Investigating the Effectiveness of Positivism Group Psychotherapy in Depression, Stress and Anxiety of Dialysis Patients

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Abstract

The aim of conducting this research was to investigate the effectiveness of positivism group psychotherapy in depression, stress and anxiety of dialysis Patients referring to Modarres hospital in Iran. This is a quasi-experimental study with pre- and post-tests. The research sample included 26 patients (13 patients in the experimental and control groups). The patients in the experimental group took part in six weeks of group sessions for one and a half months. The Depression, Anxiety and Stress Scale (DASS-21) was utilized for data collection. The obtained results showed that positivism group psychotherapy is effective n reduction of depression, stress, and anxiety of dialysis patients. Therefore it is recommended that oncologists use the positivism group psychotherapy to reduce depression, stress, and anxiety of dialysis patients.

Keywords: Positivism group psychotherapy; depression; stress; anxiety; dialysis.

1. Introduction

Chronic renal failure is a progressive disease involving deterioration and destruction of renal nephrons, with progressive and irreversible loss of renal function. Due to its systematic effects, it is associated with a number of serious complications.

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The primary therapy for end-stage renal disease is dialysis and eventually kidney transplant [1]. Today, 2.3% of the world's population suffers from chronic renal failure, and every seven years, the number is doubled. Each year 60,000 people die prematurely because of chronic kidney disease [2] and in Iran, about 15% is added annually to the number of dialysis patients [3]. In addition to numerous physiological changes, patients with chronic renal failure are confronted with many psychological stresses. On the one hand due to their knowledge of the severity of their illness, these patients have to endure the stresses of hard treatments such as dialysis, and on the other hand as their illness lasts long, their psychosocial function is heavily influenced and they often experience psychiatric disorders such as social impairment, anxiety and depression [4]. Complications in dialysis patients' neurological systems include failure to concentrate for a long time, burning sensation in the body, restless leg syndrome, loss of legs and even complete paralysis [5]. These factors are associated with many psychological stresses, each of which can disturb the mind and personality of patients. Most of the patients are not able to adapt themselves to the problems and tensions and develop behavioral changes such as anxiety, depression and isolation [6].

In a study conducted by Mollahad et.al (2010) to compare anxiety, stress and depression among hemodialysis and kidney transplantation patients, 63.9% of hemodialysis patients had anxiety, 60.5% had depression and 51.7% had stress. The results revealed that the prevalence of anxiety, depression and stress is high in hemodialysis and kidney transplantation patients and it is higher in hemodialysis patients [1]. Kimmel and his colleagues (2000) concluded that there was a meaningful relationship between higher levels of depressive affect and the mortality of dialysis patients [7]. In another study Kimmel found out those dialysis patients who scored higher in Beck's Depression Inventory suffered more complications during treatment. In addition, it was found that poor quality of life and psychiatric problems may even lead to the withdrawal of dialysis patients from the treatment process [8].

Depression is one of the most important factors for patients' poor adherence to treatment which can increase their medical problems and endanger their health and ultimately cause their premature death [9]. Anxiety also prevents following a healthy diet and the recommended treatments, and has a negative impact on self-care and treatment outcomes. Patients with higher social support and lower anxiety level have higher levels of self-care [10]. The results of the studies show that there is a significant correlation between depression, anxiety, stress, and poor adherence to the recommended diet and even the necessary treatments, and this could deteriorate patients' health condition and ultimately cause their premature death [11]. Therefore, maintaining mental health and controlling depression, anxiety and stress in these patients are very important.

Treatment of depression, anxiety and stress involves pharmacological and non-pharmacological interventions. Considering the problems and complications of drug therapy, the use of non-pharmacological treatment methods for reducing depression, anxiety and stress of patients with chronic renal failure seems logical. Due to high costs and numerous complications of drug therapy, stress and dependence on these drugs, non-pharmacological treatment techniques can be used to control anxiety, depression and stress in these patients [12]. So far, different non pharmacological therapies have been considered as complementary therapies for reducing anxiety and depression in various diseases and conditions, including massage and exercise therapy, acupuncture, music therapy, prayer and religious practices [13]. While beneficial, some of these methods have their own limitations.

Cohen et.al (2007) found out that dialysis patients participating in group therapy had better improvements compared to the control group [14]. Positive psychology has always sought to identify and describe happiness and the subjective sense of well-being and their prediction. Along with the promotion of well-being and volition, identification and reinforcement of the positive aspects in individuals and help in treatment process are the central theme of this emerging field in psychology [15].

Teaching positive thinking skills in order to strengthen positive relations with others, promote positive emotions, behaviors, and perceptions, improve well-being, treat some psychiatric disorders such as depression and anxiety, and increase self-esteem are very useful for individuals, especially for children and adolescents [16]. Kane et.al (2004) examined the long-term effects of Penn's prevention program on preventing depression and anxiety in children aged 11-13 with high levels of depression in Australian rural schools. The results showed that the intervention group had more optimistic documents than the control group after the intervention [17]. In a research study conducted by Seligman, Steen , Park , and Peterson, the authors focused on psychological interventions that increase individual happiness. In a six-group, random assignment, placebo-controlled internet study, they tested five purported happiness interventions and one plausible control exercise. They found that three of the interventions lastingly increased happiness and decreased depressive symptoms [17]. Fava et. al (2005) found that positive psychological interventions could increase the psychological well-being of depressed people and reduce depression symptoms [19].

Dockray and Steptoe (2010) revealed that the components of a positive affect were effective in reducing anxiety and depression, and increasing life satisfaction, mental health, hope and happiness [20]. In a study entitled "exploring the role of positive psychology constructs as protective factors against the impact of negative environmental variables on the subjective well-being of older adults" , Pezent (2011) indicated that the positive psychology cluster mediates the relationship between perceived health and two of the three components of subjective well-being (life satisfaction and positive affect). In addition, correlation analyses revealed that the positive psychology variables were all significantly correlated with each other, as well as with the participant reports of life satisfaction, positive affect, and perceived health. The results of research studied conducted by Diener and Chan (2011) and Sin, Della Porta and Lyubomirsky (2011) showed that teaching positive thinking is effective in improving the quality of life of adolescents [22, 23]. Sing and Wong (2011) discovered that individuals who tend to be pessimistic have a significant degree of stress which ultimately leads to physical illness and emotional and mental fatigue [24].

Scheuller (2012) reported in his research that positive psychology, focusing on positive emotions, positive traits, and positive institutions, is a good tool for a good life. He further found that the interactions of positive psychology improved the psychological well-being [25]. Santos et.al (2013) uncovered that the strategies of positive psychology, such as increasing positive emotions, develop personal strengths, seeking direction, meaning and engagement for the day-to-day life of the patients, appear as potential tools for the treatment of depression. Bolier et.al (2013) discovered that positive psychology interventions can be effective in the enhancement of subjective well-being and psychological well-being, as well as in helping to reduce depressive symptoms. Lyubomirsky and Layous (2013) argued that positive interventions stimulate increases in positive emotions, positive thoughts, positive behaviors, and need satisfaction, which in turn increase happiness and

psychological well-being and reduce depression [28]. In addition, Sergeant and Mongrain (2014) indicated that the optimism intervention increased the pursuit of engagement-related happiness in the short term and reduced dysfunctional attitudes across follow-ups. Pessimistic individuals had more to gain and reported fewer depressive symptoms at post-test [29]. Layous, Choi, and Lyubomirsky (2014) reported that positive psychotherapy was effective in reducing symptoms of depression and increasing subjective well-being and happiness [30].

The aforementioned issues emphasize the importance and necessity of controlling dialysis patients' psychiatric disorders and finding scientific and practical solutions for them. Since there is a literature gap on this area for dialysis patients, the present study aimed to determine the effects of positive group interventions on depression, anxiety and stress of dialysis patients.

2. Materials and methods

2.1. Design

This is a quasi-experimental study with pre- and post-tests which was conducted in the dialysis unit of Modarress hospital in Iran. The available sample population consisted of 34 patients. From these, 30 patients could meet the inclusion criteria and were divided to experimental and control groups. Until the end of the therapy, two patients from the experimental group left the study due to their disease progression; therefore, two participants from the control group were removed. The experimental group received 6 sessions of positive group psychotherapy (one session per week), and the control group received no psychotherapy in this period but they received the common, available treatments. For ethical issues, if willing, the positive group intervention would be performed on the control group with the post-test and if the members of the experimental group felt uncomfortable during the intervention they could leave the study.

To protect confidentiality, data collected from the evaluation session were coded in a way that keep the participants anonymity and be available only to those involved in the study. Participants were provided with the necessary explanations for each research goal and then socio-demographic information was obtained via a self-reported self-administrative form. After that participants completed the Depression Anxiety Stress Scale 21 (DASS 21) questionnaire. For patients who did not have sufficient literacy or were unable to respond due to visual impairment, the questionnaire was read to them and the responses were recorded. After the intervention, the DASS-21 questionnaire was completed again by each group. The exclusion criteria in this study included: having suicidal ideation or failed suicide attempt, psychosis, severe physical problems such as severe vision and hearing problems, and mental retardation. The Depression Anxiety Stress Scale 21 (DASS 21) questionnaire was utilized as the research instrument. It consists of 21 phrases related to the symptoms of negative emotional states of depression, anxiety, and stress. A 4-point severity scale measures the extent to which each state has been experienced by the participants over the past week. Each item comprises a statement and four short response options to reflect severity and scored from 0 (Did not apply to me at all) to 4 (Applied to me very much, or most of the time). Various studies have shown that DASS scales have good psychometric properties [31]. Lovibond and Lovibond (1995) using a large non-clinical sample (n = 2914) reported the internal

consistency of the Depression Anxiety Stress Scales as 91%, 84% and 90%, respectively. In a study of non-clinical samples, the internal consistency of depression, anxiety and stress were 91%, 84%, and 90%, respectively, and in a study of clinical samples, the internal consistency were reported to be 96%, 89%, 93%, respectively [32]. Psychometric properties (validity and reliability) of this questionnaire have been approved among Iranian clinical and non-clinical samples. Shaeiri, Atrifard, and Asghari (2008) in a study of non-clinical population found that the internal consistency (Cronbach's alpha) of each sub-scale was over 90%, and the re-test reliability coefficients over a three week interval were 84% for the depression scale , 89% for the anxiety scale and 90% for the stress scale [33]. After the translation and preparation of the DASS, the test was conducted in a sample of 420 people from the general population. To validate the concurrent validity, the test was conducted in a sample of 130 patients with psychiatric disorders. The test re-test reliability of the scale was validated by re-implementing the scale amongst 40 members of general population with a 3-week interval. In the process of DASS translation and preparation, the following steps were taken: 1) Two experts translated the original version of DASS from English into Persian independently. The translations were compared by the first author of the article and converted to a text. 2) Another two experts translated back the text from Persian into English and any differences were resolved and a text was created. The text was compared to the original DASS text. Finally, the Persian version of DASS was created. In a pilot study, the Persian version of DASS was implemented among a group of Persian speaking students and its applicability in the Iranian population was assured. This questionnaire was confirmed by Cronbach's alpha coefficient of 0.78 in Iran (Sahebi and his colleagues 2005). The correlation between anxiety sub-scale and the Zung Self-Rating Depression Scale was 67%, between depression sub-scale and Beck's Depression Inventory was 71%, and between stress subscale and the Perceived Stress Scale was 79%. In this study, Cronbach's alpha was 77% for depression, 74% for anxiety and 79% for stress scales.

3. Results

3.1. Demographic factors

Table 1: Frequency and percentage distribution by gender

Gender	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
Male	7	53.85	6	46.15
Female	6	46.15	7	53.85
Total	13	100	13	100
Likelihood =0.154	**P≥ 0.500**		$X^2 = 0.154$	**$P \geq 0.500$**

In both groups, the number of male and female in the sample group is approximately equal. Furthermore, the results of the Chi square test (X^2) indicated that the difference between two groups was not statistically significant in terms of gender.

Table 2: Frequency and percentage distribution by marital status

Marital status	Experimental group		Control group	
	Frequency	Percentage	Frequency	percentage
Married	10	76.92	11	84.62
Single	3	23.08	2	15.38
Total	13	100	13	100
Likelihood =0.249	P≥ 0.500		$X^2 = 0.248$	$P \geq 0.500$

Most of the participants are married in both experimental and control groups. Moreover, the results of the Chi square test (X^2) showed that the difference between two groups is not significant in terms of marital status.

Table 3: Frequency and percentage distribution by educational levels

Educational levels	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
Under Diploma	2	15.38	3	23.08
Diploma	7	53.85	6	46.15
B.A.	3	23.08	3	23.08
M.A	1	7.69	1	7.69
Total	13	100	13	100
Likelihood =0.278	P≥ .0964		$X^2 = 0.277$	$P \geq 0.964$

Both in experimental and control groups, nearly half of the sample had diploma and the lowest frequency is related to graduate students (M.A). The results of the Chi square test (X^2) showed that the difference between the experimental and control groups is not significant in terms of educational levels.

Table 4: Frequency and percentage distribution by age

Age	Experimental group		Control group	
	Frequency	Percentage	Frequency	Percentage
20-30	4	30.77	5	38.46
30-40	6	46.15	5	38.46
40-50	3	23.08	3	23.08
Total	13	100	13	100
Likelihood =0.202	**P≥ .0904**		$X^2 = 0.202$	$P \geq 0.904$

Both in the experimental and control group the most number of participants were in the age group of 30-40 years and the least number were in age group of 40-50 years. The results of the Chi square test (X^2) showed that the difference between the experimental and control groups is not significant in terms of age.

Table 5: Independent T-test results comparing the mean scores of depression, anxiety and stress in control and experimental groups

Scale	T- Value	Degree of freedom	Level of significance
Depression	0.01	24	0.999
Anxiety	1.62	24	0.542
Stress	0.31	24	0.761

Table 6: Descriptive statistics of pre-test and post-test scores for depression scale in experimental and control groups

Groups		Descriptive statistics		Measures of central tendency		Measures of variability	
		Minimum	maximum	Median	Mean	Range	SD
Pre-test	experimental	10	19	14	13.92	9	2.69
	control	10	18	14	13.92	8	2.72
Post-test	experimental	9	17	11	12	8	2.58
	control	10	19	14	13.92	9	2.52

As the results indicate the mean score for the depression scale in the experimental and control groups was 13.92 in the pre-test for both groups and 12 and 13.92 in the post-test for the experimental and control groups respectively. Based on the results, it can be concluded that in the post-test, the mean scores for depression of dialysis patients decreased in the experimental group but remained constant in the control group.
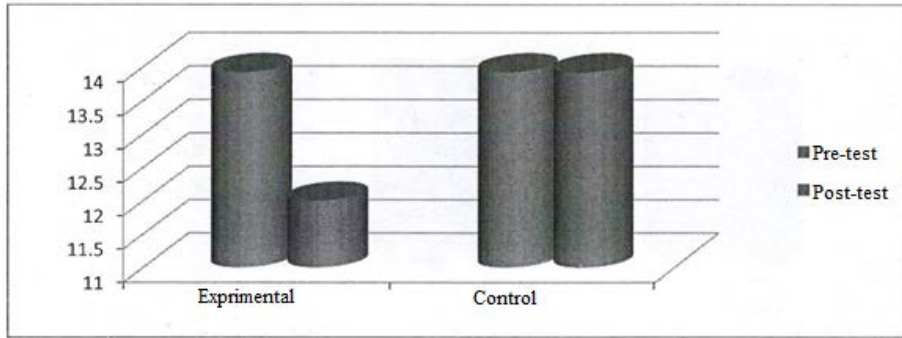
Figure 1: Comparison of the mean scores of pre-test and post-test for depression scale in experimental and control groups

Table 7: Descriptive statistics of pre-test and post-test scores for anxiety scale in experimental and control groups

Groups		Descriptive statistics		Measures of central tendency		Measures of variability	
		Minimum	maximum	Median	Mean	Range	SD
Pre-test	experimental	9	19	13	13.38	10	3.25
	control	10	20	14	14.15	10	3.07
Post-test	experimental	9	19	11	11.76	10	2.68
	control	11	20	14	14.23	9	3.21

As the results indicate the mean score for the anxiety scale in the experimental and control groups were 13.38 and 14.15 in the pre-test and 11.76 and 14.23 in the post-test respectively. Based on the results, it can be concluded that in the post-test, the mean scores for anxiety of dialysis patients decreased in the experimental group but remained relatively constant in the control group.
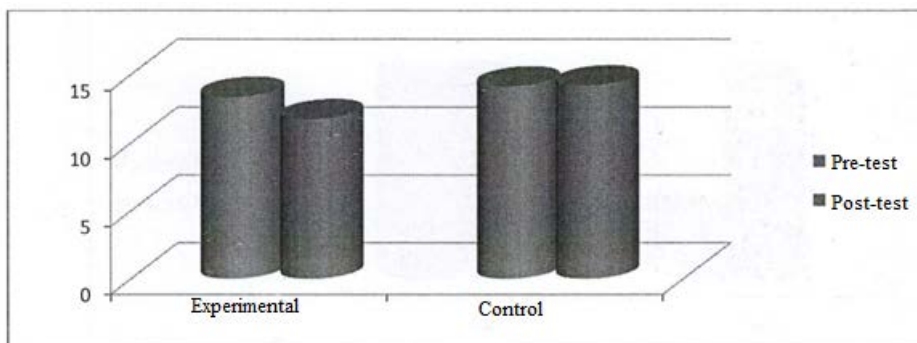

Figure 2: Comparison of the mean scores of pre-test and post-test for anxiety scale in experimental and control groups

Table 8: Descriptive statistics of pre-test and post-test scores for stress scale in experimental and control groups

Groups		Descriptive statistics		Measures of central tendency		Measures of variability	
		Minimum	maximum	Median	Mean	Range	SD
Pre-test	experimental	9	19	14	13.76	10	3.24
	control	9	19	14	14.15	10	3.13
Post-test	experimental	9	15	12	11.69	6	1.88
	control	10	18	15	14.30	8	2.92

As the results indicate the mean score for the stress scale in the experimental and control groups were 13.76 and 14.15 in the pre-test and 11.69 and 14.30 in the post-test respectively. Based on the results, it can be concluded that in the post-test, the mean scores for the stress of dialysis patients decreased in the experimental group but remained relatively constant in the control group.
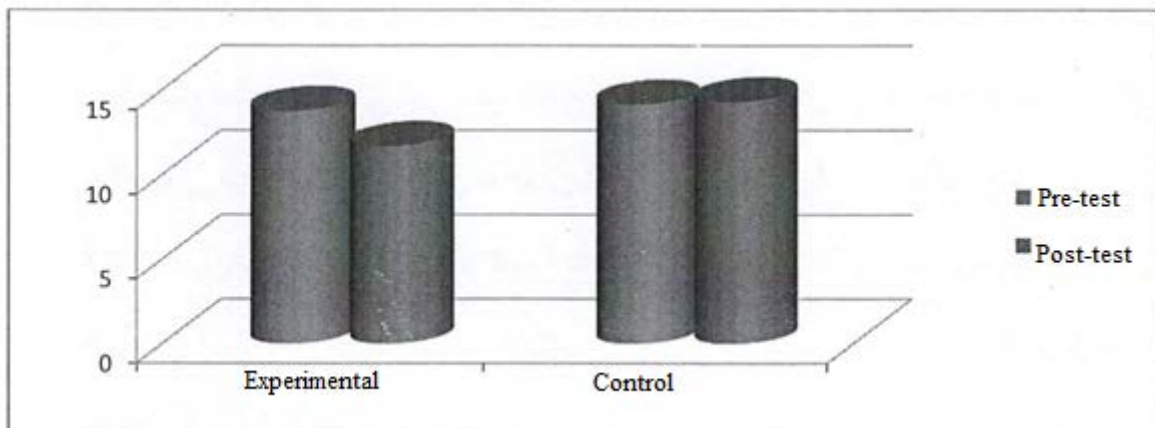

Figure 3: Comparison of pre and post-tests mean scores for the stress scale in experimental and control groups

Table 9: Levene's test results to assess the equality of variances

Variables	Degree of freedom 1	Degree of freedom 2	Frequency	Significance
Depression	1	24	0.303	0.587
Anxiety	1	24	0.796	0.796
Stress	1	24	1.558	0.224

Based on the results presented in the table, the homogeneity variances of experimental and control groups' scores in depression, anxiety and stress scales is not significant at 95% level ($\alpha = 0.05$). A non-significant Levene's test means the confirmation of the null hypothesis; therefore, it can be concluded with 95% confidence that the variances of the scores in the experimental and control groups are equal. This assumption is confirmed by Analysis of covariance (ANCOVA).

Table 10: The result of Kolmogorov-Smirnov test to assess the normal distribution of depression, anxiety and stress scores in dialysis patients

Variable	Groups	K-S statistic	Significance level
Depression	experimental	0.457	0.985
	control	0.599	0.865
Anxiety	experimental	0.455	0.986
	control	0.388	0.998
Stress	experimental	0.400	0.997
	control	0.623	0.833

Based on the results presented in the above table, the distribution of scores for depression, anxiety and stress of patients in experimental and control groups is not significant at 95% level ($\alpha = 0.05$). A non-significant Kolmogorov-Smirnov test means the confirmation of the null hypothesis i.e. "the normal distribution of scores in experimental and control groups for patients' depression, anxiety and stress; therefore, it can be concluded with 95% confidence that the distribution of the patients' depression, anxiety and stress scores in the experimental and control groups is normal.

Table 11: Analysis of slope of regression line for depression scores

Sources of changes	Sum of squares	Degree of freedom	Mean squares	F-Ratio	Significance level
Group	1.05	1	1.05	0.197	0.661
Pre-test	36.96	1	36.96	6.901	0.015
Group *depression	3.84	1	3.84	0.718	0.406
Error	117.83	22	5.35	-	-
Total	4551	26	-	-	-

Based on the results, the significance level of the interaction effect (group* depression) is greater than ($\alpha = 0.05$), so the homogeneity hypothesis of the regression line slope is acceptable.

Table 12: Analysis of slope of regression line for anxiety scores

Sources of changes	Sum of squares	Degree of freedom	Mean squares	F-Ratio	Significance level
Group	1.303	1	1.303	0.333	1.570
Pre-test	121.97	1	121.97	31.21	0.001
Group *anxiety	0.05	1	5.05	1.29	0.268
Error	85.96	22	3.90	-	-
Total	4644	26	-	-	-

Based on the results, the significance level of the interaction effect (group* anxiety) is greater than ($\alpha = 0.05$), so the homogeneity hypothesis of the regression line slope is acceptable.

Table 13: Analysis of slope of regression line for stress scores

Sources of changes	Sum of squares	Degree of freedom	Mean squares	F-Ratio	Significance level
Group	1.44	1	1.44	0.312	1.582
Pre-test	38.43	1	38.43	8.339	0.009
Group *anxiety	6.79	1	6.79	1.473	0.238
Error	101.40	22	4.60	-	-
Total	4584	26	-	-	-

Based on the results, the significance level of the interaction effect (group* stress) is greater than ($\alpha = 0.05$), so the homogeneity hypothesis of the regression line slope is acceptable.

4. Discussion

The results of this study showed that the average anxiety, depression and stress were significantly decreased in the experimental group receiving the positive group psychotherapy compared to the control group. The finding suggests that positive group psychotherapy can be effective in reducing the psychological symptoms of dialysis patients. In line with findings of the current study are a number of studies that investigated the effects of psychological interventions on improving the patients' conditions. Baines (2004) that showed both individual and group psychotherapies are effective in reducing depression in dialysis patients [34]. Lii, Tsay and Wang (2007) that investigated the effects of group intervention on depression, self-efficacy and quality of life in hemodialysis patients indicated that group psychosocial intervention significantly reduced depression, improved self-care, self-efficacy and quality of life in hemodialysis patients [35]. Tsay (2005) investigated the effectiveness of an adaptation training program to help patients with end-stage renal disease to cope with illness-

related stresses and, thus, to alleviate depression and improve quality of life. The study supported the effectiveness of the adaptation training in decreasing stress and depression levels, and improving the quality of life of patients receiving hemodialysis [36]. Azhar and Varma conducted a study to explore the outcome of psychotherapy in depressed patients. In the experimental group a brief psychotherapy of 15-20 sessions was attempted with the addition of a religious perspective, while in the control group the religious perspective was omitted. Patients in the study group showed more rapid improvement in the initial 3 months of the study period than those in the control group [37]. Cukor (2007) found out that a cognitive behavioral therapy has a significant effect on reducing stress of patients [38]. Duarte et.al (2009) assessed the effectiveness of cognitive-behavioral therapy in chronic hemodialysis patients diagnosed with major depression by the Mini International Neuropsychiatric Interview (MINI) in Brazil. The intervention group had significant improvements, compared to the control group, in the average scores of the Beck Depression Inventory overall scale, MINI scores, and in quality-of-life dimensions that included the burden of renal disease, sleep, quality of social interaction, overall health, and the mental component summary. They conclude that cognitive-behavioral group therapy is an effective treatment of depression in chronic hemodialysis patient [39]. In explaining the effects of psychological therapy based on positive psychology on reducing the symptoms of depression, the fundamental assumptions of positive psychotherapy can be noted. Positive psychotherapy is based on a number of assumptions; first, all people are prone to mental illness, as they inherently desire growth, fulfillment, and happiness. Second, positive resources such as strengths and emotions are authentic and as real as symptoms and disorders. The final assumption is that effective therapeutic relationships can be formed through the discussion and manifestation of positive resources, not just thorough lengthy analysis of weaknesses and deficits. Therefore, psychotherapists consider clients as autonomous and growth-oriented [40]. Along with these basic assumptions, positive psychotherapy helps clients find the positive points and use a positive introduction technique. Besides paying attention to personal traits and capabilities, it puts forward a way which opposes the idea of finding failures and weaknesses in depressed people. With negative thoughts and feelings, depressed people restrict the scope of their decisions and actions, which is targeted in a positive psychology approach by identification of strengths and experience of positive emotions. When a person experiences a positive feeling, he can see more chances ahead, which is precisely the opposite of what he experiences with a negative feeling [40]. The current study was subject to some limitations. One of them was related to the instrument, which was limited to the paper pencil test. Another major limitation of this research was the lack of follow-up treatments that the specific conditions of dialysis patients have imposed on research. Regarding the high prevalence of depression, anxiety and stress in dialysis patients and the results of this study, which confirmed the effects of positive group psychotherapy on reducing depression, anxiety and stress in these patients, it is recommended that psychological interventions such as positive group psychotherapy be used to reduce psychiatric complications of dialysis patients. Further investigations of other psychotherapies on this group of patients are suggested.

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