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Effect of maternity hotel on anxiety levels of mothers with newborns in a neonatal intensive care unit: A cross-sectional study

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Abstract

Premature birth, which requires the baby to be admitted to the Neonatal Intensive Care Unit (NICU), is a difficult process for both mother and father. Mothers with newborns in NICU experience anxiety, fear, and stress. This study compared the anxiety levels of NICU mothers staying in maternity hotels and those staying in their own homes. This study was conducted in a tertiary care hospital. Mothers with newborns in NICU were included. Two groups were formed: Group 1: Mothers staying in a maternity hotel (n=44) and Group 2: Mothers staying in their own homes (n=42). Data were collected using a questionnaire that included characteristics of mothers and newborns, as well as the State-Trait Anxiety Inventory (STAI TX-1–STAI TX-2). All data were collected through a face-to-face interview, which took about 40 minutes, conducted by two psychologists at the maternity hotel. State anxiety levels for NICU mothers staying at the maternity hotel (40.07 ± 9.94) were significantly lower compared with those staying at home (50.19 ± 11.17) ($p < 0.001$). However, trait anxiety levels for NICU mothers staying at the maternity hotel (43.05 ± 10.75) were similar to those staying at home (42.62 ± 7.37), ($p = 0.831$). There was no relationship between STAI scores and sociodemographic data. Staying in a maternity hotel was associated with lower state anxiety among NICU mothers, suggesting that maternity hotels may help reduce temporary anxiety. Clinicians are encouraged to assess the anxiety levels of mothers of newborns in the NICU and distinguish between anxiety as a temporary state and anxiety as a personality trait. Clinicians should consider recommending maternity hotel accommodation for mothers experiencing high state anxiety.

Keywords: Anxiety, maternity hotel, newborn, intensive care unit, mothers, home

Introduction

Premature birth, which requires the baby to be admitted to the Neonatal Intensive Care Unit (NICU), is a difficult process for both mother and father. Mothers who are separated from their babies experience anxiety, fear, and stress. Also, depression, fatigue, changes in perception, and incompatible mother-baby interactions may be observed in these mothers [1-3]. In a recent study [4] investigating the causes of stress in mothers of preterm babies, maternal stress was found to be associated with the presence of neonatal seizures, NICU treatment duration, frequency of NICU visits, maternal age, and need for ventilator support.

The experience of anxiety is associated with the release of stress-related hormones, including adrenaline and cortisol, and severe anxiety may result in detrimental effects on both physical and

mental health. Sustained anxiety has been shown to adversely affect immune system function and increase the risk of infections [5]. The NICU can be a stressful environment for parents due to fear of infant loss, and advanced medical equipment that may hinder parent–infant interaction. Mothers in particular may experience psychological distress associated with the disruption of traditional parenting roles [6]. It has been reported that the most important factors that increase the stress of NICU mothers are being separated from their babies and not being able to protect their babies from painful procedures [7]. Inadequate opportunities to meet infants' physiological needs, insufficient information about medical care, limited communication with healthcare professionals, and poor social support further contribute to elevated anxiety levels [8,9].

In Türkiye, maternity hotels were created to accommodate NICU

CITATION

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mothers who live outside the city or have transportation problems within the city. These facilities enable mothers to remain close to their infants, breastfeed frequently, and receive psychosocial support from healthcare professionals. These hotels have beds, wardrobes, kitchens, refrigerators, a room for mothers to express milk, and a lounge for daily activities. In addition, psychologists and social workers are available at the mother hotels to help mothers cope with stress and educate them. In this way, it was aimed to help mothers get through this stressful period more easily and without complications [10,11].

Wigert et al. [12] showed that when mothers engage in activities such as touching, cuddling, and feeding their babies, their parenting can improve and their anxiety levels can be reduced. It has been reported that mothers who do not participate in the care of their infants have higher levels of state anxiety compared with mothers who are involved in infant care. [13]. In this current study, it was hypothesized that NICU mothers staying in a maternity hotel can always receive detailed information from healthcare professionals about their baby's condition and participate in their baby's care. As a result, their anxiety levels may be lower than those of NICU mothers who do not stay in a maternity hotel. Thus, the aim of this study is to compare the anxiety levels of NICU mothers staying in a maternity hotel and those staying in their own homes.

Material and Methods

Study period: Ethics committee approval was obtained from the Ethics Committee of Erzurum City Hospital (Approval number: 2023-03-35). This prospective cross-sectional study was conducted over six months from January 2024 to June 2024 at the Obstetrics Department of Erzurum City Hospital, Erzurum, Türkiye, a tertiary care hospital. This study was conducted in accordance with the Declaration of Helsinki, following informed written consent from participants.

Study setting: The maternity hotel in Erzurum province has a capacity of 45 beds, and it is not possible to accommodate all NICU mothers. For this reason, while some NICU mothers stay at the mother hotel, others stay at home and can see their babies for limited periods. Mothers of hospitalized newborns in the NICU were included in the study. Mothers of newborns hospitalized in the NICU for at least five days were eligible for inclusion. Mothers were required to visit their infants at least 4 times per day. Mothers with communication problems or psychiatric disorders were excluded. Two groups were formed: Group 1: Mothers staying in a maternity hotel (n=44) and Group 2: Mothers staying in their own homes (n=42).

Data collection process: Data were collected using a questionnaire that included characteristics of mothers and newborns, and the State-Trait Anxiety Inventory Scale (STAI TX-1–STAI TX-2) to evaluate the anxiety levels of the mothers.

Sociodemographic Data Form: This form includes questions about socio-demographic and obstetric characteristics of mothers (age, weight, gravida, parity, gestational week, education level, delivery type, economic level, prenatal control status, planned

pregnancy status) and newborns' characteristics in the NICU (length of stay in NICU, gender, intensive care level).

State-Trait Anxiety Inventory Scale (STAI)

This scale was developed by Spielberger et al. [14] and is a psychological inventory consisting of 40 self-report items on a 4-point Likert scale. This scale measures two types of anxiety: state anxiety and trait anxiety. High scores indicate high levels of anxiety. The Turkish validity and reliability of these scales were established by Öner and Le Compte [15]. The alpha reliability of the scale was calculated as 0.83-0.87, and the retest reliability was 0.71-0.86.

There are 2 subscales within the STAI Scale. First, the State Anxiety Inventory Scale (STAI-TX-1) measures current anxiety levels by assessing how individuals feel “right now,” capturing subjective feelings of worry, nervousness, tension, apprehension, and autonomic nervous system activation. Trait Anxiety Inventory Scale (STAI TX-2) assesses relatively enduring characteristics of anxiety proneness, reflecting an individual's general tendencies toward calmness, confidence, and feelings of security. The STAI Scale consists of 40 items, with 20 assigned to each of the State Anxiety (STAI TX-1) and Trait Anxiety (STAI TX-2) subscales.

Response formats differ between the two subscales. In the State Anxiety subscale, respondents rate the intensity of their current feelings' at this moment' on a four-point scale ranging from 1 (not at all) to 4 (very much so). In contrast, the Trait Anxiety subscale assesses the general frequency of these feelings, with responses rated on a four-point scale from 1 (almost never) to 4 (almost always).

The questionnaires were administered face-to-face by two trained psychologists at the maternity hotel on or after the fifth day of NICU admission.

Statistical Analysis

Power analysis was done using Russ Lenth's Power and sample size calculation application [16]. The minimum sample size was calculated using the formula from Mizrak et al.'s study [13]. They reported that the common standard deviation for STAI scores within mothers with newborns in a NICU was assumed to be 3.50 and 5.50. Based on a power analysis, the number of patients required per group was determined to be 30, with a power of 80% at the 5% significance level. It was planned to include 90 patients, 45 per group, to account for potential dropouts.

All data were recorded in SPSS 13.0. Data were presented as numbers or means $\pm$ standard errors. The Kolmogorov-Smirnov test was used to assess normality. The independent t-test (for two independent groups) was used to compare numerical data. Spearman's correlation analyses were performed to investigate the relationship between STAI scores and sociodemographic data, and P values less than 0.05 were considered statistically significant.

Result

The study included 86 mothers whose babies were admitted to the NICU who met the inclusion criteria. In the study, 44 (51.16%)

participants were staying at the mother's hotel (group 1), and the other 42 (48.83%) participants were staying in their own homes (group 2). There were no statistically significant differences between groups in maternal age, maternal weight, gravida, parity, educational status, occupational status, mode of delivery, income level, gender of baby, and the length of stay of the baby (Table 1).

Comparisons between NICU mothers staying at the maternity hotel and controls on STAI-1 and STAI-2 scores are presented in Table 2. State anxiety levels for NICU mothers staying at the

maternity hotel (40.07 ± 9.94) were significantly lower compared with those staying at home (50.19 ± 11.17) ($p < 0.001$). However, trait anxiety levels for NICU mothers staying at the maternity hotel (43.05 ± 10.75) were similar to those of the control group (42.62 ± 7.37), ($p = 0.831$).

Correlation analysis data for some variables are provided in Table 3. Accordingly, it was determined that there was no relationship between STAI scores and maternal age, maternal weight, gestational week, gravida, parity, or hospitalization duration.

Table 1. Comparison of socio-demographic characteristics in groups

Characteristics	Group 1 (n=44)	Group 2 (n=42)	P-value
Age (years)	27.4 $\pm$ 5.28	28.2 $\pm$ 7.65	0.548
Maternal weight (kg)	68.1 $\pm$ 14.14	69.4 $\pm$ 12.43	0.654
Week of Gestation	34.98 $\pm$ 4.08	34.14 $\pm$ 3.66	0.322
Gravida (n)	2.32 $\pm$ 1.36	1.95 $\pm$ 1.10	0.176
Parity (n)	1.39 $\pm$ 0.49	1.38 $\pm$ 0.49	0.959
Educational status n, %			
Primary school	24, 54.54%	19, 45.23%	0.425
High school	11, 25.00%	16, 38.09%	
University	9, 20.50%	7, 16.7%	
Occupational Status n, %			
Not working	42, 95.45%	37, 88.09%	0.212
Working	2, 4.54%	5, 11.90%	
Type of delivery n, %			
Cesarean section	27, 61.36%	26, 61.90%	0.959
Vaginal	17, 38.63%	16, 30.09%	
Income Level n, %			
Bad	15, 34.09%	16, 38.09%	0.922
Moderate	27, 61.36%	24, 57.14%	
Good	2, 4.54%	2, 4.76%	
Supporting Systems n, %			
Exist	26, 59.09%	33, 78.57%	0.052
Not exist	18, 40.90%	9, 21.42%	
Hospitalization duration (days)	7.39 $\pm$ 3.26	7.74 $\pm$ 2.24	0.564
Gender of the Baby n, %			
Female	18, 40.9%	22, 52.4%	0.286
Male	26, 59.1%	20, 47.6%	
Planned pregnancy status n, %			
Yes	26, %59.1	28, %66.7	0.468
Maturity of baby n, %			
Pre-term	19, 43.2%	19, 45.2%	0.848
Term	25, 56.8%	23, 54.8%	
Regular prenatal care n, %	39, 88.6%	37, 88.1%	0.938

Table 2. Comparison of STAI-1 and 2 scores of groups

STAI scores	Group 1 (n=44)	Group 2 (n=42)	P value
STAI-1 score, mean $\pm$ SD	40.07 $\pm$ 9.94	50.19 $\pm$ 11.17	<0.001
STAI-1 score, min-max	23-65	37-76	
STAI-2 score, mean $\pm$ SD	43.05 $\pm$ 10.75	42.62 $\pm$ 7.37	0.831
STAI-2 score, min-max	37-71	29-54	

Table 3. Spearman’s rank correlation coefficients for maternal characteristics, STAI-1 and STAI-2 scores

Variables	STAI-1 scores		STAI-2 scores	
	r	p value	r	p value
Maternal age	-0.79	0.468	0.040	0.715
Maternal weight	-0.073	0.506	-0.093	0.395
Week of Gestation	-0.042	0.702	-0.078	0.475
Gravida	-0.069	0.525	0.066	0.546
Parity	-0.076	0.488	0.147	0.177
Hospitalization duration	0.083	0.447	-0.013	0.906
STAI-1 scores	1		0.129	0.236

Discussion

This study demonstrated that mothers staying in a maternity hotel had significantly lower state anxiety levels compared with mothers staying at home, while trait anxiety levels were similar between groups. These findings suggest that maternity hotel accommodation may help alleviate temporary anxiety associated with NICU hospitalization.

Mothers with newborns in the NICU may experience high anxiety due to fear of losing their babies, being away from their babies, and not being able to breastfeed their babies [1-3]. Anxiety activates the stress response system, leading to the release of hormones such as adrenaline and cortisol, which may adversely affect physical and mental health when anxiety is severe [5]. State Anxiety reflects sudden changes in emotional reactions, and it is considered a temporary state. However, Trait Anxiety reveals the continuity of anxiety that everyone experiences in daily life. Previous studies have reported a higher prevalence of anxiety disorders in women compared to men [17,18]. Although the body usually returns to normal functioning after acute stress, chronic stress disrupts this regulatory mechanism, leading to immune system weakening and increased vulnerability to viral infections and recurrent illnesses [19]. Thus, reducing anxiety or eliminating it before it becomes chronic is important for an individual's health.

Mizrak et al. [13] compared anxiety levels of mothers with healthy newborns in a postpartum care service (PCS) and mothers with newborns in a NICU. They reported higher state anxiety levels and similar trait anxiety levels of mothers whose infants were in the NICU compared to those of mothers whose infants were in PCS. Also, they reported a significant relationship between anxiety levels of NICU mothers and the status of getting adequate information about the baby’s situation, the duration of hospitalization, and the status of participation in the baby’s care. In another study, it was reported that mothers with newborns in the NICU who do not receive adequate information about their infants' care have higher levels of state anxiety than well-informed mothers with newborns in the NICU [20]. Detailed information about the infant's condition and good interaction with healthcare professionals have been shown to reduce mothers' anxiety levels

[21]. In this present study, it has been observed that staying in a maternity hotel reduces mothers' anxiety in the NICU. It was speculated that mothers staying at the maternity hotel can participate in activities such as holding, touching, and feeding their infants whenever they want. These opportunities may have reduced mothers' anxiety levels.

A new NICU model, including enough space for a mother’s bed with each baby, was designed in India and named the "Mother–Newborn Care Unit (MNCU)". The MNCU provided prolonged, continuous, and effective kangaroo mother care, as well as early exclusive breast-milk feeding and breastfeeding. Also, mothers in MNCU had less stress and anxiety as compared to mothers who did not stay in MNCU [22]. In a multicountry, randomized, controlled trial conducted across five hospitals in Malawi, Ghana, Nigeria, India, and Tanzania, it was reported that babies in MNCU had lower rates of hypothermia, mortality, and suspected sepsis than control babies in conventional NICUs [23]. The MNCU has qualities similar to those of the maternity hotel. In this current study, mothers staying in the maternity hotel had lower state anxiety levels than mothers staying away from their babies in their homes. The opportunity to remain close to the newborn, participate in care activities, and receive timely information from healthcare professionals may help reduce anxiety. Also, these mothers are provided with information on newborn care and psychological support by nurses, psychologists, and other healthcare personnel. On the other hand, mothers staying in the mother hotel may feel safe because they are close to their babies. Bouet et al. [24] reported that mother-infant separation is an important cause of psychological stress in mothers and negatively affects mother-infant attachment. Also, they reported no association between stress and education, marital status, and gestational age. Similar to their results in the current study, it was determined that there was no relationship between State anxiety levels and maternal age, maternal weight, week of gestation, gravida, parity and hospitalization duration.

This is the first study in the literature investigating the effect of the maternity hotel on maternal anxiety levels. The limitations of the study included the absence of a paternal anxiety assessment, a single-center design, non-randomized allocation of mothers based on hotel capacity, and potential interviewer bias due to

face-to-face data collection. Other limitations include a lack of data on the social support provided to mothers and the distance between home and maternity hotel, all of which could affect the study's results. Future studies with larger, multicenter samples are needed.

Conclusion

The main finding of this study is that NICU mothers staying at home do not have higher trait anxiety levels than NICU mothers staying in a maternity hotel. It was found that only state anxiety levels in NICU mothers staying at home were higher in comparison with NICU mothers staying in a maternity hotel. It seems that NICU mothers staying at home only experience a temporary state of anxiety. Clinicians are encouraged to assess the anxiety levels of mothers of newborns in the NICU and distinguish between anxiety as a temporary state and anxiety as a personality trait. Following, NICU mothers with high state or trait scores who tend to feel anxious should be advised to stay in the maternity hotel. Maternity hotel accommodation appears to reduce state anxiety among mothers with newborns in the NICU. Integrating maternity hotels into neonatal care services may support maternal psychological well-being.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

This study was approved by the Declaration of Helsinki principles, and Erzurum City Hospital Ethics Committee approval (Decision no:2023-03-35, Date: 12.07.2023).

References

- Colciago E, Brown AM, Ornaghi S, et al. The unpredictable nature of labour and birth: a qualitative investigation regarding expectations of Italian parents to-be. *Midwifery*. 2022;108:103286.
- Singer LT, Salvator A, Collin M, et al. Maternal psychological distress and parenting stress after the birth of a very low-birth-weight infant. *JAMA*. 1999;281:799-805.
- De Paula Eduardo JAF, De Rezende MG, Menezes PR, Del-Ben CM. Preterm birth as a risk factor for postpartum depression: a systematic review and meta-analysis. *J Affect Disord*. 2019;259:392-403.
- Pavlyshyn H, Sarapuk I, Satorska U. Maternal stress experience in the neonatal intensive care unit after preterm delivery. *Am J Perinatol*. 2024;41:1155-62.
- Yaribeygi H, Panahi Y, Sahraei H, et al. The impact of stress on body function: a review. *EXCLI J*. 2017;16:1057-72.
- Yurdakul Z, Akman I, Kuşçu MK, et al. Maternal psychological problems associated with neonatal intensive care admission. *Int J Pediatr*. 2009;2009:591359.
- Kegler JJ, Neves ET, Silva AM, et al. Stress in parents of newborns in a neonatal intensive care unit. *Esc Anna Nery*. 2019;23:e20180178.
- Labrie NHM, van Veenendaal NR, Ludolph RA, et al. Effects of parent-provider communication during infant hospitalization in the NICU on parents: a systematic review with meta-synthesis and narrative synthesis. *Patient Educ Couns*. 2021;104:1526-52.
- Malouf R, Harrison S, Pilkington V, et al. Factors associated with posttraumatic stress and anxiety among the parents of babies admitted to neonatal care: a systematic review. *BMC Pregnancy Childbirth*. 2024;24:352.
- Republic of Türkiye Ministry of Health. Mother hotel services at Erzurum Provincial Health Directorate, Erzurum City Hospital. <https://erzurumsehir.saglik.gov.tr/EN-488424/history.html>. Access date 24.01.2026
- Republic of Türkiye Ministry of Health. Mother's hotel implementation to support pregnant women and NICU mothers. <https://izzetbaysaldh.saglik.gov.tr/EN-842626/mothers-hotel.html>. Access date 24.01.2026
- Wigert H, Johansson R, Berg M, Hellström AL. Mothers' experiences of having their newborn child in a neonatal intensive care unit. *Scand J Caring Sci*. 2006;20:35-41.
- Mizrak B, Deniz AO, Acikgoz A. Anxiety levels of mothers with newborns in a neonatal intensive care unit in Turkey. *Pak J Med Sci*. 2015;31:1176-81.
- Spielberger CD, Gorsuch RL, Lushene RE. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1970.
- Oner N, Le Compt A. State-Trait Anxiety Inventory handbook. Istanbul: Bogazici University Publication; 1985:1-26.
- Lenth RV. Java applets for power and sample size [computer software]. <http://www.stat.uiowa.edu/~rlenth/Power>. Access date 15.01.2024
- McLean CP, Asnaani A, Litz BT, Hofmann SG. Gender differences in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *J Psychiatr Res*. 2011;45:1027-35.
- Altemus M, Sarvaiya N, Neill Epperson C. Sex differences in anxiety and depression: clinical perspectives. *Front Neuroendocrinol*. 2014;35:320-30.
- Balcerowska M, Kwaśnik P. The multifaceted impact of stress on immune function. *Mol Biol Rep*. 2025;52:1008.
- Uludağ A, Ünlüoğlu İ. Determinants of anxiety among mothers of infants in the newborn intensive care unit: role of family physicians on coping with the stressors. *Konuralp Med J*. 2012;4:19-26.
- Güney G, Bayraktar S, Aşti T. Determination of stress and anxiety levels of parents of infants staying in neonatal intensive care unit. *Artuklu Int J Health Sci*. 2023;3:109-15.
- Chellani H, Mittal P, Arya S. Mother-neonatal intensive care unit (M-NICU): a novel concept in newborn care. *Indian Pediatr*. 2018;55:1035-6.
- Chellani H, Arya S, Mittal P, Bahl R. Mother-newborn care unit (MNCU) experience in India: a paradigm shift in care of small and sick newborns. *Indian J Pediatr*. 2022;89:484-9.
- Bouet KM, Claudio N, Ramirez V, García-Fragoso L. Loss of parental role as a cause of stress in the neonatal intensive care unit. *Bol Asoc Med P R*. 2012;104:8-11.