



The effects of written emotional disclosure on anxiety and perceived stress among the family members of patients in intensive care unit: A randomized clinical trial

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Abstract

Background and aims: The family members of patients in intensive care unit (ICU) experience high levels of anxiety and stress. This study sought to assess the effects of written emotional disclosure (WED) on anxiety and perceived stress among the family members of patients in ICU.

Methods: This clinical trial was conducted in 2019 on seventy family members of patients hospitalized in the ICUs of Kashani hospital, Shahrekord, Iran. Family members were conveniently recruited and randomly assigned to a 35-person control and a 35-person intervention group. Participants in the intervention group were trained to write for twenty minutes every other day for two consecutive weeks about their negative emotional feelings, negative thoughts, concerns, and fears associated with their patient hospitalization in ICU. The Spielberger State-Trait Anxiety Inventory and the Cohen Perceived Stress Scale were used for anxiety and stress assessment before, two weeks after, and one month after the study intervention. The data were analyzed using the SPSS software (v. 18.0) at a significance level of less than 0.05.

Results: The mean of participants' age was 38.91 ± 9.01 years in the control group and 33.83 ± 10.22 years in the intervention group. Around 37.1% of participants in the control group and 54.3% of participants in the intervention group were male. There were no significant differences between the groups respecting participants' age and gender ($P > 0.05$). One month after the intervention, the mean scores of state and trait anxiety were respectively 57.83 ± 11.58 and 51.11 ± 10.49 in the control group and 46.94 ± 11.07 and 43.71 ± 8.76 in the intervention group. Between-group differences were significant ($P < 0.05$). The mean score of perceived stress at one month after the intervention was 29.00 ± 7.21 in the control group and 26.51 ± 6.15 in the intervention group and the between-group difference was not significant ($P > 0.05$).

Conclusion: WED is effective in significantly reducing anxiety and slightly reducing perceived stress among the family members of patients in ICU. Therefore, WED can be used as a simple, cost-free, and complication-free strategy to reduce anxiety and stress among the family members of patients in hospital settings, particularly in ICU.

Keywords: Written emotional disclosure, Anxiety, Stress, Intensive care unit, Family members

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Introduction

Intensive care unit (ICU) is a hospital unit for providing advanced care to critically-ill patients with life-threatening conditions (1-3). Hospitalization in ICU affects not only patients, but also their family members. Moreover, hospitalization in ICU imposes serious limitations on family members' caregiving activities and causes them severe suffering, different psychological problems (3,4), and different psychological and emotional reactions (1,3). It also undermines family integrity (4,5) and causes emotional crises and psychological injuries for family members, particularly those who are unable to effectively cope with their conditions (4,5). Fear over patient death, uncertainties over prognosis and treatment effectiveness,

emotional conflicts, financial concerns, changes in roles, and alterations of daily life can cause reactions such as shock, anger, despair, anxiety, depression (4,6), emotional disorganization, and doubt among family members and negatively affect their social communications and decision making (7).

Stress and anxiety are among the most important psychological problems among the family members of patients in ICU. Stress is a reaction to stressful environments (8,9). The different aspects of physical and mental stress can negatively affect the health of patients and their family members in ICU (10), particularly when prognosis and response to treatments are poor (11). Family members with limited psycho-emotional support

and emotion-focused coping strategies such as avoidance experience high levels of stress and psychological strain (12). Anxiety is also a common psychological problem among the family members of patients in ICU. Studies reported that 35%–73% of the family members of patients in ICU are susceptible to anxiety, depression, and panic and take antidepressant and anxiolytic drugs even after their patients' hospital discharge or death (13-16). The high prevalence of psychological problems among the family members of patients in ICU highlights the importance of taking serious measures for managing their problems. Nonetheless, studies showed that although care provision to the family members of critically ill patients is among the responsibilities of nurses (17,18), ICU staff mainly focus on care provision to patients and often neglect patients' family members (10).

There are different pharmacological therapies for stress and anxiety. Pharmacological therapies are usually associated with different side effects which impose heavy costs on healthcare systems. Therefore, non-pharmacological therapies, such as complementary and alternative therapies, are more preferred for stress and anxiety management (19,20). Emotional disclosure, i.e., the expression of emotions, is a non-pharmacological nursing intervention which is frequently used as an alternative to medication therapy (21). The written emotional disclosure (WED) of the past emotional experiences or problems is considered as a strategy with potential positive effects on physical and mental health and coping with daily life stressors (2,22). Some studies reported the effectiveness of WED in significantly promoting mental health, increasing cognitive capacities, and improving the sense of well-being (23,24).

WED reduces concerns and worries through helping individuals more efficiently process information, better understand life events, and modify their schemas (25,26). Nonetheless, to the best of our knowledge, there is limited information about WED effectiveness in reducing problems among the family members of patients in ICU, particularly in Iran. Therefore, the present study sought to assess the effects of WED on perceived anxiety and stress among the family members of patients in ICU.

Methods

Design and participants

This clinical trial was conducted in the ICUs of Kashani hospital, Shahrekord, Iran. Study population consisted of the family members of patients in ICU. Inclusion criteria were first-degree kinship with a patient in ICU, an age of at least eighteen years, basic literacy skills, no known cognitive or mental disorder, no drug abuse, no alcohol consumption, no use of tranquilizers, and patient's ICU stay of at least 24 hours. Sampling was performed conveniently. Using the coin tossing method, all family members of patients selected from one ICU in the study setting were randomly allocated to the intervention group and all family members of patients selected from the other

ICU were randomly allocated to the control group.

Sample size was calculated using the findings of previous studies (27,28) and with a power of 0.80, a confidence level of 0.95, and a d of 0.47. Accordingly, the output of the sample size calculation formula ($n = ((Z_{1-\alpha/2} + Z_{1-\beta}) / d)^2$) revealed that 35 participants per group were needed for the study.

Instruments and data collection

Data were collected using a demographic questionnaire, the Spielberger State-Trait Anxiety Inventory, and the Cohen Perceived Stress Scale. The items of the demographic questionnaire were on age, gender, marital status, place of residence, employment status, kinship with patient, patient's age, length of patient's ICU stay, and length of patient's hospital stay. The Spielberger State-Trait Anxiety Inventory has 20 items on state anxiety and twenty items on trait anxiety which are scored on a four-point scale. The possible total score of the state and the trait anxiety subscales of the inventory is 20–80 (29,30). A study reported a Cronbach's alpha of 0.94 for the inventory (31). The Cohen Perceived Stress Scale has fourteen items scored on a five-point 0–4 scale with a possible total score of 0–56. Higher scores show higher levels of stress (32). A previous study revealed that the Cronbach's alpha of the scale was 0.85 (33). Anxiety and stress were assessed before, two weeks after, and one month after the study intervention.

Intervention

Participants in the intervention group were asked to write for twenty minutes every other day for two consecutive weeks about their negative emotional feelings, negative thoughts, concerns, and fears associated with their patient ICU hospitalization. They were informed that WED may be initially associated with some negative emotions which would decrease during the intervention. Hence, they were asked not to give up WED if they experienced negative emotions in its first sessions. They were also asked to continue writing throughout the twenty-minute WED sessions. Their writings were checked for the accuracy of WED and were eliminated after the study to ensure confidentiality. Participants in the control group did not perform WED.

Data analysis

The SPSS software (v. 18.0) was used for data analysis. The data were summarized using the measures of descriptive statistics, namely absolute frequency, relative frequency, mean, and standard deviation. Data analysis was also performed using the chi-square test, the Fisher's exact test, the repeated measures analysis of variance, and the Tukey's post hoc test. The level of significance was set at less than 0.05.

Results

In total, seventy family members were recruited to the

study. All participants completed the study with no attrition (Figure 1). The means of participants' age, their patients' age, and the length of their patients' hospital stay were respectively 38.91 ± 9.01 years, 45.91 ± 25.54 years, and 3.91 ± 1.46 days in the control group and 33.83 ± 10.22 years, 36.03 ± 15.43 years, and 5.26 ± 2.31 days in the intervention group. Most participants in the control and the intervention groups lived in urban areas (74.3% vs. 54.3%) and lived with their patients (82.9% vs. 88.6%). There were no significant differences between the groups respecting participants' gender, employment status, place of residence, living with patient status, and their patients' age ($P > 0.05$). However, the between-group differences respecting participants' age, kinship with patient, and length of their patients' hospital stay were significant ($P < 0.05$; Table 1). Of course, all participants aged 23–44 years and were adult.

The results of the repeated measures analysis of variance for the effects of group showed that the mean scores of state and trait anxiety in the intervention group were significantly less than the control group ($P < 0.05$), while there was no significant difference between the groups respecting the mean score of perceived stress ($P > 0.05$).

Moreover, the results of the repeated measures analysis of variance for the effects of time showed that the mean scores of state and trait anxiety significantly decreased across the three measurement time points ($P < 0.0$), while the mean score of perceived stress did not significantly change ($P > 0.05$). The results of the repeated measures analysis of variance for the interaction of time and group also showed that the mean scores of state and trait anxiety in the intervention group were significantly less than the control group at both posttests ($P < 0.05$) but the groups did not significantly differ from each other respecting the mean score of perceived stress at posttests ($P > 0.05$; Table 2 and Figure 2). As Figure 2 shows, the trends of the variations of the mean scores of state and trait anxiety and perceived stress were downward.

Discussion

This study assessed the effects of WED on perceived anxiety and stress among the family members of patients in ICU. Findings showed that after the intervention, the mean scores of state and trait anxiety in the intervention group were significantly less than the control group, denoting the significant positive effects of WED on state and trait

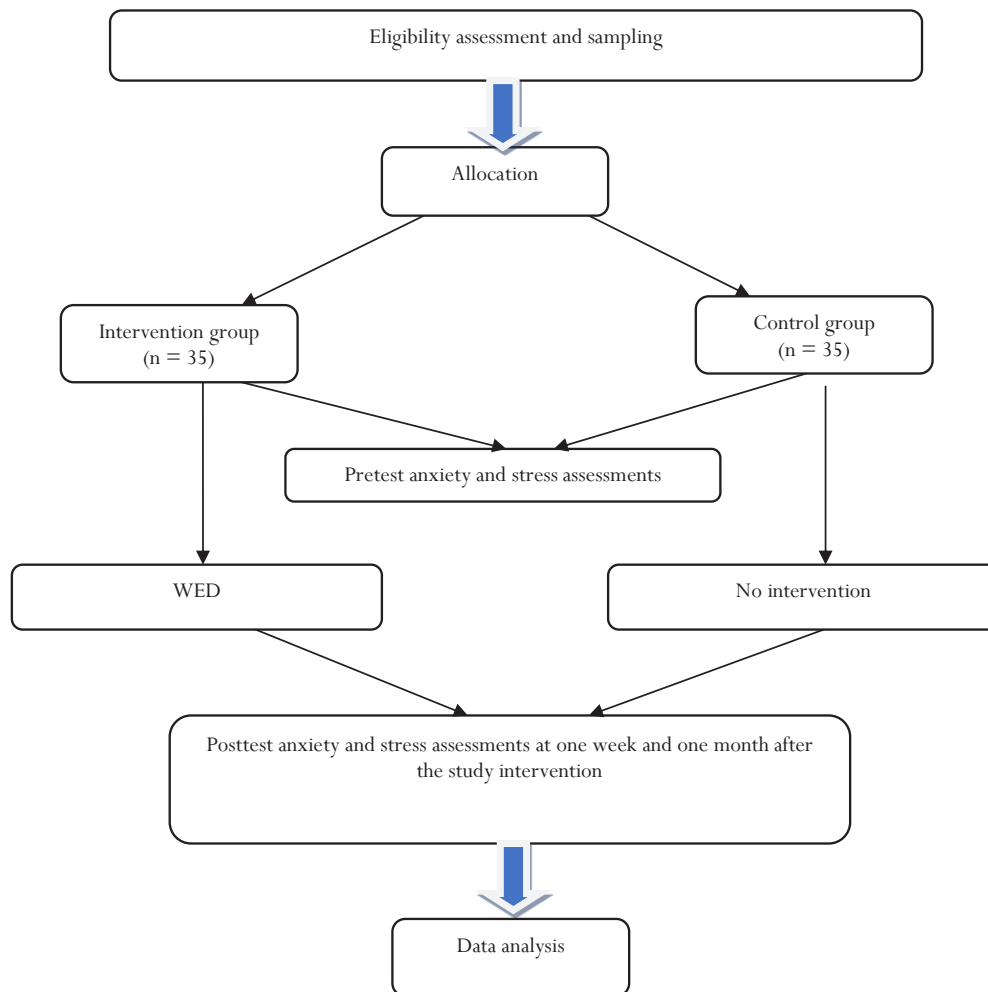


Figure 1. The flow diagram of the study.

anxiety. In agreement with this finding, a study showed that WED significantly reduced depression, anxiety, and stress among veterans with posttraumatic stress disorder (34). Another study also reported the significant positive effects of two-minute WED on depression and anxiety among students with trauma (35). Similarly, a study showed that WED significantly reduced the symptoms of depression, anxiety, and stress among students (36). Moreover, a study indicated that WED was effective in significantly reducing the severity of depression symptoms and increasing hope among adolescents with injury and recommended

WED as a simple, inexpensive, and effective method to improve coping with stressful life events (37). Another study also revealed that WED significantly reduced the symptoms of depression and anxiety (38). Severe anxiety and inability to express it in a stressful situation put individuals at risk for mental disorders, while effective anxiety expression can reduce anxiety and its symptoms (39). Emotional deterrence reduces physiological and psychological capacities, while emotional disclosure ameliorates the effects of deterrence and thereby, reduces stress, anxiety, and their associated physical and mental problems. Moreover, emotional expression using words reduces anxiety, depression, interpersonal conflicts, and the symptoms of obsessive-compulsive disorder through helping individuals reflect on and reorganize emotional events and experiences (40,41).

Table 1. Between-group comparisons with respect to participants' characteristics

Characteristics		Groups		P value
		Control	Intervention	
		No. (%)	No. (%)	
Gender	Male	19 (54.3)	13 (37.1)	0.230 ^a
	Female	16 (45.7)	22 (62.9)	
Place of residence	Urban areas	26 (74.3)	19 (54.3)	0.134 ^a
	Rural areas	9 (25.7)	16 (45.7)	
Employment status	Employed	18 (51.4)	13 (37.1)	0.194 ^b
	Unemployed	7 (20.0)	13 (37.1)	
	Housewife	8 (22.9)	19 (25.7)	
	Retired	2 (5.7)	0 (0)	
Kinship with patient	Father	5 (14.3)	5 (14.3)	0.025 ^b
	Mother	3 (8.3)	0 (0)	
	Sister	3 (8.3)	7 (20.0)	
	Brother	3 (8.3)	6 (17.1)	
	Souse	6 (17.1)	12 (34.3)	
Living with patient	Child	15 (42.9)	5 (14.3)	0.734 ^a
	No	6 (17.1)	4 (11.4)	
	Yes	29 (82.9)	31 (88.6)	
Age (years)		38.91 ± 9.01	33.83 ± 10.22	0.031 ^c
Patient's age (years)		45.91 ± 25.54	36.03 ± 15.43	0.054 ^c
Length of hospital stay (days)		3.91 ± 1.46	5.26 ± 2.31	0.005 ^c

^aChi-square test; ^bFisher's exact test; ^c independent-sample *t* test.

Study findings also showed that although the mean score of perceived stress at one month after the intervention in the intervention group was less than the control group, the difference was not statistically significant. However, the decrease in the mean score of perceived stress in the intervention group by almost two points (from 28.43 ± 7.21 to 26.51 ± 6.15) can be considered clinically significant. Meanwhile, a study showed that WED significantly improved quality of life and reduced the effects of intrusive thoughts among women with ovarian cancer and their partners (42). Another study showed that WED significantly reduced stress among patients with substance abuse and posttraumatic stress disorder and its effects sustained for at least three months (43). Similarly, a study indicated that WED may not reduce perceived tension but can reduce stress (44). The contradiction between our findings and the findings of these studies can be justified through the uncertainty in illness model which attributes stress to the pattern of symptoms. This model holds that illness severity, unpredictability, and recurrence among patients in ICU cause severe stress, intense emotions, and considerable uncertainty for their family members (45).

Table 2. Within- and between-group comparisons with respect to the mean scores of state and trait anxiety and perceived stress across the three measurement time points

Variables	Time	Groups		Group effects*			Time effects*			Group-time interaction*		
		Control	Intervention	F	df	P	F	df	P	F	df	P
State anxiety	Before	60.49 ± 11.44	56.77 ± 11.64									
	Two weeks after	59.86 ± 10.20	55.94 ± 10.70	7.64	1.68	0.007	14.93	2.13	0.001	5.34	2.13	0.008
	One month after	57.83 ± 11.58	46.94 ± 11.07									
Trait anxiety	Before	51.43 ± 10.66	49.40 ± 10.96									
	Two weeks after	53.23 ± 9.44	49.57 ± 9.82	4.57	1.68	0.036	7.14	2.13	0.001	3.14	2.13	0.046
	One month after	51.11 ± 10.49	43.71 ± 8.76									
Perceived stress	Before	29.94 ± 7.82	28.43 ± 7.21									
	Two weeks after	29.89 ± 6.30	28.69 ± 6.77	1.50	1.68	0.224	2.59	2.13	0.078	0.39	2.13	0.672
	One month after	29.00 ± 7.21	26.51 ± 6.15									

* The results of the repeated measures analysis of variance

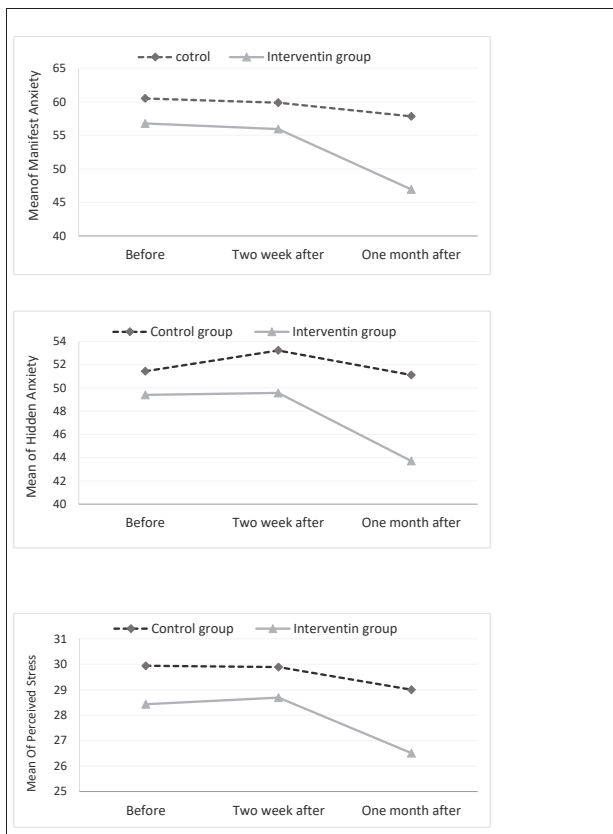


Figure 2. The variations of the mean scores of state and trait anxiety and perceived stress in the control and the intervention groups across the three measurement time points.

Conclusion

This study suggests the significant positive effects of WED on anxiety and stress among the family members of patients in ICU. As medication therapy may not be indicated for the family members of patients in ICU, nurses can use WED as a simple, cost-free, and complication-free therapy for managing anxiety and stress among these individuals.

Conflict of Interests

The authors declare no conflict of interests.

Ethical Approval

This study was approved by Shahrekord University of Medical Sciences, Shahrekord, Iran (code: IR.SKUMS.REC.1397.71) and was registered in the Iranian Registry of Clinical Trials (identifier: IRCT20190911044749N1).

What does this paper contribute to the wider global clinical community?

- Written emotional disclosure is effective in significantly reducing anxiety among the family members of patients in ICU.
- Written emotional disclosure is effective in slightly reducing perceived stress among the family members of patients in ICU.
- Written emotional disclosure can be used to improve psychological health-related among the family members of patients in hospital settings.

Necessary arrangements for conducting the study were made with the authorities of the study setting. Participants were informed about the study aim and informed consent was obtained from all of them.

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