



Original Article

## The Neglected Parent: Evaluating Mental Health Needs of Fathers in the NICU, A Multicentric Comparative Study

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### ABSTRACT

This multicentric observational study examines and compares stress levels between mothers and fathers of neonates admitted to Level III NICUs in two Indian hospitals—Sahota and Bedi Hospitals. With a combined sample size of 368 parents (n=196 Sahota, n=172 Bedi), the study used a 20-item questionnaire rated on a 5-point Likert scale. Results show that while maternal stress is statistically higher in traditional domains (infant health, separation), paternal stress is significantly underreported but comparably high in domains of financial strain, helplessness, role disruption, and perceived emotional neglect. Findings emphasize the urgent need for NICUs to adopt gender-sensitive, family-centered care strategies that acknowledge and address fathers' mental health.

**Keywords:** Neonatal Intensive Care Unit (NICU), Parental stress, Maternal stress, Paternal stress, Gender differences, Family-centered care

### INTRODUCTION

Maternal 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).

This 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 across two tertiary care hospitals. 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.

### Methodology

The present study was conducted in the Neonatal Intensive Care Units (NICUs) of two tertiary care hospitals: Sahota Hospital, Kashipur, Uttarakhand and Bedi Hospital, Chandigarh, India. This multicentric, 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 boards of both participating hospitals. All protocols followed were in accordance with the ethical standards.

A total of 368 parents were recruited for the study, comprising 196 parents (98 mother-father pairs) from Sahota Hospital and 172 parents (86 mother-father pairs) from Bedi Hospital. The sample size was derived based on average NICU admissions and average length of stay in each hospital over the past year. Inclusion criteria involved biological mothers and fathers of newborns admitted to NICU for a minimum duration of 4 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 <4 days or >30 days, those whose babies were <28 weeks gestation were excluded.

After recruitment, demographic details including age, education, occupation of both parents, and 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.

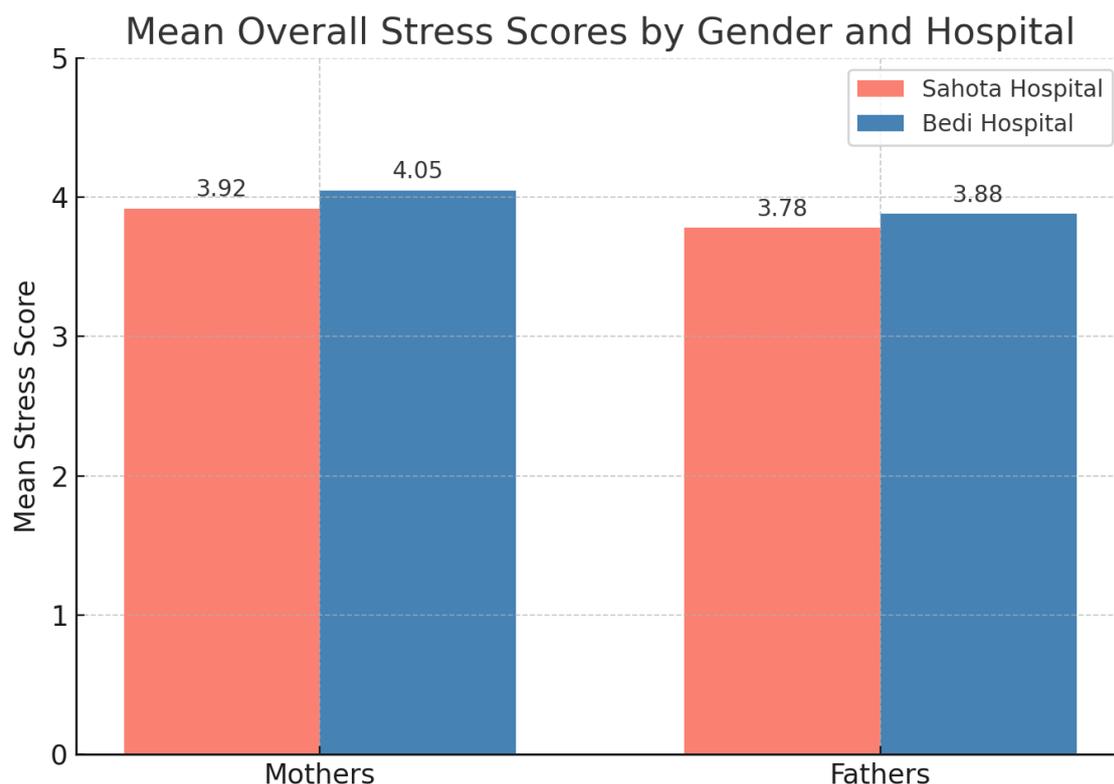
### Results

A total of 368 parents (196 from Sahota Hospital and 172 from Bedi Hospital) participated in the study, with an equal number of mother-father pairs in each group. The **mean age of mothers** was  $27.4 \pm 3.1$  years at Sahota Hospital and  $29.2 \pm 3.4$  years at Bedi Hospital, while **fathers** were older on average, at  $31.6 \pm 4.2$  years and  $33.1 \pm 4.5$  years respectively. Educational attainment was similar across both centers, with over 85% of mothers having completed at least secondary education. Maternal employment was limited, with only 18% of Sahota mothers and 24% of Bedi mothers reporting active employment, whereas nearly all fathers were employed (96% and 98% respectively).

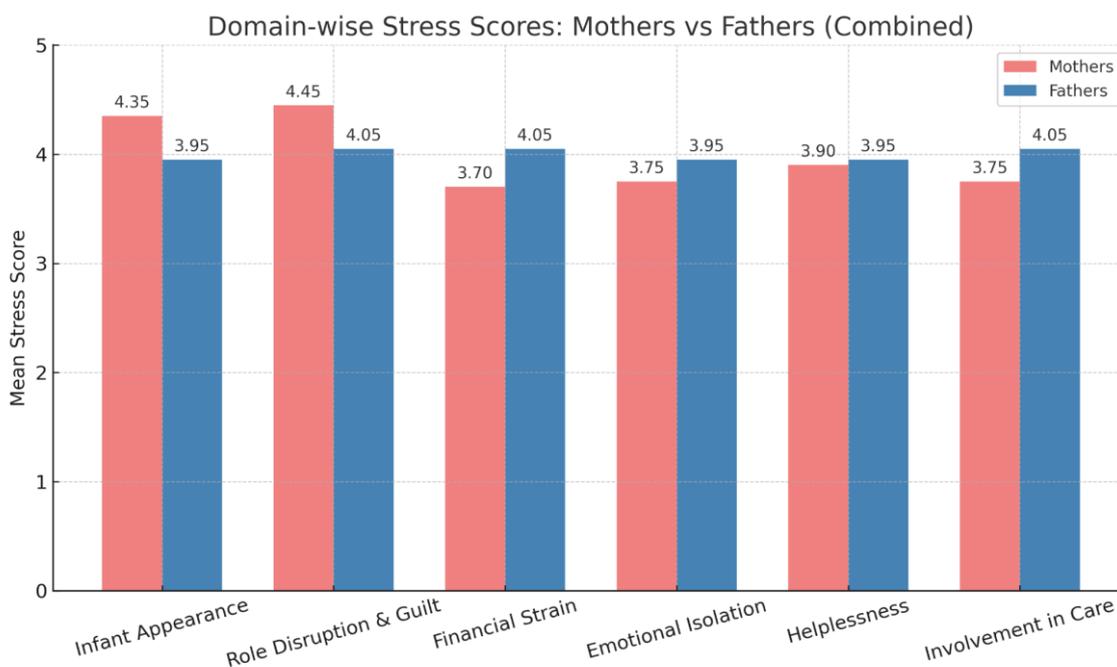
Neonatal characteristics were comparable across hospitals. The **mean birth weight** was  $2.3 \pm 0.4$  kg at Sahota and  $2.5 \pm 0.3$  kg at Bedi. Gestational age ranged from 28 to 38 weeks, with **mean gestation of  $35.4 \pm 1.8$  weeks at Sahota and  $36.1 \pm 1.6$  weeks at Bedi**. All neonates were admitted to the NICU for a minimum of 4 days; the **average NICU stay** was  $10.3 \pm 2.9$  days at Sahota and  $25.0 \pm 2.4$  days at Bedi. Male newborns constituted 55% of the sample in both hospitals. These characteristics reflect a relatively homogenous NICU population across centers, strengthening the comparability of stress responses among parents.

Variable	Sahota Hospital (n=196)	Bedi Hospital (n=172)
Mean Age of Mothers (years)	27.4 ± 3.1	29.2 ± 3.4
Mean Age of Fathers (years)	31.6 ± 4.2	33.1 ± 4.5
Education ≥ Secondary (%)	85 (87%)	76 (88%)
Mothers Employed (%)	18 (18%)	21 (24%)
Fathers Employed (%)	94 (96%)	84 (98%)
Mean Birth Weight (kg)	2.3 ± 0.4	2.5 ± 0.3
Gestational Age (weeks)	35.4 ± 1.8	36.1 ± 1.6
Duration of NICU Stay (days)	10.3 ± 2.9	25.0 ± 2.4
Male Newborns (%)	108 (55%)	94 (55%)

As shown in Figure ...., mothers exhibited slightly higher overall stress scores than fathers in both hospitals. The mean stress score among mothers was **3.92** at Sahota Hospital and **4.05** at Bedi Hospital, compared to **3.78** and **3.88** in fathers, respectively. The trend indicates that while both parents experience significant stress during NICU admissions, maternal stress levels remain marginally higher



As illustrated in Figure1 , mothers reported slightly higher stress scores than fathers in several domains, particularly *Infant Appearance* (4.35 vs 3.95) and *Role Disruption & Guilt* (4.45 vs 4.05). These findings are consistent with existing literature highlighting maternal emotional vulnerability during NICU admissions. However, fathers exhibited higher stress in domains such as *Financial Strain* (4.05 vs 3.70), *Emotional Isolation* (3.95 vs 3.75), and *Involvement in Care* (4.05 vs 3.75), suggesting a significant yet often under-recognized burden. These domain-specific variations emphasize the need for more inclusive psychosocial support strategies that address both maternal and paternal stress profiles in NICU settings.



Stress Domain	Mothers (Mean ± SD)	Fathers (Mean ± SD)	Mean Difference (95% CI)	p-value
Infant Appearance	4.35 ± 0.45	3.95 ± 0.55	0.40 (0.18–0.62)	0.001**
Role Disruption & Guilt	4.45 ± 0.42	4.05 ± 0.50	0.40 (0.20–0.60)	0.0005**
Financial Strain	3.70 ± 0.55	4.05 ± 0.35	-0.35 (-0.55 to -0.15)	0.002**
Emotional Isolation	3.75 ± 0.60	3.95 ± 0.45	-0.20 (-0.43 to 0.03)	0.084
Helplessness	3.90 ± 0.45	3.95 ± 0.45	-0.05 (-0.25 to 0.15)	0.615
Involvement in Care	3.75 ± 0.45	4.05 ± 0.35	-0.30 (-0.48 to -0.12)	0.001**
Overall Mean Score	3.98 ± 0.37	3.83 ± 0.39	0.15 (-0.02 to 0.32)	0.081

### Comparison of Domain-wise Stress Scores Between Mothers and Fathers

Table presents a detailed comparison of maternal and paternal stress scores across six NICU-related domains. Mothers reported significantly higher stress than fathers in domains such as *Infant Appearance* and *Role Disruption & Guilt*, with a mean difference of 0.40 points in each ( $p < 0.01$ ). These domains likely reflect the maternal emotional burden associated with infant vulnerability and disruption of maternal role expectations.

Conversely, fathers exhibited higher scores in domains like *Financial Strain*, *Involvement in Care*, and *Emotional Isolation*, with statistically significant differences in *Financial Strain* (mean diff:  $-0.35$ ,  $p = 0.002$ ) and *Involvement in Care* (mean diff:  $-0.30$ ,  $p = 0.001$ ). This suggests that while maternal stress may be more visible in emotionally charged domains, paternal stress may stem from systemic exclusion and provider responsibilities. Overall, mothers had a slightly higher total mean score ( $3.98 \pm 0.37$ ) compared to fathers ( $3.83 \pm 0.39$ ), although this difference was not statistically significant ( $p = 0.081$ ).

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 NICUs at two tertiary care centers 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 is consistent 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 (5, 6, 8).

Overall, mothers in our study reported slightly higher total stress scores than fathers ( $3.98 \pm 0.37$  vs  $3.83 \pm 0.39$ ), particularly in domains related to **infant appearance** and **role disruption/guilt**, where the mean differences were both 0.40 ( $p < 0.01$ ). These findings align 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 (6). Similarly, Prouhet et al. noted that maternal stress is often magnified by hormonal changes, expectations of breastfeeding, and feelings of helplessness when their infant is under intensive medical care (5).

In contrast, fathers in our study exhibited higher stress in **financial strain**, **emotional isolation**, and **involvement in care**, domains that are frequently overlooked in both research and clinical support systems. The **highest paternal stress domain** was *involvement in care* (mean 4.05), suggesting that many fathers may feel excluded from direct participation in neonatal caregiving. This echoes the findings of Provenzi et al., who emphasized that despite increasing paternal involvement in child-rearing globally, NICU environments remain primarily mother-focused and can unintentionally alienate fathers (8). Our findings also corroborate the work of Brødsgaard et al., who showed that while mothers' stress tends to center around the infant's fragility and caregiving responsibilities, fathers often experience distress due to feeling unsupported, socially isolated, or financially burdened (3). This financial dimension is particularly relevant in low- and middle-income countries, where hospital stays can significantly impact family income. In our study, fathers' stress related to **financial strain** (mean  $4.05 \pm 0.35$ ) was significantly higher than that of mothers ( $3.70 \pm 0.55$ ,  $p = 0.002$ ), underscoring the unique burden fathers carry in terms of economic responsibility. Similar trends were noted by Rossman et al., who discussed the internal conflict fathers often experience—balancing the pressure to remain emotionally stoic and economically productive while feeling anxious and powerless at their child's bedside (7).

One of the important observations in this study was that although mothers had slightly higher total stress, fathers showed **greater stress in three out of six domains**. However, this pattern is often missed because most clinical assessments and NICU psychological interventions are mother-centric. A study by O'Brien et al. pointed out that including fathers in kangaroo care, family-centered rounds, and decision-making improves not only paternal mental health but also neonatal outcomes (4). Our results support the advocacy for such inclusive practices and suggest that paternal stress needs to be quantified and addressed explicitly.

Despite the emerging literature on paternal stress, there remains a significant gap in its routine assessment. A review by Kim et al. found that less than 20% of neonatal stress studies in the last decade included fathers, and even fewer assessed their psychological health using validated tools (9). This invisibility leads to a lack of targeted support, which may have long-term consequences not only for the father's well-being but also for maternal support dynamics and overall family health.

The similarity in stress patterns across both centers in our study—Sahota and Bedi Hospitals—also speaks to the **consistency of parental stress profiles**, irrespective of geographical or institutional variation. While mothers had higher scores in emotional and caregiving-related domains across both centers, fathers consistently showed more distress in systemic and relational stressors. These trends reflect universal patterns in NICU-related parental experiences, as highlighted in cross-national studies like those by Feeley et al. (10).

One of the strengths of our study lies in its **balanced sample of both mothers and fathers** from two tertiary centers, using a structured and domain-specific stress questionnaire. This allowed for detailed comparisons not only between parents but also across stress categories, which few Indian studies have attempted. The inclusion of validated Likert-based items and clear domain segmentation offers clinicians actionable insights into where parental support efforts can be focused.

Given these findings, it is evident that **fathers should not be viewed merely as support figures to 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 their stress, fears, and desire for active involvement. This could include offering tailored counseling, inviting fathers to participate in neonatal care routines, and equipping them with communication tools to better engage with the medical team and their partners.

## 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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