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Original Article

The Effect of Emotional Disclosure by Writing on the Depression of Hemodialysis Patients in Iran: A Randomized Clinical Trial

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Abstract

Introduction: Depression is the most common psychological problem in patients with renal failure, and it can lead to mortality in severe cases. Effective interventions are required to promote mental health in patients on hemodialysis with various types of mental disorders. The current study aimed to evaluate the effect of emotional disclosure by writing on depression of patients on hemodialysis in Iran.

Methods: This clinical trial study was carried out on 140 patients undergoing hemodialysis in hemodialysis centers of Kerman. Patients were randomly assigned into two groups of intervention and control after signing the written consent forms and completing the Depression Anxiety Stress Scale (DASS 21). The intervention group was requested to write daily the deepest emotions and intrusive thoughts within 15 to 20 minutes in four consecutive days. The control group received routine care. Then, the questionnaire was recompleted two weeks later. Finally, the data were analyzed by SPSS (version 13) using independent t-test and paired t-test.

Results: The mean depression score was either moderate or high. While depression scores seemed to decrease in the intervention group after the intervention, the depression scores continued to rise following the intervention in the control group. The difference in depression scores was statistically significant between the two groups before and after the intervention.

Conclusion: Emotional disclosure by writing can be effective on the level of depression in patients on hemodialysis.Simus adi omnimodipsa sam fugita dolenistiae inveles est doluptat

Introduction

Chronic renal failure is the progressive and irreversible degeneration of renal function. Dialysis and kidney transplantation is the primary treatment of the end stage renal failure.[1] Hemodialysis is the most common method of dialysis for the renal patients.[2] The prevalence of chronic renal failure in the world is 242 cases per million people and it will increase by about 8% annually.[3] According to the Iranian Center for transplant management and special diseases, there exist about 25 000 advanced renal patients, 50% of whom are patients on hemodialysis.[4] The number of patients undergoing hemodialysis in Iran will increase annually by 15%.[5] Dialysis is a stressful process, and causes many socio-psychological problems leading to mental disorders. Many studies show a high prevalence of socio-psychosocial disorders in patients on hemodialysis.[6] Hemodialysis, despite increasing life expectancy, cannot solve all the physical and mental problems of the renal patients. Therefore, psychological changes often occur in patients with renal failure.[7] Depression and anxiety are the most common psychological problems in these patients, which lead to mortality in severe cases.[8] Depressed people may be reluctant to do daily activities, experience significant weight loss and gain, insomnia and excessive sleeping, lack of energy, inability to concentrate, worthlessness or sense of guilt, and repeated thoughts of death or suicide.[9] World Health Organization classified the costs of depression in the fifth rank, which will have

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reached the second rank by 2020.[10] Studies indicate the variable prevalence of depression and anxiety in patients on hemodialysis (20%-70% and 30%-60%, respectively).[11] Guenzani et al., indicated that 14.76%, and 36.7% of the patients with chronic renal failure suffered from anxiety, and depression disorders, respectively.[12] Most Iranian studies indicate the prevalence of psychological problems among patients on hemodialysis.[13] Studies show a significant correlation between depression and mortality in these patients. Depression can lead to physical and emotional disability, early death, decreased efficacy, and family problems. In recent years, economic costs and negative consequences of depression have been considered.[14] The most common treatment for depression is antidepressants. Non-pharmacological methods are also used to reduce and treat depression, or increase the quality of life.[15] Drug side-effects are the main concern of some patients.[15] Other problems include the misconception of addiction to psychiatric drugs and not taking medications. Therefore, these patients are interested in different non-pharmacological treatments. Emotional disclosure by writing increases the effect of other therapies, such as psychotherapy and drug therapy.[16] The use of writing alone or in combination with other therapies has significantly influenced mental and physical health.[17] Expressive emotion, a psychological and medical intervention, has shown favorable effects on physical and mental health.[18] According to Kennedy-Moore & Watson, expressive emotions include four main functions: 1. arranging arousal; 2. self-perception; 3. improving coping skills; 4. improving interpersonal relationships.[19] Psychological catharsis means the outpouring of thoughts through talking about the conscious subjects with appropriate emotional reactions. In a deeper sense of catharsis, it is the outpouring of the repressed subject from unconscious to conscious level.[20] Emotional disclosure means that a person speaks and writes about his/her deepest emotional experiences. People disclose the deepest thoughts and feelings from their past.[21] An emotional event is narrated, and unclear emotions and points become clear. Unconscious feelings become consciously spoken phrases.[22] Pennebaker and Francis were the first researchers who introduced emotional disclosure by writing in 1983. Written emotional disclosure is referred to as "writing paradigm" in various sources.[23] Some studies have come to negative conclusions about writing, whereas research has shown positive effects of writing on physical and mental health in different patients.[18] According to Epstein et al., in the US, the students were asked to write their deep emotions during three consecutive days. The results showed that the experimental group enjoyed psychologically.[24] Park et al., in Korea showed a significant difference between the two groups in stresses related to physical symptoms and quality of life after emotional disclosure, but no significant difference was observed in the symptoms of cancer, anxiety, and depression.[25] Montazeri et al., investigated the effects of writing emotions on the reduction of depression especially in combination with a deep understanding, review, or cause of the emotions.[20] Farokhzad et al., assessed the effect of emotional disclosure on depression of the cancer patients. They suggested that emotional disclosure by writing improved depression in cancer patients.[18] Fallahi Khoshknab et al., suggested a significant decrease in depression score of the patients with multiple sclerosis through emotional disclosure by writing.[22] Nurses should make a close, emotional, and unique relationship with patients undergoing dialysis.[26] Nurses are an inseparable part of the healthcare. Nurses must completely meet the caring needs of patients.[27] Therefore; nursing care is different from other treatments due to easy teaching of how to write correctly and independently without face-to-face visits, as well as less therapeutic intervention in the treatment process.[22]

Evaluating and reducing the psychological problems of hemodialysis patients is an important component of the nursing care.[27] In addition, given the negative effects of depression on these patients, few studies on hemodialysis patients, and the inconsistencies in the effectiveness of emotional disclosure by writing in depression of hemodialysis patients, the researchers decided to determine the effect of emotional disclosure by writing on the depression of patients on hemodialysis in Iran.

Materials and Methods

The research population in this clinical trial study included all patients on hemodialysis in hemodialysis centers of Kerman in 2015. The research sample consisted of 140 patients on hemodialysis. The inclusion criteria were history of hemodialysis for at least 6 months, reading and writing ability, and adequate physical and mental ability to write. The exclusion criteria were not to write more than one session and unwillingness to continue the study. The patients were randomly assigned into intervention and control groups. The sample size was estimated based on the study by Fallahi Khoshknab et al.,[22] and μ_1, σ_1 (15.37 and 3.36, respectively). μ_2, σ_2 (17.02 and 3.08, respectively); keeping a two-sided significance level of 0.05 and power of 0.8, 60 participants were selected, but totally 140 people were examined because of the probable drop out of samples.

Data collection tools included a demographic questionnaire (age, sex, marital status, educational level, number of children, occupation), the questionnaire of information about the disease (duration of the disease, the main cause of the disease, the number of hemodialysis treatments a week, duration of each dialysis), and the Depression, Anxiety and Stress Scale (DASS-21). The DASS-21 was designed in two versions of 42 and 21 items. Subscales of depression, anxiety, and stress in the 21-item version consist of seven items, and the final score is obtained through the total score of the questions.[28] Likert

scale is used on the scale value of zero (none) to three (high). Since the DASS-21 is a shorter form of the original scale, the final score of each subscale must be doubled. Therefore, the minimum score of depression is zero and the maximum score is 42. Scores ranging from 0 to 9 would be considered no depression, scores ranging from 10 to 13 would be considered mild depression, scores ranging from 14 to 20 would be considered moderate depression, scores ranging from 21 to 27 would be considered severe depression and scores above 28 would be considered very severe depression. Lovibond tested the scale validity and reliability in a large sample.[29]

Crawford and Henry in England compared the reliability of this instrument with two other instruments of depression and anxiety. By using Cronbach alpha, the reliability of DASS-21 was 0.95, 0.90, 0.93, and 0.97 for depression, anxiety, stress, and total scores, respectively.[30]

Moradi-Panah et al., [31] and Aghabati et al.,[32] have confirmed the validity of this instrument in Iran. The Cronbach's Alpha for depression, anxiety and stress was reported as 0.94, 0.92, and 0.82, respectively.[28] The study was conducted after taking the code of ethics from the ethics committee of Kerman University of Medical Sciences and code of IRCT and submitting a cover letter from the department of education of the university to Javad Alaemeh clinic, Samen Al-Hojaj clinic and Shafa hospital.

Attending dialysis facilities in Kerman, the researchers, after interviewing the volunteers, selected the patients who had met the inclusion criteria and provided written consent. Demographic and depression questionnaires were provided for the samples. The samples were assigned into intervention and control groups, using stratified randomized method (according to sex variables and depression score).

The intervention group was asked to write down its deepest and most intrusive thoughts and feelings for four consecutive days within 15 to 20 minutes, and then, if desired, tear the paper and throw it away. The patients performed the intervention at home, so they promised to adhere to writing. They were taught about what to write, including loss of beloved ones, loss of jobs, loss of social status, disease, failure in life, etc. They were advised not to pay attention to spelling and punctuation while writing. In addition, they could be in touch with the counselor if they were under psychological stress during writing. Only routine care was provided for the control group. The patients recompleted the depression questionnaire two weeks later.

Data were analyzed by SPSS software 13. The study diagram is shown in Figure 1. Independent *t* test, Mann-Whitney U and chi-square tests were used to compare the underlying variables between the intervention and control groups. Paired *t* test and independent *t* test were used respectively to compare the mean depression before and after the intervention within and between the two groups.

Results

One hundred-forty patients on hemodialysis were evaluated in both intervention and control groups (70 patients in each group). Six participants were excluded from the study because they were reluctant to continue the study. Eventually, 67 subjects remained in each group. The results showed that the two groups were similar in terms of sex, duration of disease, number of dialysis treatments a week, education level and the cause of renal failure, but they were not identical in terms of age, marital status, occupation, and the number of children. (Table 1)

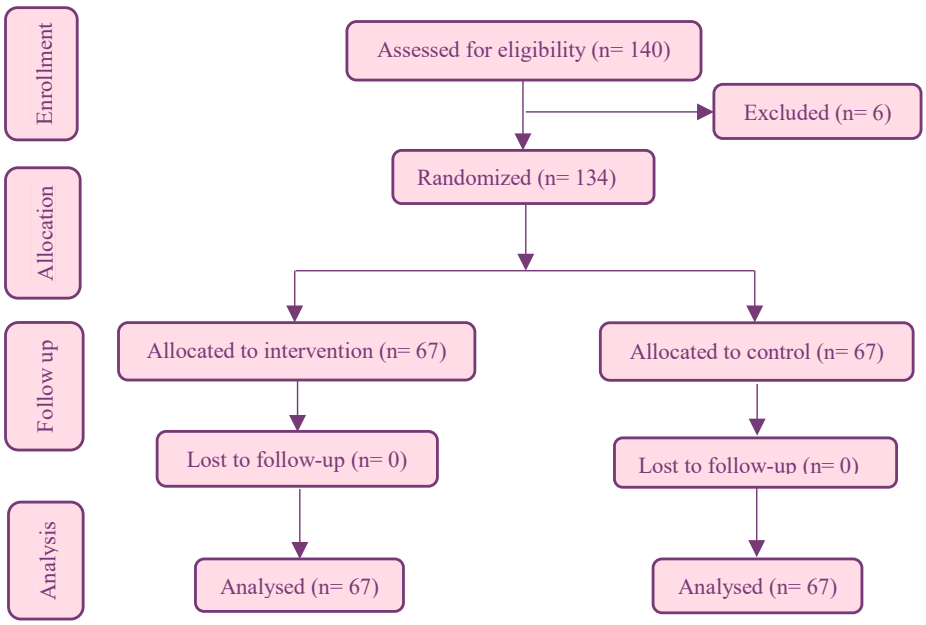

Figure 1. The flow diagram of the study

Before the intervention, the mean depression scores of intervention and control groups were 25.43, and 25.73, respectively. No significant difference was found in the mean depression between the two groups. After the intervention, the mean depression scores of the intervention and control groups were 27.13, and 24.63, respectively. No significant difference was found in the mean depression between the two groups. However, we further compared the mean differences (before-after) between the two groups. The results showed that the depression score had a 1.4-point increase in the control group while it had a 0.81 point reduction in the intervention group, so it was significantly different between the two groups ($P=0.03$). (Table 2)

The results of paired-t test showed that in the intervention group, in spite of the decrease in the mean score of depression after intervention as compared with before the intervention, the difference was not significant ($P=0.22$). In addition, in the control group, in spite of the increase in the mean score of depression after intervention as compared with before the intervention, the difference was not significant ($P=0.06$). (Table 2)

Discussion

The current study aimed to investigate the effect of emotional disclosure by writing on depression of the patients on hemodialysis. According to results, emotional disclosure by writing did not show a significant difference in the score of depression in hemodialysis patients after the intervention, but the mean difference was significant before and after the intervention between the two groups, suggesting the positive effect of this intervention on reducing depression of the patients on hemodialysis.

This result can be due to several factors affecting the depression and life of these patients, such as the complex nature of depression, time-consuming hemodialysis treatment, fatigue, limited diet of patients and the side-effects of drugs.

Several studies investigated the effect of emotional disclosure by writing on depression. Harvey et al., showed that emotional disclosure by writing could improve depression of the cancer patients.[27] Cosentino et al., showed that emotional disclosure reduced depression scores in veterans with posttraumatic stress disorder, and it was a simple, effective and cost-effective method in coping with the negative events of life.[33]

Ruwaard and Lange evaluated the effect of emotional disclosure by writing on depression and hope of adolescents with post-traumatic stress. They found that emotional disclosure by writing was an easy, inexpensive, effective and efficient way in reducing depression and increasing hope.[34] In a randomized clinical trial study on female students with psychological trauma, Crosby et al., showed that emotional disclosure significantly increased negative emotions in the short term and reduced the symptoms of depression and anxiety in the long run. In addition, the intervention has been more effective among students with psychological trauma and economically poor status.[35]

Table 1. Distribution of underlying variables (n=67) in control and intervention groups (n=67)

Variable	N (%)		*P* value[b]
	Control group	Intervention group	
Age[a]	57.91 (14.82)	47.48 (13.38)	0.00[c*]
Duration of disease[a]	36.4 (28.39)	38.64 (30.59)	0.74[d]
Gender			
Male	42 (62.7)	43 (64.2)	0.86
Female	25 (37.3)	24 (35.8)	
Marital status			
Married	63 (94)	55 (82.1)	0.03*
Single	4 (6)	12 (17.9)	
Education			
School dropout	44 (65.7)	36 (53.7)	
Diploma	17 (25.3)	26 (38.8)	0.25
higher diploma	6 (9)	5 (7.5)	
Job			
Employee	2 (3.1)	6 (9)	
Self-employed	21 (31.3)	29 (43.3)	0.04*
Retired	23 (34.3)	10 (14.9)	
Housewife	21 (31.3)	22 (32.8)	
Number of children			
None	6 (9)	11 (16.4)	
1-2	14 (20.9)	21 (31.4)	
3-4	19 (28.3)	24 (35.8)	0.03*
5-6	18 (26.9)	7 (10.4)	
More than 6	10 (14.9)	4 (6)	
Cause of renal failure			
Hypertension	22 (32.8)	19 (28.4)	
Diabetes	24 (35.8)	14 (20.9)	
Diabetes & hypertension	11 (16.4)	10 (14.9)	0.05
Renal causes	7 (10.5)	12 (17.9)	
Other	3 (4.5)	12 (19.9)	

[a] Mean (SD) was reported; [b] Chi-squared test; [c] Independent *t* test; [d] Mann-Whitney U test; *Statistically significant.

Table 2. Mean (SD) score of depression in both groups before and after intervention (in each group n=67)

Time	Mean (SD)		*P* value[b]
	Control group	Intervention group	
Before	25.73(10.01)	25.43(9.91)	0.86
After	27.13(9.55)	24.63(9.21)	0.12
P value[a]	0.06	0.22	-
Difference (before-after)	1.4(6.05)	-0.81(5.35)	0.03*

[a] Paired *t* test; [b] Independent *t* test; *Statistically significant.

Cosentino et al., showed that emotional disclosure by writing reduced the depression score, and increased active memory capacity in female adolescents. Furthermore, the intervention was effective in the participants two months later.[33] Alghwiri et al., showed the reduction of mean depression regardless of the age and sex of patients with multiple sclerosis.[36] Most participants reported a significant improvement in their clinical symptoms from the second week on, especially in physiological functions such as sleep, nutrition and fatigue.[37] Ruwaard and Lange studied the effect of written emotional disclosure training on the intensity of depression, and the application of defense mechanisms in depressed patients. They showed that emotional disclosure lowered emotional input to cognitive system by creating insight, empathy and support, and improved cognitive functioning of a person in using less adapted defense mechanisms. Therefore, emotional disclosure can be used as an effective strategy along with other therapeutic strategies.[34] Ahmadi et al., also reported degreased depressive symptoms in the control group.[38]

Jensen-Johansen et al., evaluated the effects of emotional disclosure by writing on immunity of the patients with autoimmune disorder, and concluded that the emotional disclosure by writing could reduce depression especially when combined with a deep understanding, review, causation, and insight of the emotions associated with the event.[17] All of these studies suggest that emotional disclosure by writing is effective in reducing the depression of patients. The results of the studies above are consistent with ours. Depression can be reduced via emotional disclosure by writing, because it has an anti-deterrent role. Therefore, cognitive changes are created based on the expression of emotions leading to reviewing, reorganizing and re-attracting emotional events and experiences. Theoretically, emotional disclosure reduces stress, and thus physical and mental health problems by breaking the inhibitory process.[21] Emotional disclosure reduces negative emotions in the cognitive system because of creating insight, learning the process of empathy and advocacy, such as face-to-face psychotherapy, and thus it eventually improves the cognitive function and depression. Some researchers investigated emotional disclosure as one of the strategies for improving mental health, cognitive capacities, and finally depression.[18]

Traylor et al., have recently emphasized the role of emotional disclosure by writing in increasing psychological health, improving the immune system, reducing physical problems, intrusive thoughts, and symptoms of depression.[21]

Tsai et al., concluded that emotional disclosure by writing was effective in reducing anxiety, but did not have a significant effect on depression.[39] Kim et al., studied writing and its effects on the symptoms of physical stress, cancer symptoms, anxiety, depression, and quality of life in Korean women with breast cancer. The researchers concluded that writing could reduce the symptoms of stress, and improve the quality of life of women with cancer, but further studies are needed to determine the effects of writing on anxiety and depression in this group.[26]

The results of the above studies do not seem to be consistent with our findings. This may be due to the different interpersonal characteristics of the population, the measurement tool, and the process of intervention.

Some patients avoided completing and returning the questionnaires. To reduce the intensity of this problem, the researcher ensured the information confidentiality and anonymity. The research samples avoided expressing the facts and writing their emotions because they might have been afraid of their information disclosure. The researcher promised no to read their writing.

Research Highlights

What is the current knowledge?

Emotional disclosure measures advised and taught by the nurse on hemodialysis administration but how patient perceives and follows in daily life is unidentified.

What is new here?

This concept, the researcher was advocate for the hospital, the model has been appreciated and accepted. Emotional disclosure by writing can be effective in reducing the depression of patients on hemodialysis. The findings can be applied anywhere cost effective.

Conclusion

The significant difference in the depression scores between the two groups before and after the intervention shows that emotional disclosure by writing can be effective in reducing the depression of patients on hemodialysis. Further studies are proposed due to inconsistency of some variables such as age.

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Ethical Issues

This study was approved by the ethics committee of Kerman University of Medical Sciences, Kerman, Iran (code: IR.KMU.REC.1394.492). Also the research was registered in the Iranian clinical trial registration system (No. IRCT2017102735289N3). Informed consent was obtained from all participants. They were ensured that their data would be managed confidentially, their participation would be completely voluntary, and their participation would never affect their healing process. They were free to unilaterally withdraw from the study.

Conflict of Interests

The authors declare that there is no conflict of interest.

Authors' Contributions

FKH: The conception, design of the study, data collection process were undertaken; SM: Was the supervisor; BP: Advisor. The contributed to the design of the study, and reporting of the result. MD, LA: Analysis, interpretation and reporting were supervised. All authors contributed to drafting the article, revising it and preparing the final version of the manuscript to be submitted to the journal. They all met the criteria of authorship.

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