

## Exploring Parental Stress during Neonatal Intensive Care Unit Hospitalization: Factors and Outcomes

K Elmazi\*, F Bennaoui, A Elalaoui, K Abi Elalae, N El Idrissi Slitine and FMR Maoulainine

Neonatal Intensive Care Unit, Mohammed VI University Hospital, Marrakech, Morocco

\*Corresponding Author: K Elmazi, Neonatal Intensive Care Unit, Mohammed VI University Hospital, Marrakech, Morocco.

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### Abstract

The hospitalization of newborns in neonatal intensive care units (NICUs) presents a significant stressor for families, often leading to elevated levels of anxiety and depression among parents. This study, conducted at neonatal intensive care unit in Mohammed VI University Hospital in Marrakech, Morocco aimed to deepen the understanding of parental stress associated with NICU hospitalization and its impact on mental health.

Forty parents (24 mothers, 16 fathers) of newborns initially admitted to intensive care and subsequently transferred to stable recovery were included. Data were collected through structured questionnaires assessing demographic information, parental stress factors, aggravating factors and mental health indicators. Our results indicated that fear of newborn death and neurological sequelae were predominant stress factors for most of parents, with 95% and 80% prevalence, followed by the fear to contract nosocomial infection for 55% of parents and the fear of oxygen dependence for 25% of parents, we noticed that length of stay did not had a significant impact on parental stress, respectively. The transfer to the stable side was perceived as a relief by most parents, although some expressed concerns about returning to intensive care or bringing their baby home. Financial problems and external comments were identified as aggravating factors contributing to parental stress. Physical symptoms reported by parents included fatigue, headaches, dizziness, abdominal pain, and changes in appetite. Anxiety, sleep disorders, irritability, feelings of guilt, and concentration problems were also prevalent, impacting social functioning and overall well-being. The discussion of the findings underscored the various challenges encountered by parents in NICU settings, including restricted access to the informations, a sense of powerlessness in managing their child's care, and emotional upheaval. Consistent with earlier studies, the fear of infant mortality emerged prominently as a primary source of stress, further emphasizing the necessity for personalized support interventions. The study concludes by emphasizing the importance of comprehensive support for parents in NICU settings, including informational, emotional, and practical assistance. Future research should focus on designing effective stress-reduction interventions tailored to the unique needs of parents in NICU environments, aiming to alleviate their psychological burden and promote well-being during this challenging period.

**Keywords:** Parents; Stress; Neonatal Intensive Care Unit; Newborn

### Introduction

The hospitalization of a newborn in a neonatal intensive care unit (NICU) is generally an unexpected and stressful event for a family. According to several studies, this situation leads to high levels of stress among parents. Complex diagnoses and uncertainties regarding the infant's health exacerbate this anxiety. This stress is often associated with symptoms of depression and anxiety. While not all parents exhibit such symptoms, between 20% and 30% of parents of hospitalized newborns may experience mental health issues within the first year after birth, such as acute stress disorder, post-traumatic stress, and postpartum depression. In particular, rates of postpartum depression among mothers could reach up to 70% [1-5].

### Aim of the Study

Our study aims to deepen the understanding of parental stress related to neonatal intensive care unit hospitalization. We examine factors contributing to the exacerbation or alleviation of stress, as well as its impact on parental mental health.

### Materials and Methods

#### Study setting

The study was conducted at the neonatal intensive care unit of Mohammed VI University Hospital in Marrakech. This unit is divided into two distinct sides: one for intensive care and one for stable newborns recovering after a critical phase.

#### Study population

The study included parents of newborns initially hospitalized in the neonatal intensive care unit and subsequently transferred to the stable side. Parents were interviewed to assess the stress experienced during their newborns' hospitalization.

#### Inclusion criteria

Inclusion criteria were as follows:

- Parents of newborns initially hospitalized in intensive care and later transferred to the stable side.
- Newborns admitted to the neonatal intensive care unit on the first day of life.
- Availability and informed consent of parents to participate in the study.

#### Sampling

Sampling was non-probabilistic. All parents meeting the inclusion criteria were invited to participate. A total of 40 parents (24 mothers and 16 fathers) were included in the study.

#### Data collection

Data were collected using a structured questionnaire, divided into two parts: the first part contained demographic information such as parents' age, gender, number of children, education level, socioeconomic status, place of residence, and presence of family support. The second part included the parental stress questionnaire specifying parental stress factors in the intensive care setting, transfer to the stable side, other aggravating factors of parental stress and the general health questionnaire (GHQ).

#### Data analysis

Data were analyzed using descriptive statistical methods to identify the main sources of parental stress and their impact on parental mental health. Differences between sexes and the effects of socioeconomic factors and family support were also examined.

## Results

### Demographic characteristics of parents

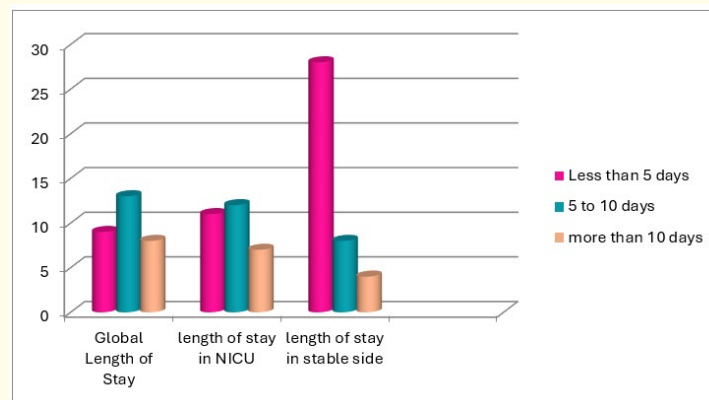
The analysis of demographic data is summarized in the table 1 below.

Category	Number of Parents
Average Age	32 years
Gender	Female: 24, Male: 16
Number of Children	More than two: 25, One: 15
Education Level	Unschoolled: 11, Primary: 7, Middle School: 2, High School: 14, College: 6
Socioeconomic Status	Low: 19, Middle: 21
Residence	Rural: 22, Urban: 18
Living Arrangement	Separated from family: 25

**Table 1:** Demographic characteristics of parents.

### Reasons for hospitalization and length of stay

All newborns were admitted to the neonatal intensive care unit on the first day of life. The main reasons for hospitalization were neonatal respiratory distress (32 cases, including 13 preterm), perinatal asphyxia (5 cases), and jaundice due to Rh incompatibility (2 cases). The total length of stay varied, with 9 cases less than 5 days, 13 cases between 5 and 10 days, and 8 cases over 10 days. The length of stay in intensive care was similar, with 11 cases less than 5 days, 12 cases between 5 and 10 days, and 7 cases over 10 days. The majority of stays on the stable side were less than 5 days (28 cases), with some stays between 5 and 10 days (8 cases) and over 10 days (4 cases).



**Figure 1:** Distribution by length of stay.

### Parental stress factors

The main sources of stress for parents are illustrated in the following table 2.

Parental Stress Factors	Percentage
Fear of newborn death	95%
Fear of neurological sequelae	80%
Fear of nosocomial infections	55%
Fear of oxygen dependence	25%
Length of stay in the ICU	30%

**Table 2:** Parental stress factors.

On the other hand, the transfer to the stable side was perceived as a relief by 32 parents, while 8 parents did not feel relief, citing the fear of returning to intensive care (4 parents), the perceived lack of difference between the two sides (1 parent), and the fear of bringing their baby home (3 parents).

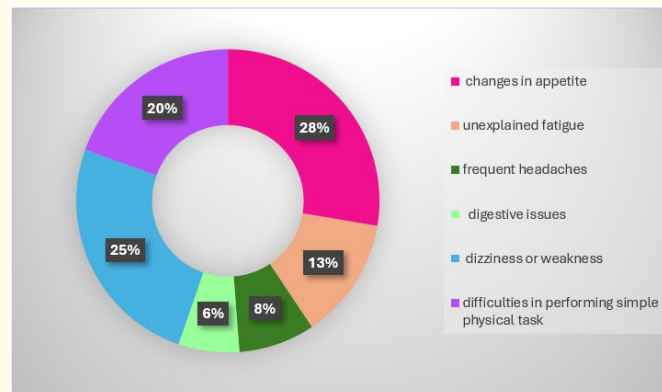
**Aggravating factors of parental stress**

Identified aggravating factors of parental stress include financial problems (24 responses), comments from family or friends (22 responses), fear of feeding difficulties in the newborn (12 responses), and fear of their newborn having specific medical needs affecting 5 parents. In contrast, the majority of parents do not feel a lack of free time (35 responses) or personal health problems affecting their parental role (38 responses).

**General health questionnaire (GHQ)**

Physical symptoms reported by parents include unexplained fatigue (16 responses), frequent headaches (10 responses), dizziness or weakness (31 responses), abdominal pain (18 responses), changes in appetite (34 responses), frequent digestive problems (8 responses), and difficulty performing simple physical tasks (24 responses).

Anxiety and sleep disorders are also significant: difficulty falling asleep (28 responses), frequent nighttime awakenings (26 responses), anxiety (30 responses), irritability (27 responses), feelings of guilt in 10 mothers, recurrent negative thoughts (32 responses), and concentration problems (35 responses). Additionally, 16 parents avoid social interactions, indicating a substantial impact on their social functioning.



**Figure 2:** Physical symptoms reported by parents.

### Discussion

The admission of a newborn to the neonatal intensive care unit confronts parents and other family members with a stressful situation, requiring them to cope with the environment of the neonatal intensive care unit and the associated demands.

Previous studies, such as that of Charchuk and Simpson [6] have highlighted the challenges faced by parents whose infants are admitted to neonatal intensive care units (NICUs). These challenges include access to information, disclosure of the newborn's diagnosis and prognosis, as well as a sense of lack of control over their child's care.

Similarly, Feldman, *et al.* [7] found that newborns admitted to NICUs and separated from their mother were at the greatest risk of developing disrupted attachment with their mother, and parents expressed grief and worry as their newborn might not survive. This aligns with the results of our study, where the fear of losing the newborn is identified as the main source of stress for the majority of parents.

Hall [8] described the experience of parents in the context of NICU hospitalization as akin to being in another world, characterized by uncertainty, constant vigilance, and emotional fluctuations between hope and despair. This description resonates with the testimonies of many parents in our study, who expressed similar feelings of shock, fear, worry, and suffering. These emotions are often accompanied by physical and psychological symptoms, such as anxiety, irritability, and negative thoughts, which can sometimes manifest as somatization.

In summary, our research expands the understanding of parental stress in the specific context of neonatal intensive care unit hospitalization. It confirms the challenges faced by parents.

### Conclusion

The findings underscore the importance of providing comprehensive support to parents navigating the challenges of NICU hospitalization, including informational support, emotional counseling, and practical assistance.

We would like to have future studies which focus on designing appropriate stress-reduction interventions for parents in the NICU.

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