

The Effectiveness of Preventive Strategies on Psychological Wellbeing of Hemodialysis Patients in Estahban

Abstract

This study aims to examine the effectiveness of preventive strategies on the psychological well-being of hemodialysis patients in Estahban city. The research method is quasi-experimental, including experimental, control, and follow-up groups. The statistical population involved all the patients referred to the hemodialysis department of Imam Khomeini hospital, out of whom 40 people who were poor in terms of mental health and quality of life were randomly selected as a sample and randomly divided into experimental and control groups. Those in the experimental group received interventions in eight sessions, and those in the control group were placed on the waiting list. Using research tools, Reef's (1997) mental health questionnaire, Ware and Sherbourne's 1992 questionnaire on quality of life, and preventive strategies training package was administered to both groups as the pre-test, post-test and three-month follow-up. Descriptive statistics and covariance methods were used at a significance level of 0.05 to analyze the effectiveness of preventive strategies on psychological well-being. The findings of covariance analysis suggested that there is a significant difference between the two groups in psychological well-being and its components ($p < 0.05$). According to the findings, it could be inferred that teaching intervention of preventive strategies in preparation to take care of hemodialysis patients would lead to the enhancement of their psychological well-being.

Keywords: preventive strategies, psychological well-being, hemodialysis patients, hemodialysis

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Introduction

Introduction:

Renal insufficiency is one of the major public health problems the world over and refers to temporary or permanent kidney damage, leading to the loss of normal kidney function (Sayin, Mutluay, & Sindel, 2007). According to the report of the Transplant Management Center and Special Diseases of the Ministry of Health, the population of patients with renal impairment at home is 320 thousand people (Glover, Banks, Carson, Martin, 2011). Dialysis is a process to remove fluid and uremic waste products from the body and is used when the kidneys cannot perform such a function. Hemodialysis is the most common dialysis method. In patients with chronic renal impairment, hemodialysis prevents death, although it is not a cure for renal diseases and does not compensate for the endocrine and metabolic activities of the kidneys, and the patient is exposed to many problems and complications (Smeltzer, Bare, 2010).

Patients with renal impairment are among those who often experience many psycho-social problems due to changes in lifestyle as well as disease and treatment methods. For this

reason, depression and anxiety are among the most common psychological problems. Restrictions in liquid consumption and diet, physical disability, and other medical treatments, along with other limitations, are causes for concern for these patients, leading to mental and psychological reactions (Yong – Shing Chen, 2003).

One of the most stressful aspects of this disease is the uncertainty of the future and the treatment process, which affects the hope of the affected person, and makes their mental health (psychological well-being) extremely vulnerable (Finkelstein, Wurth, 2009). Possible physical complications such as low blood pressure, painful muscle contractions, bleeding, air embolism, chest pain, decreased level of consciousness, repeated hospitalization, unemployment, financial problems, dietary restrictions, reduced ability to manage life affairs, sexual and marital problems, lead to low quality of life in people with renal impairment, and affects their mental health, and they will suffer from anxiety and depression. Also, this disease could cause a change in the patient's evaluation of his health and quality of life by creating physical, social, and economic disorders. Considering the

effect that chronic kidney disease has on the physical, mental, and social health of people, it is of greater importance to investigate and measure the psychological well-being related to the health of patients with chronic diseases (Farrokhi, Abedi, Beyene, Kurdyak, & Jassal, 2014). Symptoms related to hemodialysis complications have a major effect on mood, performance status, general health, and psychological well-being, with most patients suffering a lot of stress due to the specific conditions of their disease, leading to decreased psychological well-being in patients with chronic kidney insufficiency (Ferrans, 1992). Psychological well-being is the ability to live with happiness and productivity without difficulties; being an abstract and relativistic concept and means a way of adapting to the world (Gurklis, 1995). Psychological well-being is the full capacity to live in a way that allows us to understand our natural capacities and creates a kind of unity between the individual and others instead of isolating us from the other human beings who make up the world around us (Gurklis, 1998).

In 1997, Reef et al. conceptualized and operationalized a multidimensional model of psychological well-being. In this model, psychological well-being has a positive functional significance that involves having a pleasant feeling about oneself and one's life, consisting of different elements such as 1- self-acceptance, 2- a positive relationship with others, 3- autonomy, 4- being self-determined 5- independence, 6- environmental mastery, 7- purposefulness in life, and 8- personal growth (Gurklis, 1998, Reef, 2014).

Preventive strategies are among those that are effective in controlling stress. Recent research supports the role of preventive styles in controlling stress (Gurklis, 1995). Dealing with problems as well as physical and mental disorders caused by stress, people show various preventive reactions that have cognitive, emotional, and sometimes behavioral aspects, and their goal is to minimize the pressure of stressful situations (Rafieeniya, 2009). Prevention or overcoming is used to refer to cognitive and behavioral methods and actions that a person employs to master, reduce, or tolerate internal or external demands resulting from stressful interactions (Sarafino, 2005). Folkman and Lazarus list two types of problem-focused and emotion-focused prevention. Emotion-focused prevention has four features, namely confrontation, introversion, self-control, and avoidance, where an individual strives to forget the problem or get support to control his emotional tension. Emotion-oriented preventive methods may be effective in the short term, but the main solution requires planning and implementing problem-solving methods (Harwood, 2009). Parker and Endler (1990) defined three styles of preventing stress, namely problem-oriented prevention, or active handling of the problem to manage and solve it, emotion-oriented prevention, or focusing on emotional responses to the problem,

and avoidance preventive or overlooking the problem (Ulvik, 2010). Measuring the psychological well-being of patients with chronic kidney insufficiency is not only a tool for assessing the effectiveness of therapeutic interventions but also a method to analyze the costs and effectiveness of interventions. Intervening in the goal and preventive strategies can help patients to have a more active role in managing their disease and improving their life and psychological function. Chronic renal insufficiency, and patients undergoing hemodialysis, are considered to be one of the biggest and most serious challenges in the health system in the country, and given that very few studies have specifically and experimentally explored the effect of preventive strategies on the dimensions of psychological well-being in patients undergoing hemodialysis, and also due to the high prevalence of depression and anxiety (Kasiske, 2004), and poor mental health (psychological well-being) (Abbaszadeh, 2010) in these patients, we attempted, in research, to analyze the influence of preventive strategies on the dimensions of psychological well-being in patients undergoing hemodialysis in Imam Khomeini hospital, Estahban city.

Methodology:

Research design: This research is quasi-experimental, with pre-test, post-test, and 3-month follow-up tests. An experimental and control group was used in this study.

Subjects: The statistical population of the study included all patients with kidney failure, who were referred to the hemodialysis department of Imam Khomeini hospital, Estahban, in the Fall of 2018. The research sample was composed of 40 patients who were selected from the statistical population using convenience and purposive sampling, i.e., patients referring to the hemodialysis department, and was randomly divided into two groups of 20. The criteria to enter the study are: being over 25 years old, having a minimum educational level of reading and writing, not having severe mental and personality disorders (measurement by interview and the Minnesota Multiphasic Personality Inventory), and not attending other treatment programs at the same time, and not receiving individual counseling or drug therapy, as well as the ability and tendency to participate in training sessions, and signing the informed consent form.

Instruments:

➤ Reef Psychological Well-being Questionnaire (1997)
Reef Psychological Well-being Questionnaire (short form), this questionnaire includes 18 questions aimed at evaluating and examining psychological well-being from different facets (independence, mastery of the environment, personal growth, positive relationship with others, purposefulness in life, self-acceptance).

• Questionnaire components:

This questionnaire has 6 dimensions, and dimensions, as well as the question number related to each dimension, are presented in the table below:

Dimension	Related questions
Independence	9, 12, 18
Mastery of environment	1, 4, 6
Personal growth	7, 15, 17

Positive relationships with others	3, 11, 13
Purposefulness in life	5, 14, 16
Self-acceptance	2, 8, 10

Questionnaire scoring:

The scoring range is based on a six-point Likert scale. The table below presents options and the corresponding score for each option:

Option	Strongly disagree	Somewhat disagree	Slightly disagree	Slightly agree	Somewhat agree	Strongly agree
Point	1	2	3	4	5	6

Of course, this scoring method is reversed for questions 1, 3, 4, 5, 9, 10, 13, and 17 and is as follows:

Option	Strongly disagree	Somewhat disagree	Slightly disagree	Slightly agree	Somewhat agree	Strongly agree
Point	6	5	4	3	2	1

• Analysis (interpretation) based on the questionnaire score

To get the point related to each dimension, the total points of that dimension were added together. To get the total score of the questionnaire, the total points of each question were calculated. Higher scores suggest higher psychological well-being in the respondent and vice versa.

Based on this method of analysis, the obtained scores were summed, and the inference was made based on the table below. Considering that the number of points below is for one questionnaire, if we have, for example, 10 questionnaires, we must multiply the following points by 10.

Example: The lower limit of questionnaire scores is obtained as follows:

The number of questions in the questionnaire * 1 = the lower limit of the score

The lower limit of scores	Medium limit of scores	The upper limit of scores
18	63	108

The points from the above 18 statements are not added together. The minimum possible score is 18, and the maximum is 108.

• Validity and reliability

In a study conducted by Khanjani et al. (2013), the results of a one-group confirmatory factor analysis indicated that in the whole sample and both genders, the six-factor model of this scale (self-acceptance, mastery of environment, positive relationship with others, purposefulness in life, personal growth and independence), has a good fitting. The internal consistency of this scale using Cronbach's alpha in 6 factors of self-acceptance, environmental mastery, positive relationship with others, purposefulness in life, personal growth, and independence is 0.51, 0.76, 0.75, 0.52, 0.73, 0.72, respectively, and 0.71 was obtained for the whole scale.

- Preventive strategies will be taught based on Gandomkar et al. (2012) educational treatment package. Preventive strategies were held once a week for 8 sessions of 90 minutes. The table below shows a description of this intervention.

Sessions	Activities
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1 st session	Acquaintance and introduction, description of the objectives and rules of the group, conceptualization, and description of stress, its symptoms, and outcomes
2 nd session	Teaching relaxation and stress relief, providing tasks in this regard to the members
3 rd session	Reviewing the tasks of the previous session, getting familiar with cognitive concepts, the role of thoughts in causing stress, and the relationship between thoughts and emotions and behavior, the characteristics of spontaneous negative thoughts, introducing cognitive errors, assigning related tasks.
4 th session	Reviewing tasks and solving problems, teaching how to deal with negative thoughts
5 th session	Teaching guided self-talk, and the role of negative self-talk in creating stress, giving assignments, and receiving feedback
6 th session	Solving problems and reviewing the tasks from the previous session, training, concentration, and attention techniques
7 th session	Teaching problem-solving, dividing the problem into smaller components, getting familiar with the brainstorming method to find different solutions, evaluating available solutions and choosing the best ones, developing the plan and its details using mental review, and setting assignments to complete the sheet of six stages of problem-solving.
8 th session	Practicing the skills learned in previous sessions and the need to use these skills when dealing with stressful situations to reduce the symptoms of the disease and increase overall recovery, reviewing the tasks of the previous session, and answering the questions raised by group members.

Data collection method

Having determined the sample size, the selected people were randomly placed in an intervention group and a control group, and both groups completed the standard Reef psychological well-being questionnaire in the pre-test. Then, preventive strategies were taught in eight sessions one and a half hours long in the intervention group. Preventive strategies were not trained in the control group. After completing the training course, with a two-week training interlude, all patients (40 people) again completed quality of life and psychological well-being questionnaires to determine the effect of the independent variable on the dependent variables.

Data analysis method

Data were analyzed in SPSS 25 software environment and at a significance level of 0.05 ($P < 0.05$) using descriptive statistics methods such as mean, standard deviation, and standard error, and then using inferential statistics methods (analysis of covariance with default assumptions). Differences between the two research groups were studied. In this analysis, the effect of

Table 1. frequency and frequency percentage of demographic variables between two experimental and control groups in patients undergoing hemodialysis in Estahban city

Variable		Frequency	Percentage	Frequency	Percentage
		Experimental group		Control group	
Age	25-41	8	40%	8	40%
	42-58	7	35%	3	15%
	59-75	5	25%	9	45%
Dialysis period	1-5 years	17	85%	19	95%
	6-10 years	-	-	1	5%
	10-16 years	3	15%	-	-

pre-test control variables was removed from the post-test and follow-up scores, and then the two groups were compared according to the remaining scores.

Ethical considerations and code of ethics

After the approval of the research topic in the research unit of Islamic Azad University, Sirjan Unit, and to investigate the hemodialysis department of Imam Khomeini Hospital, Estahban, we needed permission to study in the medical sciences unit of Shiraz. By submitting the proposal and questionnaires to the research vice-chancellor of the above university to obtain research permission and issue the code of research ethics, after setting up the research ethics committee in the research vice-chancellor of that university, and filling out informed consent forms for the research and commitment to research ethics by the researcher, the code of research ethics was issued under the number IR.SUMS.REC.1398.859.

Findings:

Educational level	Reading and writing literacy	4	20%	2	10%
	Middle school	9	45%	10	50%
	High school	7	35%	2	10%
	BA, MA, PhD	-	-	6	30%
Marital status	Single	4	20%	1	5%
	Married	16	80%	19	95%
Gender	Male	13	65%	13	65%
	Female	7	35%	7	35%

Table 2. mean and standard deviation of the psychological well-being scores of the experimental and control groups in the pre-test and post-test.

Psychological well-being	Experimental	Pre-test	20	41.05	4.05	16.47	34-48
		Post-test	20	59.6	4.71	22.25	51-70
	Control	Pre-test	20	55.2	7.42	55.11	45-69
		Post-test	20	60.4	7.3	53.41	50-78

Based on the information in Table 2, the mean and standard deviation of the subjects in the psychological well-being variable in the pre-test for the experimental group was 41.05 and 4.05; in the psychological well-being variable in the post-test were 59.6, 4.71; in psychological well-being variable in

pre-test for the control group were 55.2, 7.42; and finally, the mean and standard deviation of the psychological well-being variable in the post-test for the control group were 60.4 and 7.3, respectively.

Table 3: mean and standard deviation of the scores of psychological well-being dimensions for experimental and control groups in the pre-test and post-test.

			Mean	Standard deviation	Variance	Range
Pre-test	Experimental group	Independence	6.85	1.3	1.71	4-9
		Environmental mastery	7.5	1.6	2.57	5-9
		Personal growth	6.1	1.07	1.14	5-9
		Positive relationships with others	6.65	1.18	1.39	4-9
		Purposefulness in life	6.4	1.56	2.46	5-9
		Self-acceptance	7.5	0.88	0.78	5-9
	Control group	Independence	10.5	2.35	5.52	8-17
		Environmental mastery	6.3	1.17	1.37	5-9
		Personal growth	8	2.44	6	4-12
		Positive relationships with others	10.4	2.21	4.88	7-15
		Purposefulness in life	9.6	1.31	1.72	7-12
		Self-acceptance	10.4	3.67	13.51	4-17
Post-test	Experimental group	Independence	9.35	1.42	2.02	7-12
		Environmental mastery	9.7	1.38	1.90	7-12
		Personal growth	9.75	1.40	1.98	7-13

		Positive relationships with others	9.9	1.71	2.93	7-13
		Purposefulness in life	10.15	1.81	3.29	7-13
		Self-acceptance	10.75	1.06	1.14	9-12
	Control group	Independence	10.95	2.3	5.31	8-17
		Environmental mastery	8.7	2.27	5.16	6-14
		Personal growth	9	2.36	5.57	6-13
		Positive relationships with others	11	2.38	5.68	7-16
		Purposefulness in life	10.05	1.43	2.05	7-13
		Self-acceptance	10.7	3.48	12.11	4-17

Based on the information in Table 3, the mean, standard deviation, variance, and range of subscale scores of psychological well-being in the two pre-test and post-test groups can be seen in the table.

Inferential findings

To analyze the findings, multivariate covariance analysis was adopted. Before performing multivariate covariance analysis, to ensure the level of internal consistency validity, Cronbach's alpha coefficients were calculated for the research variables, the results of which can be seen in Table 4.

Table 4. Cronbach's alpha value was calculated for variables of quality of life and psychological well-being.

	Psychological well-being
Cronbach's alpha	0.70

The findings from Table 4 reveal that the internal consistency validity (Cronbach's alpha coefficient) of the research variables is in a good state.

According to the current research design, which is pre-test-post-test, multivariate covariance analysis was used to analyze the data and to control the effect of the pre-test and post-test. In this type of analysis, conditions must be met to make sure of the resulting conditions. Kolmogorov-Smirnov tests were used to check the normality of data distribution.

Table 5. The results of the normality test of the psychological well-being variable

Variable	Kolmogorov-Smirnov		
	Statistics	Degree of freedom	Significance level
Psychological well-being	0.102	39	0.2

The results of the Kolmogorov-Smirnov test on the quality of life and psychological well-being variables are shown in Table 5. According to the significance level calculated, which is more than 0.05, it could be claimed that the distribution of this variable is normal.

- Preventive strategies have a significant effect on the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, which examines the training of preventive strategies on the psychological well-being of patients, the results of Table 6, i.e., the tests of between-subject effects resulting from multivariate covariance analysis, were used.

Table 6 is the major result of the multivariate covariance analysis test. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the dependent variable of psychological well-being and quality of life.

Table 6. tests of between-subject effects based on the influence of preventive strategies training on the psychological well-being variable

Source	Dependent variable	Sum squares	of df	Mean squares	of F	Significance level	Eta squared
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Group	Psychological well-being	599.2	1	599.2	75.23	0.001	0.824
Test	Psychological well-being	1142.89	1	1142.89	143.49	0.001	0.557
Group p*test	Psychological well-being	1139.42	2	569.71	69.20	0.001	0.764

Table 6. shows that the effect of the independent variable of preventive strategies training on the variable of psychological well-being is a way that the variable of psychological well-being has a significant difference (P=0.001, F=69.20 for the psychological well-being variable). The sixth assumption of homogeneity of regression slope has not been followed here. In the test part, the F value shows the effect of the covariance variable (143.49). This F value is significant because its probability (0.001) is smaller than the significance level of 0.05. It could now be argued that the seventh assumption, the correlation of covariance and independent variables, has been observed, and statistically, the mean score of psychological well-being is different among people. That is, training in preventive strategies has had a positive effect on psychological well-being. On the other hand, considering the positive effect

of preventive training strategies on this scale, it could be maintained that the higher the level of training, the higher the level of psychological well-being of people will be. The Eta coefficient showed that the effect of the intervention on psychological well-being is 76%.

- Preventive strategies have a significant effect on the independence component of psychological well-being in hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the hypothesis of the research, examining the training of preventive strategies on the independence of the patient's psychological well-being, the results of Table 7, i.e., the tests of between-subject effects gained from the multivariate covariance analysis, were adopted.

Table 7. tests of between-subject effects based on the influence of preventive strategies training on the variable of independence from psychological well-being.

Source	Dependent variable	Sum squares	of df	Mean squares	of F	Significance level	Eta squared
Group	Independence	13.42	1	13.42	15.47	0.001	0.680
Test	Independence	107.41	1	107.41	123.85	0.001	0.566
Group p*test	Independence	129.51	2	64.75	67.33	0.001	0.469

Table 7. shows that the effect of the variable of the preventive strategies training session on the variable of independence is a way that the variable of independence has a significant difference (P=0.001, F=67.33 for the variable of independence from psychological well-being). The sixth assumption of homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (123.85). This F value is significant because its probability (0.001) is smaller than the significance level of 0.05. It could now be argued that the seventh assumption, the correlation of covariance and independent variables, has been observed, and statistically, the mean score of the variable of independence from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of independence from

psychological well-being. The Eta coefficient showed that the effect of the intervention on the component of independence is 76%.

- Preventive strategies have a significant effect on the component of environmental mastery from the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, examining the training of preventive strategies on environmental mastery component from the psychological well-being in patients, the results of Table 8, i.e., the tests of between-subject effects obtained from multivariate covariance analysis, have been employed.

Table 8 is the major result of the multivariate covariance analysis. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the

dependent variable of environmental mastery from psychological well-being.

Table 8. tests of between-subject effects based on the influence of preventive strategies training on the variable of environmental mastery from psychological well-being.

Source	Dependent variable	Sum squares	of df	Mean squares	of F	Significance level	Eta squared
Group	Environmental mastery	1.66	1	1.66	0.51	0.47	0.214
Test	Environmental mastery	16.10	1	16.10	5.03	0.03	0.011
Group*test	Environmental mastery	28.36	2	14.18	4.52	0.01	0.290

Table 8. shows that the effect of the variable of the preventive strategies training session on the variable of environmental mastery from psychological well-being is a way that the variable of environmental mastery has a significant difference ($P=0.01$, $F=4.52$ for the variable of environmental mastery from psychological well-being). The sixth assumption of homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (5.03). This F value is significant because its probability (0.03) is smaller than the significance level of 0.05. It could now be argued that the seventh assumption, the correlation of covariance and independent variables, has been observed, and statistically, the mean score of the variable of environmental mastery from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of environmental mastery from psychological well-being. The Eta coefficient showed that the effect of the intervention on the component of independence is 29%.

- Preventive strategies have a significant effect on the personal growth component of psychological well-being in hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, examining the training of preventive strategies on the personal growth component of the psychological well-being in patients, the results of Table 9, i.e., the tests of between-subject effects obtained from multivariate covariance analysis, have been used.

Table 8 is the major result of the multivariate covariance analysis. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the dependent variable of personal growth from psychological well-being.

Table 9. tests of between-subject effects based on the influence of preventive strategies training on the variable of personal growth from psychological well-being.

Source	Dependent variable	Sum squares	of df	Mean squares	of F	Significance level	Eta squared
Group	Personal growth	50.16	1	50.16	71.62	0.001	0.843
Test	Personal growth	117.83	1	117.83	168.25	0.001	0.5931
Group*test	Personal growth	120.92	2	60.46	78.63	0.001	0.722

Table 9. shows that the effect of the variable of a preventive strategies training session on the variable of personal growth from psychological well-being is in a way that the variable of

environmental mastery has a significant difference ($P=0.001$, $F=78.63$ for the variable of personal growth from psychological well-being). The sixth assumption of

homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (168.25). This F value is significant because its probability (0.001) is smaller than the significance level of 0.05. It could now be argued that the seventh assumption, the correlation of covariance and independent variables, has been followed, and statistically, the mean score of the variable of personal growth from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of personal growth from psychological well-being. The Eta coefficient showed that the effect of the intervention on the component of independence is 72%.

- Preventive strategies have a significant effect on the component of positive relationships with others from the

Table 9. tests of between-subject effects based on the influence of preventive strategies training on the variable of positive relationship with others from psychological well-being.

Source	Dependent variable	Sum squares	df	Mean squares	F	Significance level	Eta squared
Group	Positive relationships with others	27.78	1	27.78	18.27	0.001	0.419
Test	Positive relationships with others	107.55	1	107.55	70.75	0.001	0.396
Group p*test	Positive relationships with others	114.12	2	57.06	34.17	0.001	0.293

Table 10 shows that the effect of the variable of the preventive strategies training session on the variable of positive relationship with others from psychological well-being is in a way that the variable of positive relationship with others from psychological well-being has a significant difference (P=0.001, F=34.17 for the variable of positive relationship with others from psychological well-being). The sixth assumption of homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (70.75). This F value is significant because its probability (0.001) is smaller than the significance level of 0.05. It could now be argued that the seventh assumption, the correlation of covariance and independent variables, has been followed, and statistically, the mean score of the variable of positive relationship with others from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of positive relationships with others from psychological well-being. The Eta coefficient showed that the

psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, examining the training of preventive strategies on the component of positive relationships with others from the psychological well-being in patients, the results of Table 10, i.e., the tests of between-subject effects obtained from multivariate covariance analysis, have been used.

Table 10 is the major result of the multivariate covariance analysis. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the dependent variable of positive relationship with others from psychological well-being.

effect of the intervention on the component of independence is 29%.

- Preventive strategies have a significant effect on the component of purposefulness in life from the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, examining the training of preventive strategies on the component of purposefulness in life from the psychological well-being in patients, the results of Table 11, i.e., the tests of between-subject effects gained from multivariate covariance analysis, have been used.

Table 11 is the major result of the multivariate covariance analysis. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the dependent variable of purposefulness in life from psychological well-being.

Table 9. tests of between-subject effects based on the influence of preventive strategies training on the variable of purposefulness in life from psychological well-being.

Source	Dependent variable	Sum squares	of df	Mean squares	F	Significance level	Eta squared
Group	Purposefulness in life	46.01	1	46.01	69.00	0.001	0.463
Test	Purposefulness in life	76.82	1	76.82	115.19	0.001	0.217
Group*test	Purposefulness in life	74.01	2	37.00	49.63	0.001	0.364

Table 11 shows that the effect of the variable of the preventive strategies training session on the variable of purposefulness in life from psychological well-being is in a way that the variable of purposefulness in life from psychological well-being has a significant difference ($P=0.001$, $F=49.63$ for the variable of purposefulness in life from psychological well-being). The sixth assumption of homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (115.19). This F value is significant because its probability (0.001) is smaller than the significance level of 0.05. It could now be claimed that the seventh assumption, the correlation of covariance and independent variables, has been followed, and statistically, the mean score of the variable of purposefulness in life from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of purposefulness in life from psychological well-

being. The Eta coefficient showed that the effect of the intervention on the component of independence is 36%.

- Preventive strategies have a significant effect on of self-acceptance component of psychological well-being in hemodialysis patients of Imam Khomeini hospital in Estahban city.

To test the main hypothesis of the research, examining the training of preventive strategies on the self-acceptance component of psychological well-being in patients, the results of Table 12, i.e., the tests of between-subject effects gained from multivariate covariance analysis, have been adopted.

Table 12 is the major result of the multivariate covariance analysis. This table shows the results related to the significance or insignificance of the model, as well as the effect of the independent variable of preventive strategies training on the dependent variable of self-acceptance from psychological well-being.

Table 9. tests of between-subject effects based on the influence of preventive strategies training on the variable of self-acceptance from psychological well-being.

Source	Dependent variable	Sum squares	of df	Mean squares	F	Significance level	Eta squared
Group	Self-acceptance	56.76	1	56.76	147.29	0.001	0.700
Test	Self-acceptance	237.69	1	237.69	616.72	0.001	0.720
Group*test	Self-acceptance	235.85	2	117.92	270.68	0.001	0.709

Table 12 shows that the effect of the variable of the preventive strategies training session on the variable of self-acceptance from psychological well-being is in a way that the variable of self-acceptance from psychological well-being has a significant difference ($P=0.001$, $F=270.68$ for the variable of self-acceptance from psychological well-being). The sixth assumption of homogeneity of regression slope has not been observed here. In the test part, the F value shows the effect of the covariance variable (616.72). This F value is significant

because its probability (0.001) is smaller than the significance level of 0.05. It could now be claimed that the seventh assumption, the correlation of covariance and independent variables, has been followed, and statistically, the mean score of the variable of self-acceptance from psychological well-being is different among people. That is, the training in preventive strategies has had a positive effect on the variable of self-acceptance from psychological well-being. The Eta

coefficient showed that the effect of the intervention on the component of independence is 70%.

➤ **The results of univariate covariance analysis to compare the research groups in the post-test scores of the psychological well-being variable components.**

Components	Source of changes	Sum of squares	df	Mean of squares	F	Significance level	Eta square
Independence	Intervention effect (group)	129.51	2	64.75	33.67	0.001	0.469
Environmental mastery	Intervention effect (group)	28.36	2	14.18	4.52	0.01	0.290
Personal growth	Intervention effect (group)	120.92	2	60.46	78.63	0.001	0.722
Positive relationships with others	Intervention effect (group)	114.12	2	57.06	34.17	0.001	0.293
Purposefulness in life	Intervention effect (group)	74.01	2	37.00	49.63	0.001	0.364
Self-acceptance	Intervention effect (group)	235.85	2	117.92	270.68	0.001	0.709

The results of the above table showed that the therapeutic intervention was effective in the experimental group, and there is a significant difference between the experimental and control groups in psychological well-being components. The eta coefficient indicated that the effect of the intervention on each of the components of independence, environmental mastery, personal growth, positive relationship with others, purposefulness in life, and self-acceptance, was 46%, 29%, 72%, 29%, 36%, and 70%, respectively.

Discussion:

- Preventive strategies have a significant effect on the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

Based on Table 6, the overall results suggest a positive and significant effect of preventive training strategies on the psychological well-being of hemodialysis patients.

The results of this research are consistent with Sadidi and Yamini's research (2017) entitled "Predicting Psychological Well-being based on Preventive Strategies," Gandomkar, Naderi, and Safari's study (2015) entitled "The Effectiveness of Preventive Strategies on Flexibility and Mental Health," Khosravani, Mahmoudi Rad and Dastjerdi's research (2013) entitled "Mediating Role of Ways to Overcome Tension in the Relationship between Ethical Thinking and Psychological Well-being."

In explaining this result, it could be stated that the perception of the disease is one of the major psychological variables and affects the image and attitude of the affected individual in his adaptation to the disease and, as a result, his mental health.

Preventive skills are one of the chief components of health and how people react to problems in life. When a person encounters a stressful situation, he tends to respond spontaneously through a set of preventive strategies to reduce or eliminate the effects of stress on his performance (Ukueberuwa & Arnett, 2014). The mechanisms of the preventive style used by hemodialysis patients would affect their mental health in both positive and negative ways. That the patient himself accepts that he is sick is accompanied by good quality of life and health (Mitchell et al., 2015).

On the other hand, preventive styles appear to be associated with the disease, and the ability to control the disease may lead to improvement throughout the disease. Thus, identifying, followed by training, needs to include issues and problems to improve their mental health. (Albuquerque, Geraldo, Martins, & Riberio, 2015).

The methods of effective prevention lead to the Adjustment of stress in individuals, and as a result, to increased performance. The more people have rational and consistent thinking in dealing with Ribeiro life's problems and have more proper planning in solving problems, the better quality of life and mental health they will have. Training preventive strategies could have a significant effect on physical and mental health in individuals. The use of proper strategies can be effective in preventing physical and mental illness.

Generally speaking, psychological treatments improve the quality of life and mental health and reduce the symptoms of depression, anxiety, and tension. Most psychological treatments have a positive effect, especially compared with conventional treatments and care (Pagnini et al., 2014). So,

improving psychological well-being, as well as emotional and social relationships, will lead to improved performance and proper coexistence with the disease.

The findings of Graven and Grant's (2013) research highlighted that the use of correct preventive methods would affect mental health and play a crucial role in increasing its components.

Customs-Carnicer and Calderón (2013) found in their research that preventive strategies are related to high levels of psychological well-being. Using successful preventive strategies is influential in reducing stress and increasing physical and mental health (Emri and Jackson, 2010, Yazdi, 2008). Also, Abbott et al. (2008), and Taylor et al. (2008) found that preventive behavior, is a mediating variable between life stressors and psychological adjustment and is the main factor in describing life, and most researchers have considered successful prevention to be the most effective mediator of stress and disease. Therefore, using educational and intervention programs to increase preventive strategies, could be one of the practical solutions to boost the efficiency of mental health.

Coping strategies have a significant effect on the independence from psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

According to Table 7, the results indicate a positive and significant effect of preventive strategies training on the independence component of psychological well-being in hemodialysis patients. Training preventive strategies have affected action and activity based on personal criteria and the ability to withstand the social pressure of patients. People with a high sense of independence mainly experience positive emotions and have a positive evaluation of the events around them.

Deci and Ryan (2000) hold the view that having intrinsic motivation is the determining factor of well-being in people. They maintain that intrinsic motivation is the result of satisfying basic needs. This means that when a person feels self-governed or independent and also has a sense of merit and good relationship with others, his basic needs are fulfilled, and he is involved in activities with intrinsic motivation.

Preventive strategies are used to refer to cognitive and behavioral efforts to prevent stress and tension, leading to the emergence of independence in patients. According to psychological theories, preventive styles play an important role in reducing stress and, as a result, the general health and psychological well-being of people. The problems of hemodialysis patients harm public life, independence, and well-being in the individual's private life, and the way people face their disease, which is a secondary result of their

adaptation, has a significant relationship with the independence component of psychological well-being (Arvar et al., 2010).

-: Coping strategies have a significant effect on environmental mastery from the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

According to Table 8, the findings suggest a positive and significant effect of training preventive strategies on the environmental mastery component of psychological well-being in hemodialysis patients. In explaining this result, it could be argued that preventive training strategies have not been effective in hemodialysis patients who did not use their opportunities properly and were not able to create a proper situation for themselves. Proper use of opportunities and the ability to create or choose the environment was not according to the needs and control of external activities of patients, and these patients do not have complete control over their environment. Using a successful preventive strategy that leads to an increase in self-confidence and value in life ultimately leads to an individual's mastery over the environment (Marino et al., 2010). Since patients often use roughly the same strategies in different situations, they have a relatively stable preventive style. Preventive strategies are used in different areas of life. Prevention comes with mastery of the environment against stressful situations.

- Coping strategies have a positive and significant effect on the personal growth component of the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

According to Table 8, the findings show a positive and significant effect of training preventive strategies on the personal growth component of psychological well-being in hemodialysis patients. In explaining this result, it could be claimed that strengthening communication skills can increase the ability to care through the positive impact of preventive strategies on personal growth. Here, since patients suffer from stress and are unable to deal with them efficiently, they experience problems from personal and behavioral aspects. The theoretical basis claims that chronic renal disease weakens personal growth by directly affecting the personality, mood, and mental health of the individual and poses problems for the person in making vital decisions in his life. Such a person feels that he cannot gain new experiences as a human being with potential talents. A person who has such a feeling about himself considers himself a worthless and extra person and loses the purpose and meaning of life, and his self-esteem decreases (Barack and Charlin, 2011). The complicated path of life always puts us on the way toward growth. We learn

something new every day of our life, good or bad, little or much. We see people doing things, we learn from them, we see some problems, and we invent ways. Learning successful and effective preventive methods against stress and difficult conditions leads to personal growth and individual capabilities.

- Preventive strategies have a significant effect on the component of positive relationships with others from the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

Based on Table 10, the findings indicate a positive and significant impact of training preventive strategies on the component of positive relationships with others from psychological well-being in hemodialysis patients.

In explaining this result, it could be argued that strengthening preventive strategies would increase the ability to communicate skills and positive communication with others. We all spend a large part of our lives interacting with others or thinking about it. Research has shown that 75% of our daily time is spent interacting with others, and it could be claimed that 75% of our success also relies on our relationships with others. Our relationships with others are efficient and useful if we can share our emotions and feelings with others through verbal and non-verbal messages (Burns, translated by Garacheh Draghi, 2012). A huge part of our life is spent interacting with people in society. These interactions play an effective role in the development of communication and socialization skills and enable a person to communicate with others in such a way that leads to positive responses and avoids negative responses, and facilitates interpersonal relationships. Scholars believe that social and communication skills are formed and developed based on practical experience and an individual's innate curiosity (Khoshabi & Keyvani, 2002).

- Preventive strategies have a significant effect on the component of purposefulness in life from the psychological well-being of hemodialysis patients of Imam Khomeini hospital in Estahban city.

Based on Table 11, the findings reveal the positive and significant effect of training preventive strategies on the component of purposefulness in life from psychological well-being in patients undergoing hemodialysis. In explaining this finding, it could be argued that when patients understand that they have a meaningful life, they try to behave purposefully. People with high levels of meaningfulness tend to focus only on certain aspects of the problem when faced with daily problems. However, people with low levels of meaningfulness in life consider limitedness of time as a big problem and link current problems with the possibility of not attaining future goals. Thus, a person who experiences higher levels of meaningfulness in life can easily face difficult situations. High

levels of meaningfulness in life not only help a person in encountering difficulties but also increase personal satisfaction and a sense of success in a person, and ultimately promote happiness and vivacity in people. Being purposeful and meaningful in life increases hope, motivation, and mental health in individuals, and people act responsibly in rising to the challenges, and finally, their sense of satisfaction and happiness increases (Hamzhepour Haghighi, & Asadi Mojreh, 2019).

- Preventive strategies have a significant effect on the self-acceptance component of psychological well-being in hemodialysis patients of Imam Khomeini hospital in Estahban city.

Based on Table 12, the findings suggest a positive and significant effect of training preventive strategies on the self-acceptance component of psychological well-being in hemodialysis patients. In explaining this finding, it could be claimed that people find many feelings, emotions, or inner thoughts infuriating, and they constantly strive to change these inner experiences or get rid of them. These attempts to control are ineffective and paradoxically lead to the intensification of feelings, emotions, and thoughts that the person initially tried to avoid (Aminpour and Ghorbani, 2015). Self-acceptance is the acceptance of all aspects of oneself. It means accepting all our strengths and weaknesses. Strengthen our strengths, improve our weaknesses, do not feel embarrassed about our current situation, and do not blame ourselves for our weaknesses and mistakes. Thus, self-acceptance is a psychological mechanism that enables people to tolerate and conciliate themselves in negative situations by recognizing and accepting positive and negative characteristics about themselves (Kim, 2008, cited in Haji Tabar Firouzjaee et al., 2019). Such characteristics, linked with self-acceptance, would strengthen the relationship between meaning in life and adaptation to life. In addition to facing several physiological changes, hemodialysis patients also face many psychological stresses, each of which, in turn, can disturb their psyche and personality, so most of them are not adapted to problems and tensions and undergo behavioral changes (Baraz, Mohammadi, & Boroumand, 2015).

Conclusion:

According to the results obtained, it was found that preventive strategies can promote psychological well-being, and considering the argument of scholars regarding the effect of preventive styles on the development of mental health, it could be concluded that preventive methods, correct and consistent with mental health and illness, would increase the possibility of patient rehabilitation, and improve his psychological well-being. Therefore, it is very important to pay attention to the

development of preventive strategies and train effective ways to deal with stressors to reduce the experience of negative emotions, and increase the well-being and quality of life along with appropriate medical treatment to enhance the treatment, maintain health and reduce the complications of the disease for hemodialysis patients with chronic renal impairment (Khosravani et al., 2012).

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Conflict of interest

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Ethics statement

None

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