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The impact of kangaroo care and music on maternal state anxiety☆,☆☆

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KEYWORDS
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Music;
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Summary
Objective: The effect of kangaroo care (KC) has not been adequately studied in mothers. This present study was undertaken to determine if music during KC has a greater effect than KC alone, on maternal state anxiety (MSA) in the early postpartum period.
Design and setting: In a randomized controlled trial, 90 Iranian women who were scheduled for a repeat Cesarean-section, were randomized into three groups: KC, music during KC, and a control group. Mothers' pain scores were evaluated using a visual analog scale (VAS). If the VAS score was ≤3, then MSA was measured by using the State-Trait Anxiety Inventory (STAI) Scale (Spielberg). Interventions were 30 min KC for mother—infant dyads, or playing music for the mothers during KC. Six hours later, in cases where the VAS was ≤3, the MSA was re-measured using Spielberg's scale for all mothers.
Results: Six hours post intervention, there was no significant difference in the overall mean scores of MSA between the groups, but the severity of MSA in the two experimental groups was less than in the control group ($P = 0.02$), although not between the two experimental groups.
Conclusions: The findings of this study provide evidence that KC has an effect on the severity of MSA in mothers who were delivered by C-section, however, music during KC had no more effect than KC alone. More research is needed to document the effectiveness of selected or familiar music during KC on state anxiety in early postpartum.

Introduction

Kangaroo care (KC) has been reported to have beneficial effects for parents and preterm infants. It was proposed as a care alternative for low birth weight infants, it was also developed to overcome problems associated with traditional incubator care in developing countries. A systematic review (2003) has found that KC promotes parental feelings of; mastery, crisis resolution, positive attitude toward

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the infant, emotional completion of the pregnancy, and increased length of breastfeeding.[1]

Pregnancy and childbirth are very significant events in a woman's life and few studies have addressed the effects of anxiety for women and babies during these periods. Studies have shown that nearly 30% of women will experience some kind of anxiety disorder during their lives and that episodes of anxiety can become frequent during pregnancy and following childbirth.[2,3] There are limitations in the findings of experimental studies due to the effect of KC on the state of anxiety levels in mothers. Lai's study (2006) is the first randomized controlled trial of music during KC on maternal anxiety, however, it had no KC alone group.[4]

Music therapy is a technique of complementary medicine which is the most commonly used treatment for somatic and mental disorders.[5,6] Exploring the effects of music therapy reveal that music can also be used to reduce stress and anxiety in patients,[7–10] nevertheless, some studies have shown that music intervention had no effect on post-procedural pain and anxiety, but music therapy did improve patients' comfort levels.[11,12]

Primo (2008) found that music as a relaxation procedure can significantly improve the emotional state and reduce anxiety in the puerperal period.[13] In another report, music during general anesthesia had no effect on post-operative pain and anxiety following Cesarean (C) section.[14]

C-section has become the most common surgery in recent years.[15] According to a report by the World Health Organization, the rate of C-sections has risen to a record level of 41.9% in Iran.[16] There is almost no complementary therapy in most C-section wards in Iran.

Anxiety disorders may develop before or at any time during the perinatal period and can coexist with other stressors.[4] As there is a high level of C-sections taking place in Iran, this study evaluated the effects of KC for mother—infant dyads, or playing music for the mother during KC, on maternal state anxiety (MSA) after a C-section. It was based on a hypothesis that playing music during KC may have a greater effect than KC alone on MSA.

Method

Design

In a single blind randomized controlled trial, study subjects were selected by convenience sampling and 90 pregnant Iranian women who were scheduled for repeat C-section under spinal anesthesia, were allocated into control and two intervention groups (30 were assigned to each group).

Setting and subjects

This study was carried out in the Akbar Abadi teaching center affiliated to Tehran University of Medical Sciences (TUMS). Subjects aged 20—40 years with singleton-term pregnancy, and at least one record of previous C-section delivery were selected. None of the women had; infection problems during pregnancy, pre-operative pain, use of sedatives or analgesic medicines, or a history of fetal death. Moreover, they had no history of; auditory deficits, somatic or psychiatric disorders, or use of illicit drugs. They were able to independently set the MP3 player and were in private rooms with their newborns. Criteria for exclusion from the study were; subject's unwillingness to continue participation in the trial, emergency surgeries, the use of drugs that can reduce stress levels and anxiety, a visual analog scale (VAS) score of $\geq$3 at the filling of the first and second questionnaire and severe crying or hospitalization of newborns in the neonatal intensive care unit (NICU). One case in the KC group (due to the mother's unwillingness to continue), and two cases in the KC and music during KC groups (one case in each group due to newborn hospitalization), were excluded from the study.

Procedure

The study protocol was approved by the TUMS ethics committee, and conducted during a one month period, from August through September 2009. The study participants were randomly allocated into three groups of thirty (two intervention groups, one control group). The purpose and procedure of the study was briefly explained to the mothers by the investigator. Parents were encouraged to ask any questions that they had in regard to the research. We used a formal written paper by means of a generic consent form which was suggested and finally approved by the TUMS ethics committee. Cards of three numbers indicating group assignment were randomly placed in opaque sealed envelopes. The drawings were prepared by a different person who was blind to the order of group assignment.

As part of the routine care, two hours post-operative, pain relief (pentazocine, 25 mg IM) was given to all women, then the women's pain scores were evaluated by VAS. If the VAS score was $\leq$3, the MSA was measured using the State-Trait Anxiety Inventory (STAI) scale (Spielberg, 1983). Interventions were 30 min KC for mother—infant dyads or playing music for the mother during KC. Six hours later, if the VAS score was $\leq$3, the MSA was re-measured using the Spielberg scale for all mothers. The MSA and pain score in pre- and post-intervention, were evaluated by a co-worker who was blinded to the group assignment.

MSA was measured using a STAI scale form Y-1, which is comprised of two parts, consisting of 20 statements each. The range of possible scores on each is from 20 to 80 points, and higher scores indicate greater anxiety. In the current study, the section of state anxiety was used which consists of 20 self-descriptive statements for the state anxiety scale. The state anxiety scale evaluates the woman's state of anxiety at the moment of the postpartum interview, measured on a four-point Likert-type scale; no = 1, a little = 2, a lot = 3, totally = 4. Total scoring for state anxiety varies from 20 to 80 and is categorized as; mild anxiety: 20—39, moderate: 40—59, and severe: 60—80.[17] The construct validity of the state-anxiety scale was examined by testing military recruits after a stressful training program.[18] In one study, the reliability of the STAI in the Persian language was supported by a Cronbach's alpha coefficient of 0.9.[19] In our pilot study (20 participants), an acceptable level of 0.91 was achieved for Cronbach's alpha coefficients.