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Evaluation of the Effect of Group Hope Therapy on Reducing Anxiety and Adherence to Treatment in Hemodialysis Patients

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Abstract

Background: Anxiety and non-compliance with treatment endanger the health of hemodialysis patients. Hope therapy focuses on human abilities and capabilities instead of weaknesses using a positive psychology approach.
Objectives: This study aimed to evaluate the effect of group hope therapy (GHT) on reducing anxiety and adherence to treatment (ATT) in hemodialysis patients.
Methods: This semi-experimental study was conducted with a pre-test and post-test on 40 patients undergoing hemodialysis as consecutive non-probability sampling from among the clients of two hemodialysis centers in Khorram Abad, Iran, in 2017. Primary data of the study was collected using the Spielberger State-Trait Anxiety Inventory (STAI) and End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ) in four stages, including before the intervention, immediately after the intervention, one and three months after the intervention. Hope therapy intervention was implemented in groups of five people for eight sessions (one session per week and each session for 60 minutes) by the researcher and with the supervision and approval of a psychiatrist and a clinical psychologist. The data were analyzed in the SPSS software version 21 at the significance level ($\alpha = 0.05$). In addition, Cronbach's alpha test was used to measure the reliability of the questionnaires.
Results: There was a significant difference in the mean scores of anxiety and ATT between the two stages "before the intervention" and "immediately after the intervention" ($P < 0.05$). In addition, there was no significant compliance with the treatment between the two stages "immediately after the intervention" and "three months after the intervention" ($P < 0.05$), while the average scores of Overt and covert anxiety were significant ($P < 0.05$).
Conclusions: Based on the results, GHT effectively reduces overt and hidden anxiety and increases ATT in hemodialysis patients. Therefore, these results can help plan care for hemodialysis patients. Counseling sessions related to GHT should be offered for consecutive periods in educational and treatment centers by people with experience and training in working with hemodialysis patients.

Keywords: Kidney Failure, Hemodialysis Patients, Adherence to Treatment, Anxiety, Hope Therapy

1. Background

Kidney disease, a chronic disease, can affect most aspects of a person's life and personality. In addition, the treatment stages of these patients, including dialysis, can severely affect the physical and mental health of the patient negatively (1, 2). Statistics show that one in 50 million kidney failure patients undergo hemodialysis worldwide (3). Hemodialysis patients often suffer from anxiety, stress, and depression due to lifestyle changes caused by the treatment method and exposure to mental stress. Hemodialysis patients with mental disorders may suffer from reduced quality of life, increased mortality, poor compliance with dialysis prescriptions, and fluid restrictions (2, 4).

Several people suffer from overt and hidden anxiety disorders. Anxiety in patients with chronic diseases has negative and inhibiting effects on the treatment process and increases patients' physical and mental stress (5, 6). Patients with advanced kidney failure are among the

patients who often face various psycho-social problems due to the lifestyle change caused by the disease and its treatment methods. For this reason, anxiety is one of these patients' most common psychological problems (7, 8).

According to previous studies, 25% of hemodialysis patients have psychological problems, of which 38.1% suffer from anxiety (9). Another study found that anxiety disorder was observed in 14.6% of the subjects under investigation; 8.6% of the patients became anxious at the beginning of the hemodialysis treatment and 6% during 3 - 5 years after the hemodialysis treatment (10).

On the other hand, adherence to treatment (ATT) plays an essential role in controlling the symptoms of chronic renal failure and is a complex behavior that depends on several factors such as individual characteristics, the patient's mental state, the health care system, social and economic aspects, and negative beliefs about the disease (11, 12). Non-compliance with the recommended treatment method by people with chronic diseases is almost 50% (13). Prolonging the duration of treatment and failure in the functioning of support systems lead to non-compliance with the four chronic kidney failure treatment principles. In addition, the non-compliance mentioned above can make the efforts of the treatment team less effective and increase the costs incurred on the treatment system (14, 15). Increasing overt or hidden anxiety seems critical in patients' non-compliance with treatment regimens (16, 17).

Various methods have been recommended to overcome psychological problems, and group hope therapy (GHT) is one of the most important. A positive psychology approach treats hope therapy, which focuses on human abilities rather than weaknesses (18). Various studies show that when patients' beliefs about the nature of the disease improve, their ATT also increases (19). In addition, eliminating negative beliefs and creating a positive perspective by implementing a positive and hopeful treatment program seems effective in patients with chronic diseases (20). Hope therapy is implemented in a group because, according to Snyder's theory, as the founder of hope therapy, hopeful thoughts have the most significant effect when they are transferred and exchanged between group members. Hope therapy is an active educational process that teaches clients to follow up on their problems and find ways to achieve their goals (21, 22).

GHT training can provide an atmosphere for people to give hope to each other in the group based on their needs and preferences. GHT can increase hope, meaning of life, self-esteem and reduce symptoms of depression and anxiety (23). Group therapy positively affects most mental disorders. The person in the group gets to know people like him, and he gains more self-confidence to fight the disease while increasing his social skills (24). Although various methods have been used to reduce anxiety and increase ATT in different patient groups, no study has been conducted to evaluate the effect of GHT on anxiety and ATT in hemodialysis patients.

2. Objectives

Thus, the present study aimed to investigate the effect of GHT on the reduction of overt and hidden anxiety and ATT in hemodialysis patients.

3. Methods

3.1. Sampling

This semi-experimental was conducted in 2017 on hemodialysis patients referred by a nephrologist in Shaheed Ashair and Shahid Rahimi hospitals in Khoramabad, Iran. The sample size was estimated as 39 using Equation (1) considering α = 0.05, S = 2.7, d = 1.2, β = 1.2, and then five people were added by considering the possibility of dropping samples. During the research, four people were excluded due to their unwillingness to continue participating, and The data were analyzed and followed up on 40 people. Sampling was performed non-probably consecutively and based on the study inclusion criteria.

Equation(1)

$$n = \frac{z_1 + \left(\frac{\alpha}{2}\right) z_1 - \beta}{d^2} \quad (1)$$

3.2. Exclusion and Inclusion Criteria

The inclusion criteria for the study were: (1) Age 18 - 65 years, (2) willingness and ability to participate in the research, (3) continuous and regular hemodialysis with 2 - 3 infusions per week, (4) introduced by a treating physician, (5) not suffering from severe mental disorders and a history of taking neuropsychiatric drugs, (6) not using other psychotherapy programs except GHT to reduce anxiety and increase ATT, (7) having an anxiety score higher than the limit anxiety (mild) in the initial interview. At the same time, the exclusion criteria included (1) unwillingness to cooperate in the research, (2) use of drugs or other treatment methods and educational programs affecting anxiety and ATT, and (3) suffering from chronic diseases. and debilitating disease diagnosed by a physician, (4) the occurrence of severe anxiety disorders (phobia and mania during dialysis), (5) patient death, (6) migration from the studied city, (7) having visual, hearing and speech defects, (8) unfavorable physical condition of

patients, (9) absence of more than one session in GHT sessions, (10) inability to participate in group sessions during research, (11) changing the treatment procedure (for example kidney transplant and or peritoneal dialysis), (12) severe family and social crises (for example loss of a family member and job, divorce, and dropping out of school).

3.3. Data Collection Tools

A three-part questionnaire was used to collect information. The first part included demographic information, the second part related to the Spielberger State-Trait Anxiety Inventory (STAI) (25), and the third part related to the End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ) (26). Spielberger's anxiety questionnaire included 40 questions to assess overt anxiety (20 questions) and covert anxiety (20 questions). In a similar study, the reliability coefficient of the test was investigated separately in two norm and control groups, which was 0.91 for the norm group and 0.94 for the control group based on Cronbach's alpha. In addition, the reliability of the test was observed through the ratio of the variance of the actual scores to the variance, and its value in the norm group was 0.94 (25).

ESRD-AQ has 46 questions and five main sections. The first part contains five questions about general information, the second part comprises fourteen questions about acceptance of hemodialysis treatment, the third part includes nine questions about accepting drug treatment, the fourth part contains questions about respecting fluid intake restrictions, and the fifth part consists of eight questions about compliance with a special diet. The overall compliance score with the treatment is the sum of the scores from the five sections mentioned above. The score range of the questionnaire is from zero to 1200, and getting a higher score means higher ATT (26). The validity and reliability of this questionnaire were previously measured by Rafiee Vardanjani (2014), and its truth was found to be 0.98, which had a favorable score in terms of content validity (27). The reliability of the questionnaire by Borji et al. (2016) was calculated by the test-retest method (0.85), which was acceptable (28).

3.4. Implementation of the Study

Necessary explanations regarding research objectives were provided for each patient, and written and informed consent was obtained from the patients. Regarding specific issues, the patients were assured, including (1) the confidentiality of individuals' information; (2) the possibility of withdrawing the samples from the study whenever they wish; and (3) making the research results available for study by the patients (after completing the study and upon their request); (4) not imposing costs on the patients and the hospital; and (5) notifying the results of the hemodialysis centers. Hope therapy sessions were held weekly in groups of 5, for eight sessions of 60 minutes (one session each week) by the researcher and with the supervision and approval of a psychiatrist and a clinical psychologist. Spielberger anxiety questionnaires and ESRD-AQ were completed by selected hemodialysis patients in four stages, including (1) before the intervention, (2) immediately after the intervention, (3) one month after the intervention, and (4) three months after the intervention.

3.5. Statistical Analysis

The data were analyzed in the SPSS software version 21 by various statistical tests, including Kolmogorov Smirnov, Spearman correlation coefficient, paired *t*-test, chi-square, and repeated measures tests (to evaluate four times of data collection) at the significance level ($\alpha = 0.05$).

4. Results

Four of the 44 people participating in the study refused to continue the research, and the investigation continued with 40 people until its end. The studied patients included 29 (72.5%) men and 11 (27.5%) women. About 18 (45%) were married, and 22 (55%) were single, 26 (65%) were unemployed people, and 14 (35%) were employed people. The average age of the patients was 36.05 years; 35% had an education level below the diploma, and the remaining 65% had a university education.

The average score of apparent anxiety of the patients evaluated in the stage before the group hope therapy intervention (GHTI) was equal to 45.49, and this level decreased to 40.38 immediately after GHTI, with a significant difference. In addition, the level of overt anxiety reached 41.53 one month after GHTI and 43.97 three months after GHTI. These results showed that apparent anxiety before GHTI reached the range of moderate anxiety, and the amount of apparent anxiety increased and reached the range of moderate anxiety after three months of GHTI (Table 1 and Figure 1).

The results showed that the mean hidden anxiety scores before GHTI among the studied units were equal to 49.25, which reached 42.65, with a significant difference immediately after GHTI. Next, the average anxiety scores gained 41.23 and 42.83, respectively, one and three months after GHTI. The hidden anxiety went from moderate anxiety before GHTI to moderate anxiety after GHTI and remained in the moderate range three months after the implementation of GHTI (Table 2 and Figure 2).

Table 1. Average Overt Anxiety Scores of Patients Before and After GHT

Intervention Time	Mean ± SD	Pearson's Correlation Coefficient	Significance of Correlation	*t*	df	P-Value
Before intervention (BI)	49.45 ± 5.50	-	-	-	-	-
Immediately after the intervention (IAI)	40.38 ± 5.34	0.538	0.01	7.37	39	< 0.001
One month after the intervention (1MAI)	41.53 ± 4.39	- 0.014	0.93	7.07	39	< 0.001
Three months after the intervention (3MAI)	43.97 ± 3.78	- 0.089	0.58	4.99	39	< 0.001

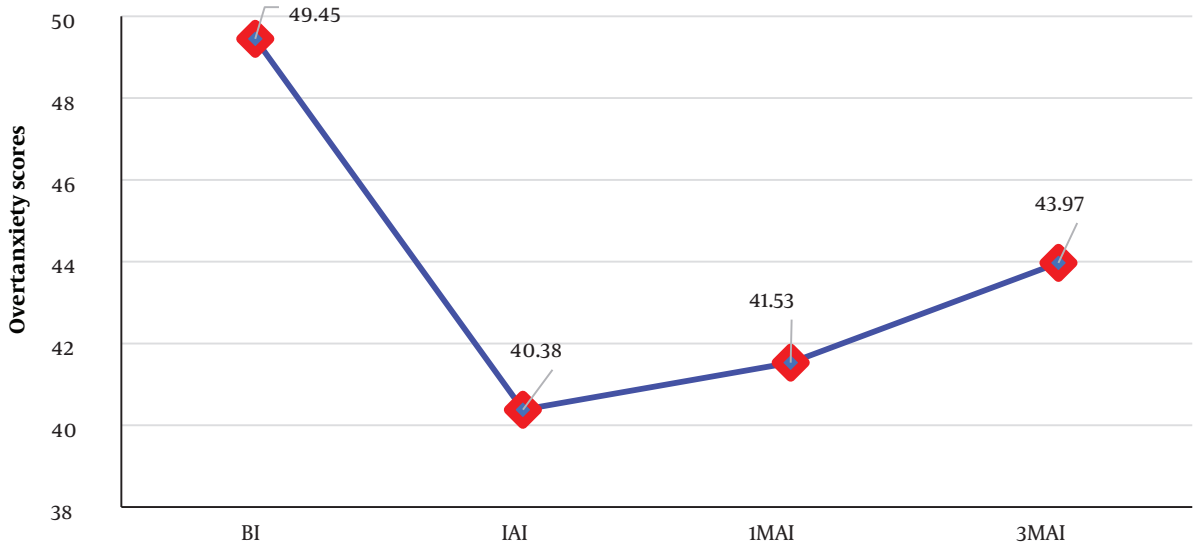

Figure 1. Comparison of the mean anxiety scores of hemodialysis patients at different stages of the study.

Table 2. Average Hidden Anxiety Scores of Patients in the Stage Before and After GHT

Intervention Time	Mean ± SD	Pearson's Correlation Coefficient	Significance of Correlation	*t*	df	P-Value
Before intervention (BI)	49.25 ± 6.95	-	-	-	-	-
Immediately after the intervention (IAI)	42.65 ± 5	0.183	0.26	5.59	39	< 0.001
One month after the intervention (1MAI)	41.23 ± 4.48	0.130	0.43	6.76	39	< 0.001
Three months after the intervention (3MAI)	42.83 ± 4.82	- 0.180	0.27	4.99	39	< 0.001

The study results showed that adherence scores to the treatment have changed in the disturbed time periods. According to the test of within-subject contrast, the linear effect was not significant (P = 0.801), while the quadratic effect was significant (P < 0.001). In other words, the values increased up to the first month and decreased during a proportional effect. The comparison of treatment adherence scores (and their different dimensions) in the pre and post-intervention phases showed that the treatment adherence score was 866 in the medium compliance range before hope therapy. This value increased immediately after the intervention to 985 (high compliance), 1027 one month after the intervention (high adherence), and 843 three months after the intervention (low compliance) (Table 3 and Figure 3).

Before the intervention, 35% of the evaluated patients had moderate treatment, and the remaining (65%) had high adherence. The treatment adherence of 100% of patients was increased immediately after GHTI. Based on the results, 95% of patients with high adherence and 5% with moderate adherence to the treatment were obtained one month after the intervention. Three months after the intervention, 25 and 75% of patients had moderate and high adherence to the treatment, respectively. Three months after GHTI, adherence to the treatment was generally in the medium range (Table 4).

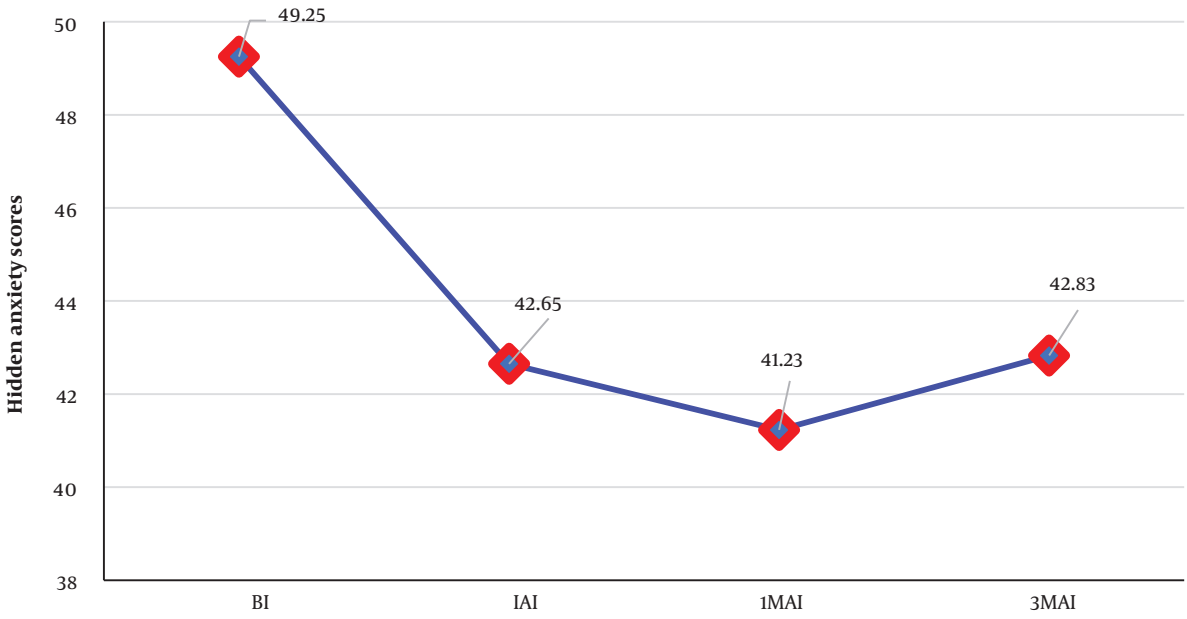

Figure 2. Comparison of the mean hidden anxiety scores of hemodialysis patients at different stages of the study.

Table 3. The Results of Different Aspects of Adherence to the Treatment of Patients Before and After GHT

Study' Steps	Different Dimensions of ATT				
	Acceptance of Hemodialysis	Acceptance of Drug Treatment	Adherence to Fluid Restrictions	Compliance with the Diet	Total Score
BI					
Min	175	100	50	100	525
Max	600	200	200	200	1150
Mean ± SD	426.2 ± 132.1	162.5 ± 35.4	142.5 ± 48.8	135.0 ± 39.5	866.2 ± 177.3
IAI					
Min	350	100	50	150	800
Max	600	200	200	200	1150
Mean ± SD	505.2 ± 75.1	16.5 ± 31.5	17.5 ± 40.1	160.0 ± 20.3	985.0 ± 99.0
1MAI					
Min	300	100	50	100	575
Max	600	200	200	200	2100
Mean ± SD	516.2 ± 76.5	180.0 ± 31.6	177.8 ± 36.5	177.5 ± 25.1	1207.5 ± 107.2
3MAI					
Min	275	100	50	100	575
Max	600	200	200	200	2100
Mean ± SD	417.5 ± 89.1	145.0 ± 22.07	140.0 ± 34.3	41.3 ± 35.6	843.8 ± 131.7

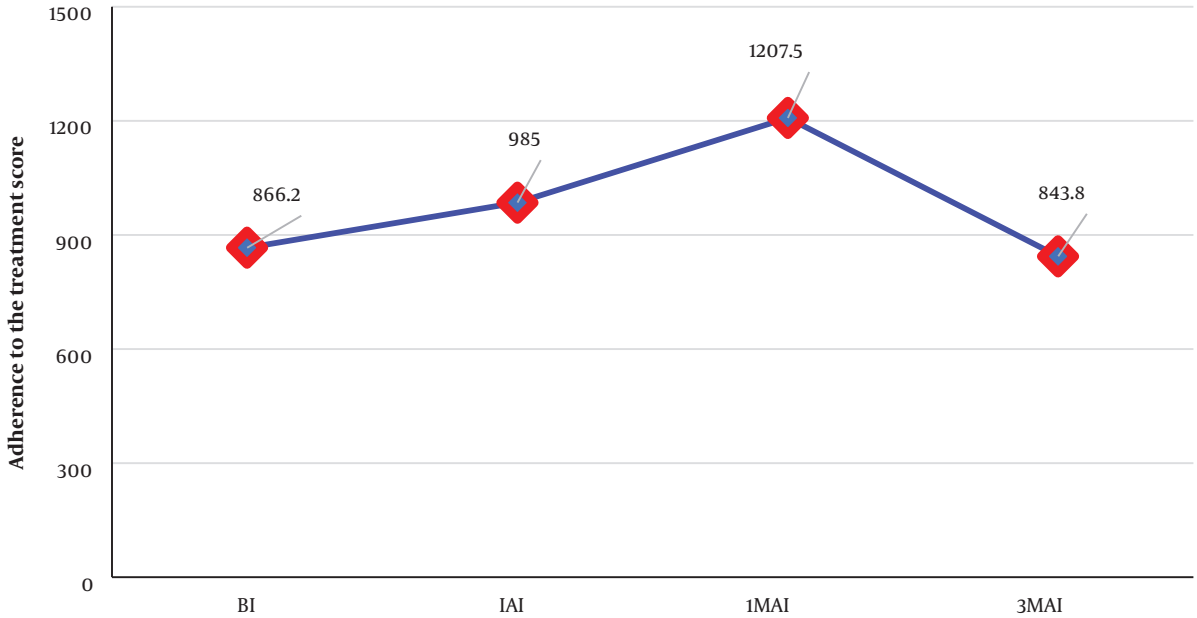

Figure 3. Comparison of adherence to the treatment in different stages of study for hemodialysis patients.

Table 4. Rank Comparison of Adherence to the Treatment of Patients Before and After GHTI

Study' Steps	The Frequency Adherence to the Treatment Based on the Rank Scale; No. (%)		
	Low (Score < 400)	Moderate (Score = 400 - 800)	High (Score > 800)
BI	-	14 (35)	26 (65)
IAI	-	-	40 (100)
1-MAI	-	2 (5)	38 (95)
3-MAI	-	10 (25)	30 (75)

5. Discussion

Hemodialysis patients had moderate to high overt and covert anxiety disorders and had a moderate status in the four dimensions of ATT. The group hopes therapy intervention (GHTI) significantly reduced the patients' overt and hidden anxiety and increased adherence to the treatment in most dimensions. In GHT, patients learned how to set measurable, visible, and attainable goals for themselves and adjust their goals to their needs and capabilities. Hopeful thoughts are most effective when transferred and exchanged between group members. Conducting treatment programs in group settings creates many benefits for patients, including the experience of being the same, modeling from peers, and peer support. In group therapy, people realize that others face similar problems, reducing their resistance to accepting and treating the disorder. In addition, group therapy allows people to be supported and solve challenges with appropriate modeling (29). However, psychological interventions are necessary continuously in the target communities for the decrease in ATT behaviors and the increase in anxiety to remain effective. Seligman et al. evaluated the importance of positive psychology and its effects on increasing happiness and reducing depression and suffering. In addition, since 2000, many studies have investigated the effect of this intervention on mental disorders (30).

The level of overt and hidden anxiety among the evaluated hemodialysis patients was moderate to high. In this regard, Soedje et al. showed that anxiety among hemodialysis patients was very high due to poor access to dialysis treatment centers and increased treatment duration, consistent with the present research findings (31). El Filali et al. reported the presence of anxiety in dialysis patients and its effect on the loss of quality of life

in the moderate range, which is consistent with the results of the present study (32).

The ATT level in hemodialysis patients before the intervention was moderate, consistent with similar studies. Khalili et al. indicated that the level of overall ATT in hemodialysis patients is medium (33), while Neri et al. in Italy found that in most patients, the level of acceptance of drug treatment regimens is very poor (34). The research findings of Hadian and Rafiee Vardanjani revealed that ATT in chronic patients is essential and is influenced by various factors. The critical reasons for non-compliance with treatment include psychological factors, lack of knowledge, attitude of dialysis patients, and lack of social support (35).

Different methods, such as social support, family support, and group training, have been used in various studies to increase ATT in patients with chronic diseases and their treatment motivation (18, 19). Alikari et al. used nursing counseling and active patient participation in clinical decision-making to increase ATT, and their research showed that active patient involvement increases awareness, understanding, and behaviors of ATT (36). Durose et al. showed that educating patients about diet and how to consume liquids causes restrictions on liquid consumption and subsequently increases physical health and ATT (37). Vahedparast et al. investigated the role of social support in the ATT of patients with chronic diseases using a qualitative study and found that a supportive spouse is one of the main aspects of social support and causes higher treatment compliance (18). Rezai et al. announced that the family-centered empowerment model has a significant effect on the ATT of type 2 diabetic patients with cardiac disorders (38), which was entirely consistent with the results of the present study. According to Sotodehasl et al., GHT can increase patients' willingness to comply with methadone maintenance regimen and improve their quality of life (39). Farnia et al. stated that when GHT is effective in the happiness of hemodialysis patients, it does not cause a change in positive mood (40). Similar studies prove that holding educational meetings over several years, family education, telephone follow-ups after educational interventions, and family-centered empowerment programs can increase the self-efficacy of hemodialysis patients, ATT, and quality of life (41-43).

5.1. Limitations

The crucial limitations of the study included two essential items. The first item was the arbitrary use of anxiety-reducing drugs without informing the doctor and the researcher, and the second item was receiving training on informal methods of reducing anxiety and increasing compliance with treatment by the media, medical personnel, and other informative sources.

5.2. Conclusions

Based on the results, hemodialysis patients' overt and hidden anxiety decreased significantly immediately after the group hope therapy intervention (GHTI) and one month after the GHTI compared to the pre-intervention phase. Although the level of anxiety (overt and hidden) significantly decreased three months after the GHTI compared to before the GHTI, it increased compared to the steps "immediately after the intervention" and "one month after the intervention." GHTI caused significantly increased adherence to treatment (ATT) in hemodialysis patients in the stages of "immediately after the GHTI" and "one month after the GHTI" compared to "before the GHTI." In addition, ATT decreased in the "three months after the GHTI" phase compared to the "before the GHTI" phase. Therefore, the GHTI significantly reduced anxiety and increased ATT in hemodialysis patients. A monthly GHTI should be implemented on hemodialysis patients to maintain its effectiveness.

Footnotes

Authors' Contribution: Z.A.: Presenting the idea, designing the study, writing and revision of the manuscript, and supervising the implementation of the study; S.F.: Collect data, writing and revising of manuscript and record results; T.T.: Collect data, record results, and analyze findings; M.A.: Collect data writing and revision of manuscript and record results.

Conflict of Interests: Authors confirm this study has no relevant financial or non-financial competing interests.

Ethical Approval: The Ethics Committee of Lorestan University of Medical Sciences, Khorramabad, Iran, approved the study protocol. (Ethic code: IR.LUMS.REC.1396.356; IRCT: 20180628040273).

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Informed Consent: Verbal and written consent was obtained from the participants to participate in the present study.

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