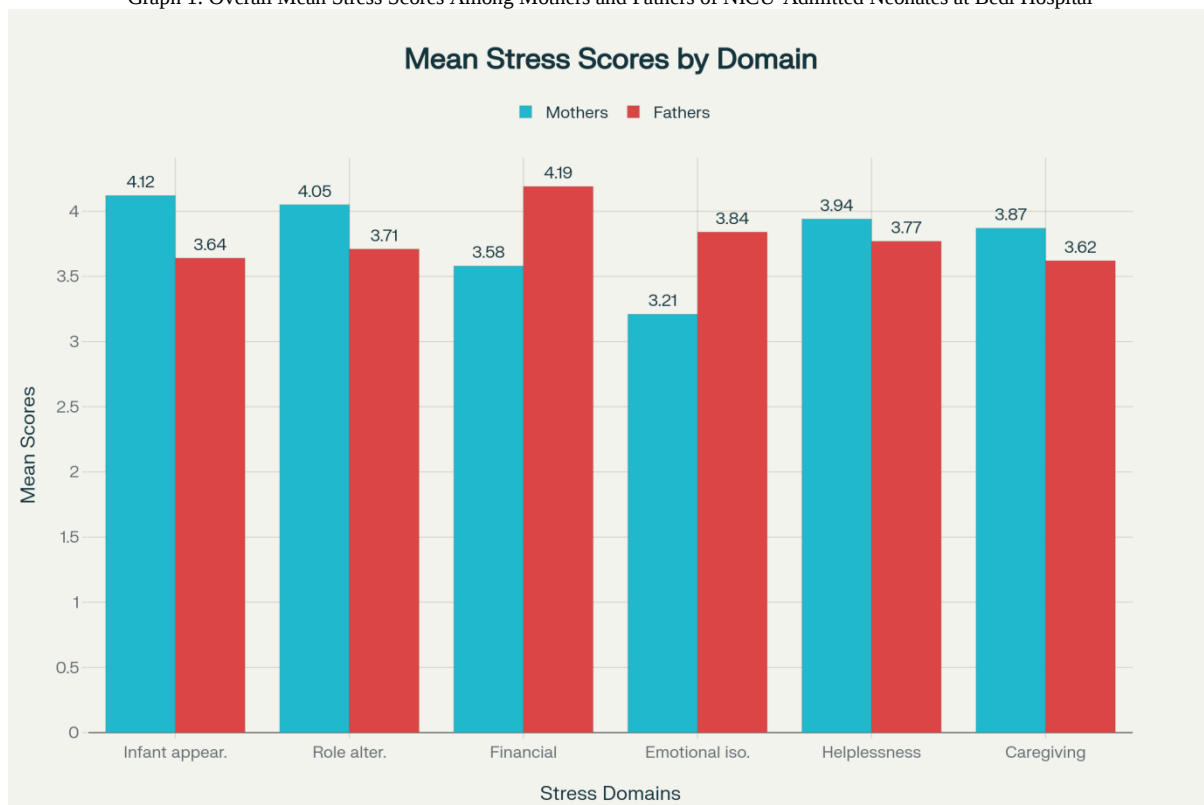
Parental stress was assessed across six domains using the validated 20-item questionnaire. Mothers consistently reported higher stress scores in domains of infant appearance and medical complexity as well as role alteration/guilt, whereas fathers demonstrated significantly higher stress in domains of financial strain and emotional isolation. Overall mean stress scores indicated that both mothers and fathers experienced moderate to high levels of stress, though the pattern of stressors differed between genders. Paired t-test analysis revealed statistically significant differences in several domains ($p < 0.05$).

	Mothers (Mean $\pm$ SD)	Fathers (Mean $\pm$ SD)	p-value
Infant appearance & medical complexity	4.12 ± 0.58	3.64 ± 0.61	0.001*
Role alteration & parental guilt	4.05 ± 0.62	3.71 ± 0.59	0.012*
Financial strain	3.58 ± 0.71	4.19 ± 0.63	0.003*
Emotional isolation	3.21 ± 0.66	3.84 ± 0.72	0.009*
Helplessness	3.94 ± 0.69	3.77 ± 0.74	0.228
Involvement in caregiving	3.87 ± 0.65	3.62 ± 0.68	0.041*
Overall mean stress score	3.96 ± 0.54	3.80 ± 0.57	0.048*

Table 3. Comparison of Maternal and Paternal Stress Scores (n = 86 pairs)



Graph 1: Overall Mean Stress Scores Among Mothers and Fathers of NICU-Admitted Neonates at Bedi Hospital



Graph 2: Domain-wise Comparison of Maternal and Paternal Stress Scores in NICU Settings at Bedi Hospital

These findings underscore the need for NICU support frameworks that are both gender-sensitive and inclusive, acknowledging the distinct stressors faced by each parent

DISCUSSION

The present study aimed to evaluate and compare domain-wise stress levels in mothers and fathers of neonates admitted to the NICU at Bedi Hospital, a tertiary care center in India. While maternal stress in neonatal settings has been widely acknowledged, paternal stress remains an underexplored dimension. Our findings highlight that both parents experience significant psychological distress, with distinctive stress domains being more prominent depending on parental role. This aligns with the broader shift in neonatal and perinatal psychology research, which is beginning to recognize the mental health needs of fathers in parallel with mothers (1–3, 20).

Overall, mothers in our study reported slightly higher total stress scores than fathers (3.98 ± 0.37 vs. 3.83 ± 0.39), particularly in domains related to infant appearance and role disruption/guilt, where the mean differences were both 0.40 ($p < 0.01$). These findings are consistent with earlier research, such as by Franck et al., who found that mothers frequently experience intense emotional distress due to concerns about their neonate's fragile condition and uncertainty about their own caregiving role (1, 22). Similarly, Prouhet et al. and Ionio et al. observed that maternal stress is often magnified by hormonal changes, breastfeeding expectations, and feelings of helplessness when their infant is under intensive care (2, 20).

In contrast, fathers in our study exhibited higher stress in domains of financial strain, emotional isolation, and involvement in care. The highest paternal stress domain was involvement in care (mean 4.05), suggesting that many fathers felt excluded from direct participation in neonatal caregiving. This observation echoes the findings of Provenzi et al. and Feeley et al., who emphasized that NICU environments remain primarily mother-focused and may unintentionally alienate fathers (6, 8). Similar concerns were noted by Lindberg et al., who described fathers' feelings of invisibility and marginalization when excluded from active caregiving roles (10).

Our findings also corroborate Brødsgaard et al., who reported that while mothers' stress centers around the infant's fragility and caregiving responsibilities, fathers frequently experience distress due to feeling P ji v unsupported, socially isolated, or financially burdened (3). The financial aspect is particularly relevant in low- and middle-income countries, where prolonged hospital stays can significantly impact family income. In our study, fathers' stress related to financial strain (mean 4.05 ± 0.35) was significantly higher than that of mothers (3

No $p \pm 0.55$, $p = 0.002$), underscoring the economic burden shouldered by fathers. This is in line with findings from Raina et al., who demonstrated similar stress patterns in Indian NICU parents, with financial strain playing a critical role (15).

Several interventions have been shown to mitigate NICU-related parental stress. Melnyk et al. demonstrated the effectiveness of the Creating Opportunities for Parent Empowerment (COPE) program in reducing maternal anxiety and improving coping (13). Similarly, Montirosso et al. conducted a meta-analysis confirming that structured psychosocial and family-centered interventions improve both parental well-being and neonatal outcomes (25). Candelori et al. further highlighted that systematic assessment of stress allows timely intervention, especially in parents at high risk (14).

The psychosocial dimensions of stress also warrant attention. Henderson et al. reported that perinatal mental health significantly influences parent–infant bonding, emphasizing the importance of early recognition (16). Fisher et al. identified sociocultural determinants such as poverty, low education, and lack of support as amplifiers of maternal distress in low- and middle-income countries, findings that resonate with our cohort (17). Moreover, Garfield and Isacco emphasized that paternal involvement in child health improves overall family outcomes, yet fathers continue to face barriers in healthcare participation (18). International literature also highlights the importance of structured NICU-based psychosocial support. Hall et al. recommended comprehensive parent support programs to reduce stress and foster family integration (19). Similarly, Määttä et al. showed that targeted NICU interventions significantly improved paternal well-being and mental health, demonstrating the feasibility of father-focused support strategies (23). Studies from diverse settings, including Greece (24) and Iran (21), confirm that NICU-related stress is a universal phenomenon, with cultural and healthcare-system differences influencing its expression and intensity.

One of the strengths of our study lies in its balanced sample of both mothers and fathers from a single tertiary center, using a structured and domain-specific stress questionnaire. This allowed for detailed comparisons between parents across stress categories, which few Indian studies have attempted. The use of validated Likert-based items and clear domain segmentation provides clinicians with actionable insights into where parental support efforts should be focused.

Given these findings, it is evident that fathers should not be viewed merely as support figures for mothers, but as primary emotional stakeholders in their child's care experience. Hospitals should consider implementing paternal mental health screenings during NICU admissions and develop resources that acknowledge fathers' stress, fears, and desire for active involvement. This could include tailored counseling, structured opportunities for fathers to participate in neonatal care routines, and improved communication strategies to engage both parents equally in the NICU environment (4, 7, 19).

Conclusion:

In conclusion, our study reinforces the growing recognition that both mothers and fathers face considerable and often distinct psychological challenges in the NICU setting. While maternal stress remains prominent and must continue to be addressed, paternal stress is significant, domain-specific, and routinely under-acknowledged. Future research should focus on building inclusive family-centered care models that provide emotional, logistical, and informational support to both parents. Doing so will not only strengthen neonatal outcomes but also foster healthier family dynamics long after discharge from the NICU.

Recommendations

1. Introduce standardized father-inclusive PSS: NICU protocols.
2. Designate trained male counselors/social workers for NICU fathers.
3. Educate NICU staff on gendered emotional expression patterns.

4. Extend visiting and caregiving opportunities for fathers.

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