



## Stress, Anxiety, Depression and Sleep Disturbance among Jordanian Mothers and Fathers of Infants Admitted to Neonatal Intensive Care Unit: A Preliminary Study



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### ABSTRACT

**Purpose:** To investigate the stressors and stress levels among Jordanian parents of infants in the NICU and their relationship to three factors: anxiety, depression and sleep disturbance.

**Design and Methods:** A cross-sectional survey was conducted in two hospitals in Jordan among 310 parents of infants in the NICU by using PSS: NICU and PROMIS.

**Results:** Both parents experienced high levels of stress, anxiety, depression and sleep disturbance. There was a significant difference in stress level between mothers and fathers [ $t(308) = 3.471, p = 0.001$ ], with the mothers experiencing higher stress than the fathers [mean: mothers = 108.58; fathers = 101.68]. The highest and lowest sources of stress were infant behavior and appearance ( $M = 4.09$ ) and sights and sounds in the NICU ( $M = 3.54$ ), respectively.

The correlation between stress levels with anxiety ( $r = 0.79$ ) and depression ( $r = 0.75$ ) was strong and positive while sleep disturbance was significant and moderate ( $r = 0.43$ ).

**Conclusions:** The mothers experienced higher levels of stress compared to fathers, with positive correlations between stress and anxiety, depression and sleep disturbance.

**Practical Implications:** The findings of this study create nursing awareness of parent stress and its impact, which will help them to improve nursing care for parents.

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### Introduction

Globally, preterm birth is a significant public health issue, but not much is known about the extent of the problem, especially in developing nations such as Jordan (Sivasubramaniam et al., 2015). The rate of preterm birth in Jordan in 2010 was ascertained to be 14.4% (WHO, 2012), higher than the international preterm rate of 11.1% (Blencowe et al., 2012). Jordan registered the highest premature birth rate among Arab nations (UNICEF, 2012), with an estimated 14% of the total population.

Parents with infants who require extensive hospitalization may be confronted with periods of anxiety, depression, stress and symptoms of sleep disturbance while the infants are in the NICU (Busse, Stromgren, Thorngate, & Thomas, 2013; Heidari, Hasanpour, & Fooladi, 2012; Obeidat, Bond, & Callister, 2009; Shelton, Meaney-Delman,

Hunter, & Lee, 2014). These emotions arise when parents have to handle the unaccustomed and unexplored NICU environment and exposure to many stressors such as the NICU environment, baby behavior and appearance, and alteration in parent roles (Heidari et al., 2012).

A family is a system of social interactions, interdependence and patterns that exist between members of families. Naturally, the family connects together emotionally and the parent is an emotional unit for decision-making and problem-solving in the family. So it may have a bad impact on the family system and on the parent's capacity for emotional regulation and problem-solving (Edéll-Gustafsson, Angelhoff, Johnsson, Karlsson, & Mörelus, 2015). Also, it can negatively impact parent-infant attachment (Edéll-Gustafsson et al., 2015; Kong et al., 2013; Medina, Lederhos, & Lillis, 2009).

Most of the literature centers on the mother's experience (Aagaard & Hall, 2008; Alkozei, McMahan, & Lahav, 2014; Malakouti, Jebraeili, Valizadeh, & Babapour, 2013) or the father's experience (Arockiasamy, Holsti, & Albersheim, 2008; Hollywood & Hollywood, 2011; Sisson, Jones, Williams, & Lachanudis, 2015) of the admission of their infant

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to the NICU. On the other hand, few studies have explored both the father's and mother's experiences at the same time (Busse et al., 2013).

The significant differences in levels of stress, depression, anxiety and sleep disturbance between fathers and mothers when their infants were admitted to the NICU were rarely reported.

Moreover, no studies have been conducted regarding either the mothers' and fathers' experiences in the NICU in Jordan nor the cultural effect on the parents' beliefs regarding child health (Nash, 2012; Scrimshaw, 2011).

Unlike Western societies such as the United Kingdom and the United States of America, which may see their children's diseases as a result of microorganisms that need treatment by medication, medical interventions and advanced medical technology (Nash, 2012; Scrimshaw, 2011), other societies may perceive their infants' diseases as a result of supernatural phenomena or punishment for their bad doings. Therefore, they may feel the need to perform spiritual interventions to treat the illness (Scrimshaw, 2011).

In Arabic Islamic societies such as Jordan, parents believe their children's disease to be a gift or test from God, and thus are generally patient with it. However, they also believe there is need to treat the disease with medication and medical interventions in addition to *doa'a*, prayers and alms (Nash, 2012; Scrimshaw, 2011). Differences in culture may affect the parent's coping regarding management and understanding the diagnosis, the course of an illness, and the consequences of medical treatment (Cronin, Becher, Christians, & Debb, 2015). In each culture, the patients and their families had specific values regarding illness, health, expectations of health care, delivery, progress, treatment, patient roles, gender roles, family roles, how death is managed, and decision-making processes (Scrimshaw, 2011).

Consequently, role expectations for Jordanian mothers and fathers differ from other cultures. In Jordan, the mothers are the primary care providers for infants; they feed, change diapers, and bathe their babies (Abuidhail, 2014). Sometimes the fathers perform these tasks, but this is not their main role. The main role for fathers is to work to maintain the financial status of the family (Abuidhail, 2014). Thus, there is a need for studying the experience of admission of infants to the NICU of both fathers and mothers. The purpose of this paper is to present the preliminary findings on the stress level of fathers and mothers, stressors that contribute to stress level scores and the relationship between stress and anxiety, depression and sleep disturbance among Jordanian mothers and fathers of infants in the NICU.

## Literature Review

Experiencing high stress on a daily basis may affect emotions and sleep negatively (Åkerstedt et al., 2012). Many of the quantitative studies conducted in northern Portugal (Baía, Alves, Amorim, Fraga, & Silva, 2015); Spanish (Busse et al., 2013); United States (Holditch-Davis et al., 2009) and France (Alkozei et al., 2014) reported that all infants who need admission to the NICU will lead to increased parental stress, regardless of the infants' gestational age.

Furthermore, it was reported in numerous qualitative studies conducted in Iran (Heidari, Hasanpour, & Fooladi, 2013; Heidari et al., 2012) as well as quantitative studies conducted in the United States (Holditch-Davis et al., 2009) and France (Alkozei et al., 2014) that parents experience depression, anxiety, alterations in parenting roles, separation, deferred infant-parent bonding, and other psychological issues. The disturbance and frustration experienced by parents constitute a stressful experience when an infant is admitted to the NICU. The loss of the parenting role, the look and manner of the infants, staff behavior and communication with parents were the most common stressors for parents of infants admitted to the NICU (Heidari et al., 2012, 2013).

Previous quantitative studies conducted in Italy have reported a dramatic difference between fathers and mothers in terms of the reactions and experiences regarding NICU hospitalized infants, because it was deemed that mothers are more expressive and emotional than fathers

(Matricardi, Agostino, Fedeli, & Montiroso, 2013). Numerous studies reported that parents with an infant admitted to the NICU experience depression, anxiety, stress, distress and sleep disturbance (Busse et al., 2013; Kong et al., 2013; Lee, Lee, Rankin, Weiss, & Alkon, 2007). Fifty-six percent ( $n = 30$ ) of parents with infants hospitalized in the NICU revealed having anxiety on the Reported Outcomes Measurement Information System; parental fatigue ( $r = 0.43, p \leq 0.05$ ) and sleep disturbance ( $r = 0.51, p < 0.01$ ) were found to be related to anxiety (Busse et al., 2013).

Moreover, a cross-sectional survey undertaken by Kong et al. (2013) in China with 600 participants (200 mothers and 400 fathers) discovered that mothers and fathers with infants in the NICU are more liable to suffer from symptoms of depression and anxiety when compared to mothers and fathers with full-term infants. In their study, the Self-Rating Anxiety Scale, Self-Rating Depressive Scale, Social Support Rating Scale, and Perceived Stress Scale were used to assess anxiety and depression in parents of hospitalized neonates and to analyze their relationship with other factors such as stress.

Added to the above, another cross-sectional study conducted in China by Lee et al. (2007) described parents' sleep disturbance in relation to their stress levels during the hospitalization period of their infant in NICU. The study was conducted among 30 mothers and 25 fathers by using the PSS: NICU and a general sleep disturbance scale. They found that 93% of mothers and 60% of fathers experienced sleep disturbance during the hospitalization period of their infant.

The literature supported the claim that both mothers and fathers experience many psychological issues. In an extensive random study undertaken in New Zealand, 447 parents (205 fathers and 242 mothers) with infants admitted to the NICU were compared with 189 parents (89 fathers and 100 mothers) of full-term infants not requiring admission to the NICU using the Anxiety and Depression Rating Scale (HADS) instrument (Carter, Mulder, Bartram, & Darlow, 2005). They concluded that mothers and fathers experience symptoms of anxiety and depression, but the scores were lower among fathers than mothers in both groups (Carter et al., 2005). Feizi, Najmi, Salesi, Chorami, and Hoveidafar (2014) suggested that parental psychological distress led to depression, anxiety, and failure to lead a normal life at home.

## Methods

### Design

This study adopted a cross-sectional survey to identify stress levels and stressors, and to determine the relationships between anxiety, depression and sleep disturbance that may influence the level of parental stress. A cross-sectional survey is an observational study in which exposure is determined at the same point in time in a given population (Creswell, 2013; Polit & Beck, 2013). The researcher selected this research design because it can precisely measure and quantify the phenomenon of interest, as well as help the researcher to compare different population groups at a single point in time. It was also the most appropriate method for the descriptive purpose of the study (Creswell, 2013; Polit & Beck, 2013).

### Setting

The present study was undertaken at two Level-III NICUs at two public hospitals operated by the Jordanian Ministry of Health in Jordan. These two hospitals were selected because they accounted for approximately 70% of neonatal care service in Jordan. Hospital A is a maternity and obstetric teaching hospital in eastern Jordan with a 24-bed NICU. Hospital B is a referral teaching hospital in Northern Jordan with a 30-bed NICU. Both NICUs provide similar Level III medical services, including advanced respiratory support and mechanical ventilator support. There is no parental support service for mothers and fathers in these units. There is an open visiting hour's policy in both hospitals whereby

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