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Original Article

Effect of Spiritual Care Based on "Ghalbe Salim" Model on Anxiety among Mothers with Premature Newborns Admitted to Neonatal Intensive Care Units

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ABSTRACT

Background: When a neonate is born prematurely and admitted to the Neonatal Intensive Care Unit (NICU), the mother usually experiences high levels of anxiety that can disrupt the maternal bond, as well as the natural course of neonatal development. Since spirituality is one of the significant factors affecting anxiety, the present study was designed to evaluate the effect of spiritual care based on the "Ghalbe Salim" model on anxiety in mothers with premature neonates.

Methods: In this clinical trial, a total of 60 mothers with premature neonates who were admitted to the NICUs of Hafez and Hazrat-e-Zainab hospitals affiliated to Shiraz University of Medical Sciences, Shiraz, Iran, were recruited through convenience sampling during January to November 2017. The study was conducted in two stages. In the first stage, one of the hospitals was randomly designated as the control group, and the other one was selected as the intervention group. In the second stage, the interventions commenced again after switching the sampling setting. Mothers in the intervention group received four 30-minute sessions of spiritual care based on the "Ghalbe Salim" model every other day, and their anxiety level was assessed before and after the intervention using State-Trait Anxiety Inventory (STAI-Y) by Spielberger. The data were analyzed using Chi-squared test, independent t-test, paired sample t-test, and Mann-Whitney U test.

Results: There were no significant differences between the intervention and control groups before the intervention in terms of mean state and trait anxiety scores (P>0.05). However, after the intervention, a significant difference was observed between the two groups in terms of both state and trait anxiety scores (P=0.001).

Conclusion: According to our findings, spiritual care based on the "GhalbeSalim" model was effective in reducing the anxiety level in mothers with premature neonates.

Keywords: Anxiety, Neonatal intensive care units, Premature infant, Spiritual therapies

Introduction

Preterm birth rate has increased by 36% currently in comparison to that in the last 25 years (1). Fifteen million premature neonates are annually born, which is more than 10% of all the neonates born worldwide (2). Iran is among the countries with a high prevalence of preterm birth (3), and according to the statistics by the World Health Organization (WHO), around 10-15% of all live births in Iran were preterm in 2010 (4).

Preterm birth requires sophisticated medical, social, and ethical attention with deep impact on the neonates, their families, healthcare system, and society (1). With the birth of a premature or sick neonate and his/her admission to the Neonatal Intensive Care Unit (NICU), parents often experience some degrees of hardship (5). If they do

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not successfully cope with the situation, it might cause personal and psychological instability in the family (1). In this regard, parents have used such terms as extreme stress, anxiety, and pressure to describe the hospitalization period (6, 7).

Among parents, usually the mother experiences a higher level of anxiety and tension than the father (8, 9). Anxiety affects mothers' ability to process information and attend their neonates; as a result, anxious mothers might be less sensitive and more intrusive when interacting with their newborns (10). Such anxiety and tension are often associated with a reduced amount of affectionate and responsible motherly behaviors, reduced touching and talking to the neonate, and poor parental behavior (11), as well as creating sleep disorders and nutritional problems in the newborn (12).

Anxiety is a multidimensional phenomenon affecting the physical, mental, emotional, and spiritual aspects of health (13). Numerous variables, including personality and environmental variables, can be influential in the amount of stress and the ways to deal with such situations. One of these variables would be individual's spiritual and religious perspective (14). Seaward (2000) stated that every adverse event in reality is a spiritual crisis, which creates a unique experience, aside from physical outcomes, and can significantly affect the psychological, social, and spiritual aspects of an individual (15).

Catlin et al. (2001) investigating the spiritual and religious aspects of patient care in NICUs, showed that little attention was given to spirituality and religion, while spirituality is an important source for parents with premature neonates (16). People with higher levels of spirituality have better welfare and self-esteem, are happier and more satisfied with life, adjust faster with grief, and have lower rates of depression, suicide, anxiety, and psychosis (17).

In Iran, 98% of the population are Muslim, 90% of whom are Shia. Religion and culture have merged in the Iranian lifestyle, and religious belief plays an important role in their lives, especially during crisis (18). A review of the literature on the different aspects of spiritual care, such as prayer, religious beliefs, *Quran* reciting, supportive religious measures, and use of religious reminders, shows that these measures have had positive effects on anxiety levels. However, each of these measures was only considered in one dimension in the previous studies, and factors, such as culture, mental capacity, talent, tendency, compatibility, individual ways for compatibility,

and role of families in respect to care provision were totally ignored (19). The aforementioned studies have clearly revealed the necessity for a suitable model of spiritual care provision.

The "Ghalbe Salim" model, extracted from Islamic texts, explains professional relationships based on Islamic culture, which is an effective model for the organization of spiritual care in nursing (19). This model considers humans as creatures with free will, who are affected by their environment and can react to changes and adversities in their environment. Furthermore, the model defines health as having an "unharmed heart (i.e., Ghalbe Salim)" that creates the feelings of safety, hope, love, joy, and cheerfulness in an individual.

In this regard, the assumption is that by living in the present time (i.e., having no fear from the future and no regrets for the past), a person can reach peace and satisfaction with one's destiny. In the "Ghalbe Salim" spiritual care model, patients and their families are the main focus of care. This model was designed based on the different stages of nursing process that tries to restore the quadruple spiritual relationships of humans (i.e., relationship with God, oneself, others, and environment and nature) (18). In this respect, a number of studies were conducted by Akbarpour Mazandarani et al. (2017) and Asadi et al. (2014), the results of which showed the effectiveness of spiritual care based on "Ghalbe Salim" model in improving spiritual health and reducing anxiety in patients (19, 20).

Studies have shown that spirituality and spiritual care play an important role in coping with diseases and reducing anxiety (21). Accordingly, people use spiritual strategies as mediators in stressful life situations. However, not much attention is given to spirituality and spiritual strategies in the NICUs (5). So far, few studies have addressed spiritual care and its impact on the anxiety level of mothers with premature neonates, and none of these studies have focused on a specific care model. Hence, the researcher decided to design the current study to investigate the effect of spiritual care based on the "Ghalbe Salim" model on anxiety level among mothers with premature neonates admitted to the NICUs affiliated to Shiraz University of Medical Sciences, Shiraz, Iran.

Methods

The present study was a clinical trial model aimed at assessing the effect of spiritual care based on the "Ghalbe Salim" model on anxiety

level among mothers with premature neonates from January to November 2017. Research settings were the NICUs of Hafez and Hazrat-e-Zainab hospitals. These hospitals are affiliated to Shiraz University of Medical Sciences and have activities in the field of obstetrics and gynecology. Hafez Hospital has two NICUs with 33 active beds, and Hazrat-e-Zainab Hospital has four NICUs with 54 active beds.

This study was approved by the local Ethics Committee of Shiraz University of Medical Sciences with the code No. IR.SUMS.REC.1396.7 and registered in the Iranian Registry of Clinical Trials under the code No. IRCT2017041333410N1. Considering the power of 80% and alpha level of 0.05, sample size was determined as 40 individuals based on a study performed by Reyhani et al. (17) using the following formula. In order to increase the accuracy, we determined the sample size as 60 individuals, 1.5 times larger than the initial estimation.

$$n = \frac{\left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2 \left(\sigma_1^2 + \sigma_2^2\right)}{d^2}$$

To eliminate any conflicting factors in this study, such as information exchange between the intervention and control groups, sampling was performed in two separate stages. In the first stage, Hazrat-e-Zainab Hospital was randomly selected as the intervention group via drawing lots, and Hafez Hospital was assigned as the control group. In the second stage, the intervention and control groups were switched. Following stage one, we waited until the subjects were discharged from the hospitals, and then commenced the second stage. The patients who met the inclusion criteria were recruited for the study through convenience sampling method.

The inclusion criteria for the neonates were: 1) chronological age of 3-5 days, 2) gestational age of 28-36 weeks, 3) a singleton birth, and 4) lack of any congenital anomalies. For the mothers, the inclusion criteria consisted of: 1) being a Shia Muslim, 2) a minimum of elementary education, 3) ability to speak Farsi, 4) lack of a known mental illness, 5) nonuse of antidepressant, narcotic, or psychedelic drugs according to their self-report, 6) lack of any history of preterm birth in previous pregnancies, and 7) lack of exposure to stressful events within the past 6 months.

The exclusion criteria were: 1) death of the neonate, 2) physical manifestation of any types of diseases in the neonates during the course of the

study, 3) neonatal need for a ventilator during the study, and 4) lack of willingness to continue cooperation on behalf of the mother. During the course of our study, six subjects were excluded from the intervention group, and 4 subjects were removed from the control group; therefore, the final sample size included 50 individuals.

Data collection tools consisted of a demographic form and a self-report Spielberger's State-Trait Anxiety Inventory. Demographic information included age, occupation and education level of the mother, age of the father, average monthly income, gender, gestational age, and birth weight of the neonate. To assess the anxiety levels of the participants, we used a revised version of Spielberger's State-Trait Anxiety Inventory (STAI-Y). The initial form of the State-Trait Anxiety Inventory (STAI-X) was presented by Spielberger et al. in 1970, and the inventory was revised in 1983.

These scales include 20 items each, which are rated on a 4-point Likert scale. Total score for each scale varies from 20 to 80. Higher scores indicate higher levels of anxiety. The STAI-Y is a reliable tool with an acceptable validity that can be used in various populations (22). Spielberger et al. (1983) reported the Cronbach's alpha coefficients of 0.90 and 0.92 for the state and trait anxiety scales, respectively. Moreover, the test-retest coefficients were 0.61 and 0.86 for the two scales, respectively, and 0.94 for the whole inventory.

In Iran, this inventory was evaluated in terms of psychometric properties by Panahi-Shahri (1993) among Iranian high school and university students. They reported the validity coefficients of 0.89 and 0.87 among male students for state and trait anxiety scales, respectively (23). In a study by Mahram (1994), Cronbach's alpha coefficient was used to assess the reliability of the state and trait anxiety scales. In this regard, Cronbach's alpha coefficients of 0.91 and 0.90 for state and trait anxiety scales were achieved, respectively (22).

Study procedure was as follows: after introducing the study objectives and obtaining written informed consent from the parents of the premature neonates admitted to the NICU (on the 3rd-5th day of birth), Spielberger's anxiety inventory was completed by the mothers in both groups. Then, the mothers in the intervention group received spiritual care training in four 30-minute sessions held every other day in the mornings or evenings according to the mother's preference.

Spiritual care training was provided face to

face by the researcher based on the "Ghalbe Salim" nursing care model, using an educational booklet published by the designer of the model (24). In the intervention group, the training sessions included friendly and respectful communication with the mother, evaluation of spiritual, emotional, mental, and physical needs, methods to develop the quadruple spiritual relationships (i.e., with God, oneself, people, and nature), discussing mother's emotions, attitude, and reactions toward the birth of a premature neonate and NICU admission, and eventually recommendations for engagement in prayer, invocation, forgiveness, kindness toward others, and specific recitations in times of anxiety, use of pleasant aromas, cheerful colors, and use of recommended *Hadiths* in the educational booklet to restore the quadruple relationships in order to reach the feelings of security, peace, happiness, satisfaction, and freedom from fear and anxiety.

Following each session, the mother would enter the ward, where she would provide Kangaroo care to her neonate for 30 min based on the common method of Kangaroo care as taught by the unit personnel. After the last session, all mothers completed the Spielberger's anxiety inventory once more. In the control group, the mothers only provided 30 min of Kangaroo care for their newborns in four sessions every other day without receiving any spiritual care.

Sessions were held either in the mornings or in the evenings according to the mother's preference, and the procedure was based on the common method taught by the unit personnel. Following the intervention, Spielberger's anxiety inventory was completed again by the mothers in this group.

Statistical analysis

After entering the data into SPSS software

(version 21.0), the analysis was performed using descriptive (e.g., mean, frequency, and percentage) and analytical (e.g., independent samples t-test, Mann-Whitney U test, and paired sample t-test) methods. In all tests, the significance level was set at ≤ 0.05.

Results

According to our demographic survey, 54% (n=27) of the neonates were male, and the rest were female. Furthermore, 94% (n=47) of the mothers were housewives, and 54% of them (n=27) had a monthly income of 10 million Iranian Rials or less. There were no statistically significant differences between the two groups in terms of qualitative (i.e., occupation, mother's education level, average monthly income, and neonate's gender) or quantitative (i.e., father and mother's age, gestational age, and birth weight) demographic variables (P>0.05). In this respect, the two groups were homogenous. Table 1 shows the results of our demographic survey in each research group.

As shown in Table 2, no statistically significant differences were observed between the two groups in terms of the frequency distribution regarding the different levels of state (P=0.911) and trait (P=0.896) anxiety prior to the intervention. However, following the intervention, significant differences were observed between the two groups in terms of frequency distribution of the different levels of state (P=0.004) and trait (P=0.027) anxiety. After the intervention, the highest frequency in the intervention group was related to minimum and mild state anxiety (37.5%) and mild trait anxiety (45.8%), and the lowest frequency pertained to severe state and trait anxiety (4.2%). Meanwhile, in the control

Table 1. Comparison of demographic characteristics between the intervention and control groups

Characteristics		Group		P-value
		Intervention (n=24)	Control (n=26)	
Mother's job [n (%)]	Housewife	21 (87.5)	26 (100)	0.103[1]
	Others	3 (12.5)	0 (0)	
Mother's educational level [n (%)]	Lower than diploma	8 (33.3)	8 (30.8)	0.987[1]
	Diploma	6 (25)	7 (26.9)	
	Higher than diploma	10 (41.7)	11 (42.3)	
Income (Rial) [n (%)]	≤1 million	13 (54.2)	14 (53.8)	0.982[1]
	>1 million	11 (45.8)	12 (46.2)	
Gender of neonate [n (%)]	Female	11 (45.8)	12 (46.2)	0.982[1]
	Male	13 (54.2)	14 (53.8)	
Mother's age (year) (mean±SD[3])		29.54±5.54	31.58±5.84	0.298[2]
Father's age (year) (mean±SD)		35.4±6.98	34.58±6.30	0.876[2]
Gestational age (week) (mean±SD)		32.17±1.97	31.85±2.148	0.650[2]
Birth weight (g) (mean±SD)		1755±529.150	1615±557.984	0.437[2]

[1] Chi-square test; [2] Mann-Whitney U test; [3] Standard Deviation

Table 2. Comparison of anxiety level distribution in the two groups

Anxiety		Group			
		Before intervention		After intervention	
		Intervention [n (%)]	Control [n (%)]	Intervention [n (%)]	Control [n (%)]
State anxiety	Minimum	1 (4.2)	2 (7.7)	9 (37.5)	2 (7.7)
	Mild	7 (29.2)	7 (26.9)	9 (37.5)	8 (30.8)
	Moderate	7 (29.2)	6 (23.1)	5 (20.8)	6 (23.1)
	Severe	9 (37.5)	11 (42.3)	1 (4.2)	10 (38.5)
P-value[1]		0.911		0.004	
Trait anxiety	Minimum	2 (8.3)	5 (10)	9 (37.5)	3 (11.5)
	Mild	11 (45.8)	11 (42.3)	11 (45.8)	9 (34.6)
	Moderate	7 (29.2)	6 (23.1)	3 (12.5)	10 (38.5)
	Severe	4 (16.7)	6 (23.1)	1 (4.2)	4 (15.4)
P-value[1]		0.896		0.027	

[1] Chi-square test

Table 3. Comparison of anxiety mean scores in the two groups

Anxiety		Group		P-value
		Intervention	Control	
		Mean±SD[4]	Mean±SD	
State anxiety	Before intervention	49.08±13.14	50.58±12.86	0.687[1]
	After intervention	36.46±9.45	49.15±14.13	0.001[2]
P-value[3]		<0.001	0.346	
Trait anxiety	Before intervention	45.88±11.99	47.15±11.40	0.701[1]
	After intervention	38.13±7.91	47.15±9.65	0.001[1]
P-value[3]		<0.001	1.00	

[1] Independent t-test; [2] Mann-Whitney test; [3] Paired sample t-test; [4] Standard deviation

group, the highest frequency belonged to severe state anxiety (38.5%) and moderate trait anxiety (38.5%).

The two groups did not have any statistically significant differences in terms of the mean state anxiety score (P=0.687) and mean trait anxiety score (P=0.701) prior to the intervention. However, after the intervention, the mean scores for state anxiety (P=0.001) and trait anxiety (P=0.001) showed a statistically significant difference between the two groups. Furthermore, according to results of paired sample t-test, a significant reduction was witnessed in the mean state and trait anxiety scores after the intervention in comparison to those obtained at the baseline (P<0.001; Table 3).

Discussion

The present study was conducted to determine the effect of spiritual care based on the "Ghalbe Salim" model on anxiety levels among mothers with premature neonates admitted to the NICU. Our results showed that before the intervention, 66% of the mothers experienced moderate to severe state of anxiety, and 46% of them underwent moderate to severe trait anxiety. This can be due to the fact that birth is a potentially stressful event in the life of a family, and the mother in particular (25).

Mothers with premature neonates experience higher levels of mental distress, compared to those with term babies (26) as they are often not prepared to encounter such an event (27). Furthermore, their neonatal hospitalization brings about emotional problems, such as anxiety and concern (28). Therefore, we can conclude that preterm birth and the consequent admission to the NICU cause various levels of anxiety in mothers, which indicates the importance of finding a suitable solution for reducing this anxiety.

Our results are consistent with those obtained by Sharifnia et al. (2016) and Carvalho et al. (2009). In the research performed by Sharifnia et al. (2016), 75.5% of the mothers had experienced different levels of anxiety when encountering with the NICU atmosphere (29). Carvalho et al. (2009) revealed that the hospitalization of newborns in the NICU can result in the occurrence of emotional reactions in 30-39% of mothers (27).

According to our results, the two groups were not statistically different at the baseline in terms of mean state or trait anxiety scores and were considered homogenous in this respect. However, following the provision of spiritual care based on the "Ghalbe Salim" model, statistically significant differences were observed between the groups regarding both mean state

and trait anxiety scores. In this regard, the mean scores were significantly reduced in the intervention group.

The findings of the current study are also consistent with those of a number of studies that were similar in some respects to our research. For instance, Sharifnia et al. investigated the effect of prayer on stress and anxiety among mothers with premature neonates admitted to the NICU in 2016. Their results showed that mothers who were instructed to pray for a week had less state anxiety following the intervention (29). In another study by Asadi et al. (2014), the preoperative anxiety of patients undergoing coronary artery bypass graft surgery was significantly reduced after receiving spiritual care based on the "Ghalbe Salim" model (19).

Boelens et al. conducted a study in 2012 with the aim of assessing the effect of prayer on depression and anxiety. Their findings revealed that 1 month and 1 year after the intervention, participants had experienced less anxiety and depression, were more optimistic, and enjoyed higher levels of spiritual awakening (30). Moreover, in a study conducted in 2017 by Alemdar et al. on the effect of spiritual care on mothers' stress levels in the NICU, it was indicated that spiritual care reduced the level of stress (31).

In a study performed by Allameh et al. in 2013, anxiety and pain levels were reduced in mothers who had undergone Cesarean section under local anesthesia after hearing the recitations of *Holy Quran* (32). On the contrary, Bolhari et al. in 2012 suggested that spiritual group therapy had no effect on stress and anxiety among participants (33). This finding was not consistent with our results, which could be due to the differences in the type of intervention and the target group.

By targeting people's beliefs, spirituality can help to evaluate negative events in a better way and gain a stronger sense of control over existing conditions. Unquestionably, a feeling of control would then strengthen people in dealing with their situation, and subsequently improve their mental health (17). Religion and religious beliefs are significant factors that can affect stress and anxiety. Effects of religion on the knowledge, attitudes, and behaviors of people are well recognized.

In this regard, religion can act as a mediator and affect an individual's thought processes and evaluations related to daily events (19). Considering this, we might be able to conclude that by affecting people's attitudes, spiritual care

based on the "Ghalbe Salim" model can help mothers with premature neonates to deal with the situation better. Thus, it can play a significant role in reducing their anxiety.

Regarding the research limitations, we can note that due to the self-reporting nature of our data collection tool, there is the possibility that the participants have not answered every question truthfully. Furthermore, many mothers could not stay in the ward all the time as there was not enough room in the NICUs. Since many of them lived far away, sessions were not held at a specific time for all the participants and arrangements had to be made between the researcher and the mothers for holding training sessions at their convenience in various hours (i.e., either in the mornings or evenings).

We recommend further research to be conducted in the future with the objective to document the effectiveness of spiritual care based on the "Ghalbe Salim" model in reducing anxiety in the mothers and fathers of all neonates, especially the ill newborns admitted to the NICU.

Conclusion

The results of our study indicate that spiritual care based on the "GhalbeSalim" model had a positive effect on anxiety levels among the mothers under study. Therefore, we recommend the use of this method in respective situations. Implementation of spiritual care by NICU nurses can be a simple, practical, and cost-efficient method to improve the mental health of mothers by minimizing the adverse effects of anxiety in both mothers and their newborns.

Acknowledgments

Conflicts of interests

None declared.

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