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Effects of Kangaroo Care on Father Stress of Premature Infants Hospitalized in the Neonatal Intensive Care Unit of Shahid Sadoughi Hospital of Yazd, Iran

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ABSTRACT

BACKGROUND AND OBJECTIVE: Involvement of fathers, as important members of every family, in the care of premature infants is a major challenge. Therefore, it is essential to understand the feelings of fathers towards infant care. The aim of this study was to determine the effects of kangaroo care on tension in fathers of premature infants hospitalized in a neonatal intensive care unit.

METHODS: This quasi-experimental study was carried out in 2015 on 25 pairs of fathers and premature infants, hospitalized in the Neonatal Intensive Care Unit of Shahid Sadoughi Hospital of Yazd, Iran. Kangaroo care was applied for 60 min every day over two weeks after feeding the infants and changing their diaper. After wearing a hospital gown, fathers sat on a chair in a comfortable position (angle of 45-60°). Then, the nurse placed the infant under the father's gown in a vertical position on the father's chest (chest-to-chest placement). The fathers completed the parental stress scale before and after the intervention.

FINDINGS: The mean total score of tension in fathers was 122.64±11.00 before the intervention and 90.72±13.04 after the intervention ($p<0.001$). According to the findings, there was a significant difference between the mean scores of all subscales before and after the intervention ($p<0.001$).

CONCLUSION: The results of the present study showed that kangaroo care could be effective in reducing tension in fathers of premature infants, hospitalized in neonatal intensive care units.

KEY WORDS: *Kangaroo care, Tension, Neonatal Intensive Care Unit.*

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Introduction

Preterm birth is among the most common incidents, leading to the hospitalization of infants in neonatal intensive care units (NICUs) (1). Preterm birth is also one of the factors causing emotional distress in parents and long-term adverse outcomes in newborns (2). In addition, prematurity of the newborn can disrupt the relationship and bond between the infant and parents (3). Parents of premature infants experience unexpectedly high levels of stress (4), which seems understandable, as these infants are exposed to future complications (5, 6). Premature birth can cause psychological stress for the parents and disrupt the parental role after the newborn's discharge from hospital; (7) therefore; professional support is highly required for these parents (8).

One of the key roles of nurses is to provide support for the parents (9). So far, different studies have been carried out on support for parents. However, in the majority of these studies, mothers were the target group (10-18), while only a limited number of studies focused on the tension of fathers, their role, or their needs (8). Fathers are among the first people to meet the newborn after birth. They are in fact responsible for providing support for both the mother and infant (19). As a result, distress and tension are quite common among them, as they should pay particular attention to the health of the mother and newborn, assume their parental role, and understand the clinical status of their newborn (20).

In addition, some common regulations in healthcare centers for hospitalizing infants trigger a sense of lack of control in fathers and interfere with the parental role (21). Considering the fact that fathers are important members of every family, it is important to identify their feelings about child care (22). Moreover, promoting their contribution to the care of premature infants is a great challenge (23). Kangaroo care can be a proper technique to help fathers contribute to the care of their newborns (18). Since this technique is both simple and cost-effective, in this study, we aimed to identify the effects of kangaroo care on tension in fathers of premature infants, hospitalized in the NICU of Shahid Sadoughi Hospital, Yazd, Iran.

Methods

This quasi-experimental study was conducted on fathers of premature infants hospitalized in the NICU of Shahid Sadoughi Hospital in Yazd, Iran. Based on a pilot study, a sample size of 20 was considered adequate for the study. However, considering the possibility of dropout, 26 participants were included in the study. According to the regulations of the hospital NICU, mothers were obliged to be present in the unit and contribute to child care, while fathers of some newborns only visited the unit on random days. Therefore, access to fathers who could visit the hospital every day on a regular basis and be enrolled in the control group was limited.

Fathers who were willing to participate in kangaroo care were included in the intervention group; the same subjects before participation in kangaroo care were considered as the control group. It is noteworthy that some confounding variables, such as the recovery process, time of recovery, and adjustment, were uncontrollable by the researchers; these are in fact the limitations of the present study.

Fathers who visited the hospital every day were enrolled in the study. The newborns had no third- or fourth-degree hemorrhoids and did not require continuous positive airway pressure (CPAP). The exclusion criteria for the fathers and newborns were as follows: 1) father's unwillingness to continue the study; 2) the infant's need for CPAP or mechanical ventilation; 3) third- or fourth-degree hemorrhoids in the infant; and 3) neonatal death. During the study, one newborn died, and consequently, the father was eliminated from the study. After communicating with the fathers, nurses responsible for kangaroo care training explained the study objectives, study methods, and kangaroo care technique to fathers. After completing the written informed consent forms, fathers were asked to complete the parental stress scale and the father-infant demographic questionnaire. The demographic questionnaire consisted of variables such as age, educational level, occupational status, indigeneity, economic status, prior experience of premature birth, birth rank of the premature newborn, gestational age, infant gender, and fetal weight.

The parental stress scale consisted of 46 items and was rated on a Likert scale. The level of parental tension was assessed in four subscales: noise in the NICU (5 items; score range: 0-25), infant's appearance and behaviors (19 items; score range: 0-95), relationship with the newborn and acceptance of the parental role (10 items; score range: 0-50), and NICU staff behavior and interaction (12 items; score range: 0-60). The total score ranged between 0 and 230. Scores below 78 indicated low tension, scores 78-156

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were indicative of average tension, and scores above 156 showed high levels of tension. The reliability and validity of the parental stress scale have been examined in different studies in Iran. In a study by Kashaninia and colleagues, the face validity and content validity of the questionnaire were confirmed, and its reliability was calculated to be 97% via Cronbach's alpha (24). In addition, in a study by Jafari et al., Cronbach's alpha was reported to be 81% (25). In the present study, the reliability of the scale was estimated at 85%.

Kangaroo care was performed everyday for 60 min in the afternoon over two weeks. In general, this technique provides a better position for the infant's head and keeps the air pathway open. The infant's knees and elbows were bent and he/she was placed in a frog-leg position throughout the intervention. The nurse accompanied the father and monitored the infant's condition. The parental stress scale was distributed among the participants after a two-week interval following the intervention. Finally, after completing the questionnaires, data were extracted and analyzed, using descriptive statistics and paired t-test. P-value less than 0.05 was considered statistically significant.

Results

The mean age of the fathers was similar (27.28±2.90 years). In total, 48% of the subjects had high-school diplomas and 80% were self-employed. None of the fathers had a prior experience of kangaroo care and 8% had experienced having a premature newborn. Based on the findings, 64% of the newborns were female, and 56% were second children of the family. The mean weight of the infants was 1247.2±222.125 g, and the mean gestational age was 22.16±1.87 weeks. Before the intervention, the mean total tension score was 122.64±11.55. Based on the findings, the mean score of the subscale "noise in NICU" was 10.08±1.56, the mean score of "infant's appearance and behavior" was 56±6.34, and the mean score of "relationship with the newborn and acceptance of the parental role" was 25.2±3.69. Also, the mean score of "NICU staff behavior and interaction" was 30.96±5.16. After the intervention, the mean scores were as follows: 90.72±13.04, 7.6±2.03, 39.28±8.23, 20.3±4.48, and 23.04±4.06 for the total score, noise in NICU, infant's appearance and behavior, relationship with the newborn and acceptance of the parental role, and NICU staff behavior and interaction, respectively. There was a significant difference between the mean scores before and after the intervention ($p<0.001$). Moreover, a significant difference was observed in the mean score of all subscales before and after the intervention ($p<0.001$).

Discussion

The findings of the present study showed that kangaroo care is effective in reducing tension in fathers of premature infants, hospitalized in NICUs. After performing kangaroo care, the mean total score of tension and the mean score of the four subscales decreased. Similarly, a study by Matricardi et al. suggested a decline in the tension scores of parents in three subscales of infant's appearance and reaction, NICU noise and condition, and assumption of the parental role (26).

Liu et al. also suggested that any intervention which applies empowerment strategies for the parents can facilitate the development of parental roles and subsequently reduce parental stress and tension (27). Similarly, Buss et al. stated that providing an opportunity for the parents to meet their newborns can help develop the infant-parent bond and reduce parental stress, as the infant's hospitalization in the NICU disrupts the parental role (28). On the contrary, a study by Turan and colleagues showed no significant relationship between the level of stress in fathers before and after the intervention (29). It seems that the discrepancy between the findings of the mentioned study and the present research is due to the implementation of interventions in which fathers have active physical contact with their infants, resulting in the active participation of fathers in infant care and tension relief. On the other hand, interventions, which are solely based on information exchange between the NICU staff and parents and disregard infant-parent interaction and active role of parents in infant care, are less effective in reducing tension.

Wormald et al. also acknowleged that physical contact between the newborn and parents can promote positive interactions between them, reduce parental stress, and strengthen their emotional attachment (30). In the present study, kangaroo care by fathers was highly effective in reducing the stress casued by the NICU conditions and noise. This effectiveness might be attributed to the daily presence of fathers in the unit for kangaroo care and their familiarity with the unit

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environment and noise. On the other hand, in a study by Abadeyazdan and colleagues, fathers were only recipients of information about the NICU equipments and did not actually visit the unit (3). Quoting Johnson, Lee et al. also stated that fathers pay considerable attention to the alarms and monitors in the unit (31). Leonard et al. also conducted a qualitative study on fathers' experience of kangaroo care for premature infants. The results showed that through kangaroo care, fathers have the opportunity to interact with their infants. Moreover, contact with the newborn is relaxing and empowering for them and reinforces their self-confidence. In fact, this type of care requires the active participation of fathers in infant care and fathers feel empowered to fulfill their parental role (32). Comparison and analysis of the mentioned findings with the present results showed that contact between fathers and infants triggers an indescribable feeling in fathers (33). The eye contact between the father and infant promotes a sense of belonging in the father towards the newborn (34). By touching the infant and making contact, fathers feel as if they have made an important contribution to child care (35). In conclusion, kangaroo care by fathers can be introduced as an effective, accessible, and free technique for mental support. Nurses can also improve the emotional status of fathers by providing information and promoting their contribution to child care. Since no control group was included in this study, it is suggested that future studies include two groups for further comparisons.

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References

1.Kynø NM, Ravn IH, Lindemann R, Smeby NA, Torgersen AM, Gundersen T. Parents of preterm-born children; sources of stress and worry and experiences with an early intervention programme–a qualitative study.Bio Med Cent. 2013;12(1):28.
2.Zwicker JG, Harris SR. Quality of life of formerly preterm and very low birth weight infants from preschool age to adulthood: a systematic review. Pediatrics. 2008;121(2): 366-76.
3.Parker L. Mothers' experience of receiving counselling/psychotherapy on a neonatal intensive care unit (NICU). J Neonat Nurs.2011;17(5):182-9.
4.Schappin R, Wijnroks L, Venema MMU, Jongmans MJ. Rethinking stress in parents of preterm infants: a meta-analysis. PLoS One. 2013;8(2):1-19.
5.Brown G. NICU noise and the preterm infant.Neonatal Netw. 2009;28(3):165-73.
6.Chaudhari S. Neonatal intensive care practices harmful to the developing brain. Indian pediatr. 2011;48(6):437-40.
7.Heermann JA, Wilson ME, Wilhelm PA. Mothers in the NICU: outsider to partner. Pediat nurs. 2005;31(3):176-81.
8.Abdeyazdan Z, Shahkolahi Z, Mehrabi T, Hajiheidari M. A family support intervention to reduce stress among parents of preterm infants in neonatal intensive care unit. Iran J Nurs Midwif Res. 2014;19(4):349-53.
9.Hutti MH. Social and professional support needs of families after perinatal loss. J Obstet, Gynecol Neonat Nurs. 2005;34(5):630-8.
10.Callery P. Mothers of infants in neonatal nurseries had challenges in establishing feelings of being a good mother. Evi Base Nurs. 2002;5(3):91-2.
11.Cleveland LM. Parenting in the neonatal intensive care unit. J Obstet, Gynecol,Neonat Nurs. 2008;37(6):666-91.
12.Erlandsson K, Fagerberg I. Mothers' lived experiences of co-care and part-care after birth, and their strong desire to be close to their baby. Midwifery. 2005;21(2):131-8.
13.Gale G, Franck LS, Kools S, Lynch M. Parents' perceptions of their infant's pain experience in the NICU. Inter J Nurs Study. 2004;41(1):51-8.
14.Lee TY, Lee TT, Kuo SC. The experiences of mothers in breastfeeding their very low birth weight infants. J advanc nurs. 2009;65(12):2523-31.
15.Obeidat HM, Bond EA, Callister LC. The parental experience of having an infant in the newborn intensive care unit.J Perinat Edu. 2009;18(3):23-9.
16.Talmi A, Harmon RJ. Relationships between preterm infants and their parents: disruption and development. Zero to Three (J). 2003;24(2):13-20.
17.Wigert H, Johansson R, Berg M, Hellström AL. Mothers' experiences of having their newborn child in a neonatal intensive care unit. Scandinavian J Car Sci. 2006;20(1):35-41.
18.Blomqvist YT, Rubertsson C, Kylberg E, Jöreskog K, Nyqvist KH. Kangaroo Mother Care helps fathers of preterm infants gain confidence in the paternal role. J adv nurs. 2012;68(9):1988-96.
19.Gooding JS, Cooper LG, Blaine AI, Franck LS, Howse JL, Berns SD, editors. Family support and family-centered care in the neonatal intensive care unit: origins, advances, impact. Semin perinatol.2011;35(1):20-8.
20.Arockiasamy V, Holsti L, Albersheim S. Fathers' experiences in the neonatal intensive care unit: a search for control. Pediatrics. 2008;121(2): 215-22.
21.Manning AN. The NICU experience:how does it affect the parents' relationship?. J perinat neonat nurs. 2012;26(4):353-7.
22.Hollywood M, Hollywood E. The lived experiences of fathers of a premature baby on a neonatal intensive care unit. J Neonat Nurs. 2011;17(1):32-40.
23.Lindberg B, Axelsson K, Öhrling K. The birth of premature infants: experiences from the fathers' perspective. J Neonat Nurs. 2007;13(4):142-9.
24.Kashaninia Z, Dehghan M, Sajedi F, Rezasoltani P. The assessment effect of kangaroo care on maternal stress of premature infants hospitalized in neonatal intensive care units. Hayat. 2014;20(3):74-84.[In Persian].
25.Jafari Mianaei S, Alaei Karahroudi F, Rasouli M. Study of the impacts of rehabilitation program on mothers with premature hospitalized infants. Edu Ethic Nurs. 2013;1(1):2-37.[In Persian]

[DOR: 20.1001.1.15614107.1395.18.5.1.3]
[DOI: 10.22088/jbums.18.5.7]

26.Matricardi S, Agostino R, Fedeli C, Montirosso R. Mothers are not fathers: differences between parents in the reduction of stress levels after a parental intervention in a NICU. Acta Paediatrica. 2013;102(1):8-14.
27.Liu CH, Chao YH, Huang CM, Wei FC, Chien LY. Effectiveness of applying empowerment strategies when establishing a support group for parents of preterm infants. J clin nurs. 2010;19(11-12):1729-37.
28.Busse M, Stromgren K, Thorngate L, Thomas KA. Parents' responses to stress in the neonatal intensive care unit. Crit care nurse. 2013;33(4):52-9.
29.Turan T, Başbakkal Z, Özbek Ş. Effect of nursing interventions on stressors of parents of premature infants in neonatal intensive care unit. J clin nurs. 2008;17(21):2856-66.
30.Wormald F, Tapia JL, Torres G, Cánepa P, González MA, Rodríguez D, et al. Stress in parents of very low birth weight preterm infants hospitalized in neonatal intensive care units. Arch Argent Pediatr. 2015;113(4):303-9.
31.Lee TY, Wang MM, Lin KC, Kao CH. The effectiveness of early intervention on paternal stress for fathers of premature infants admitted to a neonatal intensive care unit. J adv nurs. 2013;69(5):1085-95.
32.Leonard A, Mayers P. Parents' lived experience of providing kangaroo care to their preterm infants. Health SA Gesondheid. 2008;13(4):16-28.
33.Danerek M, Dykes AK. A theoretical model of parents' experiences of threat of preterm birth in Sweden. Midwifery. 2008;24(4):416-24.
34.Lundqvist P, Westas LH, Hallström I. From distance toward proximity: fathers lived experience of caring for their preterm infants. J pediat nurs. 2007;22(6):490-7.
35.Fegran L, Helseth S, Fagermoen MS. A comparison of mothers' and fathers' experiences of the attachment process in a neonatal intensive care unit. J Clin Nurs. 2008;17(6):810-6.

[DOR: 20.1001.1.15614107.1395.18.5.1.3]
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