

# The effect of maternal narrative writing on the tolerance of mothers of premature infants admitted to neonatal intensive care unit (NICU)

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## ABSTRACT

Premature birth and admission to the Intensive Care Unit is a stressful event for mothers of infants admitted to the Neonatal Intensive Care Unit (NICU). This stress and anxiety reduces mother's attachment and disrupts their maternal role. Therefore, the aim of this study was to evaluate the effect of maternal narrative writing on the tolerance of mothers of premature infants admitted to the Neonatal Intensive Care Unit. **Materials and Methods:** This classic experimental study was conducted on 60 mothers of premature infants admitted to the Neonatal Intensive Care Unit (NICU). The samples were selected by simple random method and divided in two groups of intervention and control. The data collection tool included a demographic questionnaire and the standard distress tolerance questionnaire introduced by Simmons in 1398. Data were collected before and after the intervention in both the intervention and control groups. In the intervention group, based on the training given, the mothers recorded their daily events 3 times a day for 10-20 minutes. Data analysis was performed by SPSS-21 statistical software using descriptive (table, mean and standard deviation) and inferential statistics (paired t-test, independent t-test, ANCOVA test). **Results:** The mean score of distress tolerance in the intervention group before the intervention was  $52.51 \pm 4.21$  and in the control group was  $51 \pm 3.57$ , but after the intervention, it was  $56.86 \pm 2.92$  in the intervention group and  $53.81 \pm 4.15$  in the control group. Covariance test showed a significant difference in the mean score of distress tolerance between the intervention and control groups ( $P = 0.005$  and  $\text{Eta} = 0.13$ ), so that 7% of the increase in the distress tolerance was related to the mothers' narrative writing. **Conclusion:** The results of this study showed that narrative writing, as an effective intervention, has an important role in increasing the distress tolerance of mothers of neonates admitted to NICU. Therefore, this treatment method can be used as an effective and low-cost intervention in the NICUs.

**Keywords:** Narrative writing, Distress tolerance, Mothers, Infants, Neonatal Intensive Care Unit.

## Introduction

More than 15 million premature infants are born each year <sup>[1]</sup>. Last year, 3 million deaths were observed among these infants <sup>[2]</sup>. According to the World Health Organization, 31% of infant mortality in Iran is due to premature birth <sup>[3]</sup>. Today, premature birth is one of the most important causes of infant mortality <sup>[4]</sup>. The survival of premature infants depends on their

hospitalization in the NICU <sup>[5]</sup>. However, hospitalization of the infant in the NICU is a bitter and stressful experience for the parents, especially the mothers <sup>[6,7]</sup>. The distress caused by infant admission to NICU in the first 3 to 10 days after delivery causes depression, insomnia, low mood, tendency to isolate and cry, irritability and emotional instability in the mother <sup>[3]</sup>. Because most mothers get more stressed and restless after seeing their baby's face or condition <sup>[8]</sup>. In the meantime, ignoring mothers' stress aggravates their problems <sup>[1]</sup>. Continuation of these distresses stabilizes the unfavorable psychological conditions of the mother, reduces their quality of life and causes various psychological problems for them <sup>[7]</sup>. Meanwhile, narrative writing is one of the effective treatment methods that can reduce the stress of mothers of premature infants admitted to the NICU <sup>[9]</sup>, because narration and expression of memories reduce anxiety and increase emotional health in mothers <sup>[10]</sup>.

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Nowadays, narrative writing is one of the effective and non-pharmacological methods in reducing the stress and anxiety of mothers of premature infants admitted to the neonatal intensive care unit<sup>[11]</sup>. Studies show that narrative writing in mothers of infants admitted to NICU reduces anxiety, stress and increases parental satisfaction<sup>[8, 12]</sup>.

Evidence shows that writing positive memories by mothers improves their mental and physical health and reduces their stress<sup>[13]</sup>. Because writing daily memories and stresses by patients or their companions in the form of stories and anecdotes, in addition to emotional discharge, enables them to express their needs<sup>[14]</sup>. Narrative writing is a kind of sharing experiences with ourselves and others, which causes empathy and creates a close relationship between medical staff, especially doctors and nurses, and patients and their caregivers<sup>[15]</sup>. Narrative writing is based on mindfulness, and in this method, by writing about pains, sufferings and disabilities, in addition to emotional discharge and creating a good feeling, people can express their needs<sup>[16]</sup>. Therefore, it can be said that life event reminder is a useful therapeutic tool for patients or their caregivers, as it can help them find appropriate adaptation methods by sharing life experiences, pain and suffering and also re-experiencing stressful events<sup>[17]</sup>. Narrative writing is a type of confrontation by which, patients or their caregivers can reflect on their traumatic memories and by writing them down, in addition to discharging negative emotions, they can rethink how to deal with traumatic situations<sup>[18]</sup>.

Therefore, narrative writing can be considered as an effective and low-cost treatment method in patient care<sup>[19]</sup>. Accordingly, the researchers decided to use this non-pharmacological and counseling method to reduce the distress of mothers of infants admitted to the NICU.

## Method

This classic experimental study with two intervention and control groups was conducted in 2020 on 60 mothers of premature infants admitted to NICU. The environment of this study was Hakim Jorjani and Shahid Sayad Shirazi hospitals in the city of Gorgan, which is located in Golestan province of Iran. Inclusion criteria included having the ability to read and write, being admitted to NICU for at least 4 days, being 18-40 years old mothers, having no history of hospitalization in the Intensive Care Unit for other children, having no any other sick child at home, having no genetic defects (for the newborn), and having no history of substance abuse (for the mother). The exclusion criteria include the mother's unwillingness to continue with the study and discharge of the newborn within 12 days. The sample size of this study was calculated to be 60 individuals (30 in each group) based on G \* Power statistical software and the article of Farahani et al. (2017) with the effect size of 1 and test power of 95%<sup>[20]</sup>. Sampling in this study was done by simple random method, so that in each period after identifying the samples that

had the inclusion criteria, the researcher wrote down their names, and then divided them in two groups of intervention and control using lottery method. Data collection tools in this study were demographic questionnaire (age, education, occupation, history of hospitalization, mothers' economic status) and standard questionnaire for distress tolerance of mothers of premature infants admitted to NICU designed by Simons and Gaher in 1998. This 15-item questionnaire is based on the Likert's scale, ranging from 1 to 5 (1: strongly agree, 2: slightly agree, 3: neither agree nor disagree, 4: slightly disagree, 5: strongly disagree). The score in this questionnaire ranges from 15 to 75, so that high score indicates more distress<sup>[21, 22]</sup>. The reliability of this tool was confirmed in the study of Simons et al., with a Cronbach's alpha coefficient of 0.82<sup>[23]</sup>. In Iran, the reliability of this questionnaire was confirmed with the Cronbach's alpha coefficient of 0.83 and correlation coefficient of 0.71 in the study of Reyhani et al. (2014),<sup>[24]</sup>. The validity of this questionnaire in this study was confirmed by ten faculty members of the universities of medical sciences in previous studies and also ten faculty members of Islamic Azad University and Golestan University of Medical Sciences. Also, its reliability was confirmed by retest method with the correlation coefficient of 0.91.

In this study, after selecting the study samples, the researcher first explained the objectives of the study to samples in both intervention and control groups. Also, while obtaining informed consent in writing from the samples and reassuring them about the confidentiality of their information and their safety, they were explained that they can withdraw from the study at any time during the study. The routine neonatal Intensive Care Unit care was provided for mothers and infants in the control group, while the mothers in the intervention group were taught how to write their memoirs and daily events for at least three times a day in a personal booklet. The data were collected from the mothers of hospitalized infants before the intervention (on the fourth day of hospitalization) and also on the day of infant's discharge from the Intensive Care Unit by self-reporting method. Then, the data were analyzed by SPSS-21 statistical software using descriptive (mean, standard deviation and table) and inferential statistics (paired t-test, independent t-test and ANCOVA test) at a significant level of 0.05.

## Results

The mean age of the participants in the intervention group was  $24 + 4.58$  years and in the control group was  $24.26 + 5.17$  years. The independent t-test did not show a significant difference between the two groups ( $P = 0.84$ ) in terms of the mean age. The mean length of hospital stay in the intervention group was  $8.69 + 3.23$  days and in the control group was  $8.1 + 2.11$  days. The independent t-test did not show a significant difference between the two groups in this regard. Also, Fisher test did not show a significant difference between the two groups

in terms of maternal education ( $P = 0.57$ ) and occupation ( $P = 0.12$ ).

The results of this study showed that, the mean score of distress tolerance in the intervention group before the intervention was  $52.52 \pm 4.29$  and in the control group was  $51.5 \pm 3.76$ . Independent t-test did not show a statistically significant difference between the two groups ( $P = 0.18$ ) in that regard. In addition, the score of distress tolerance of mothers after the intervention in the intervention group was  $56.86 + 2.92$  and in the control group was  $53.81 + 4.15$ , which was not statistically significant ( $P = 0.002$ ). Paired t-test in the control group before

and after the intervention showed a significant difference in the score of distress tolerance of mothers ( $P < 0.01$ , Mean = 2.8). Moreover, in the intervention group, a significant difference was observed between the score of distress tolerance of mothers before and after the intervention ( $P < 0.01$ , Mean = 4.11).

Covariance test indicated a significant difference between the intervention and control groups by removing the effect of pre-test ( $P = 0.005$ , and  $\text{Eta} = 0.13$ ), so that 13% of the increase in the distress tolerance was related to the mothers' narrative writing (Table 1).

**Table 1: The Effect of Maternal Narrative Writing on the Distress of Mothers of Premature Infants Admitted to Neonatal Intensive Care Unit**

	Total Squares	Degree of Freedom	Mean Squares	F Value	Significance Level	Eta
Modified Model	190.69	2	95.34	7.77	$P < 0.01$	0.21
Post-test Separator	784.87	1	784.78	64.08	$P < 0.01$	0.52
Group	196.4	1	106.4	8.6	$P = 0.005$	0.13
Error	698.4	57	12.26			
Sum	184707	60				
Total	6500889	59				

## Discussion

The results of this study showed that distress tolerance increased in both intervention and control groups after the intervention. This could be due to parental adjustment and supportive care provided by the family and hospital. However, comparing the intervention and control groups showed that, the difference in distress tolerance score was higher in the intervention group than the control group. Similar studies, like the study of Akbari et al. (2019) indicated that narrative writing reduces parental stress. Kadivar (2017) in two studies showed that narrative writing reduces stress and increases satisfaction in mothers of hospitalized infants [8]. Bashirpour et al. (2019) concluded that narrative writing reduces stress and aggression in women [18]. Rodríguez (2014) stated that narrative writing reduces depression and increases quality of life and treatment adherence in patients [25]. Danoff et al. (2010) also believed that narrative writing reduces anxiety and increases adaptation to new situation in patients [26]. Ayers (2018) in a study confirmed that narrative writing enhanced mental health and adjustment to new situation [13]. Mirmolaei (2020) stated that narrative writing reduces depression, anxiety and stress in pregnant women [27]. The results of these studies and other studies show that narrative writing has an effective role in reducing anxiety, stress and also strengthening decision-making ability in patients and their companions [28, 29]. In fact, narrative writing is a kind of mental expression, which in addition to reducing stress, increases creativity and critical thinking [30, 31]. Narrative therapy helps people to express their problems and find solutions for them [32], because narrative writing is based on mindfulness. People are less likely to experience pain, fear, disability, and confusion when they are aware of their needs and emotions [16]. Narrative

writing is considered as a short-term psychological intervention through which, people can share their needs and express their negative and stressful experiences with the medical staff, and by doing so discharge their negative emotions, which reduces their stress and anxiety. Physicians and nurses can play an effective role in reducing maternal stress by creating empathy and appropriate interaction with patients [18, 33].

Narrative writing is one of the effective methods of self-control that people can use in different situations [33]. Narrative writing can also improve the quality of nurse-patient relationships [34]. Therefore, according to the results of this study and other similar studies, it can be said that narrative writing, as an effective intervention, has an important role in reducing the stress of mothers of infants admitted to the Intensive Care Unit [18]. One of the limitations of this study was the reluctance of mothers to participate in this study. The researcher in all stages of the research tried to gain the trust of mothers by explaining the study objectives and its educational benefits to convince them continue with the study.

## Conclusion

The results of this study showed that narrative writing increases the distress tolerance in mothers of premature infants admitted to NICU. Therefore, this lowest cost therapeutic counseling method, which is effective in the short term, can be used to reduce stress and anxiety of mothers of premature infants, because narrative writing is based on mindfulness and self-awareness. The patients or their companions, while writing down their negative emotions and feelings, can reflect their coping behaviors and use more problem-solving methods to reduce their stress and anxiety.

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