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The Effectiveness of Coping Strategies on the Quality of Life of Hemodialysis Patients in Estahban City

Abstract

Coping strategies play a significant role in combating chronic diseases. Determining the effectiveness of teaching coping strategies on the psychological quality of life of hemodialysis patients in Estahban city is the aim of this study, which was conducted with a pre-test, post-test, post-test, and semi-experimental design with the control group. Forty patients in the hemodialysis ward of Imam Khomeini Hospital in Estahban city in the academic year of 2019-2020, who were selected as available, were randomly assigned to two intervention and control groups. Patients in the intervention group received coping strategies in eight one-and-a-half-hour weekly sessions. Based on data collected using Ryff et al. (1997). Quality of Life, Ware and Sherbon (1992) before and after two weeks of training interval, significant analysis of covariance was performed at 0.05, showed a significant difference in psychological well-being and its components, quality of life and its components and between the two study groups ($p < 0.05$). Therefore, considering the interventions of coping strategies in hemodialysis patient care programs can promote psychological well-being and quality of life.

Keywords: *coping strategies, psychological well-being, quality of life, hemodialysis patients*

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Introduction

Although infectious disease mortality has declined since the turn of the 20th century due to vaccination, healthcare advancements, and treatment, the advancements have transformed illnesses that, a few years before diagnosis, would invariably result in death into chronic conditions. One of the leading causes of mortality worldwide is chronic illness (Hadian, 2015). Due to the infectious nature of the majority of diseases, particularly chronic and incapacitating ones, psychological problems frequently arise after the onset of physical illnesses (Navidian, 2006). Elevated blood urea is a symptom of chronic renal failure, a gradual and irreversible illness in which the kidney's capacity to eliminate metabolic wastes and maintain fluid and electrolytes is lost (Smeltz, 2004). More than 75% of kidney nephrons are damaged or destroyed as a result of this clinical illness, which has the following clinical symptoms: anorexia, nausea, vomiting, inflammation of the stomach and intestines, peptic ulcer, hepatitis (inflammation of the liver), peritonitis (inflammation of the peritoneum), ascites (accumulation of fluid in the abdominal cavity), increased serum potassium, increased blood pressure, increased fluid volume, congestive heart failure, bleeding, anemia, bone diseases such as osteoporosis, pathological fractures, and metastatic calcification due to retention of phosphorus, reduction of serum calcium, Abnormal vitamin D metabolism, increased aluminum levels, unpleasant smell of ammonia in breath, impaired senses and consciousness, convulsions (Brownwald, 2001), inability to concentrate for a long time, burning sensation in the body, restless leg syndrome, drooping legs and paralysis (Lukman, 1997), disorders in the reproductive system in the form of infertility and sexual impotence (Phipps, 1999), acute lung edema, shortness of breath, skin disorders in the form of paleness, scratches, discoloration, and loss of consistency and broken skin and body itching (Smeltz, 2004). The issues mentioned above can negatively impact a patient's quality of life and mental health, altering how they perceive themselves physically and leading to melancholy, anxiety, and even suicidal thoughts (Belsex, 1992). To continue living and lessen the aforementioned issues, individuals in the terminal stage of chronic kidney disease require alternative treatments, such as kidney replacement therapies, various forms of dialysis (hemodialysis and peritoneal dialysis), and kidney transplant (Bruner, 2010). Iran uses hemodialysis, the most used form of therapy worldwide (Mahdavi, 2006). While hemodialysis can alleviate renal disease, it also interferes with patients' everyday lives and can be a stressor that negatively impacts their physical, emotional, social, and financial well-being (Lindvist, 1998, Cheng, 2002, Levy, 2008). This results in the patient's mental health evaluation and a change in his quality of life (Hagiran, 2005). Possible physical side effects of hemodialysis include blood pressure dropping, painful muscle contractions, bleeding, air embolism, chest pain, a loss of consciousness,

low hemoglobin levels and anemia, shortness of breath, lightheadedness, lung edema, heart failure, and weight gain between two hemodialysis sessions (Tavangar, 2003). Mental health issues, such as depression 50% of cases, anxiety disorder 30% of cases and hysterical states, mental weakness, mental preoccupation with illness, obsessive-compulsive symptoms, a disorder in the thinking process, desire to be alone and isolated, and strange feelings in patients (Pourghaznian, 2005) along with poor economic status, years of illness and a history of frequent hospitalizations (Rafiei, 2013), which can cause disturbances in the mental image of the body, self-hatred, and lack of enjoyment of life (Rezaei, 2009). These patients require emotional help to adjust to the current circumstances in light of the problems mentioned above. People with greater psychological and social support are better equipped to adjust to various stressful life situations; otherwise, they cope with stress ineffectively, which increases anxiety (Lairos, 2010). According to George Albee (1982), Coping mechanisms are foundational elements of mental health. According to Lazarus and Folkman (1984), coping is defined as a person's cognitive, affective, and behavioral attempts when confronted with psychological stressors to overcome, tolerate, or lessen the impacts of stress (Jalvis, 1984). Coping is fundamentally different from automatic activities in that it calls for the mobilization and preparation of one's forces and energy, which is accomplished via training and effort. While coping resources are a person's qualities that exist before stress occurs, such as self-esteem, a sense of control over the situation, cognitive styles, a source of control, self-efficacy, and problem-solving skills. Coping measures are thoughts and behaviors used after a person experiences a stressful event (Klang, 1996). The use of appropriate coping mechanisms, spiritual and social support, and rehabilitation can help these people return to a normal or nearly normal quality of life and mental health (Kaplan and Sudak, 2000). In addition, the treatment of patients cannot be the primary objective. Instead, it's crucial to help patients function at their best and be at their healthiest since this will enable them to carry out everyday tasks and improve their quality of life (Sian, 2007 Lazaretti, 2004). Coping strategies are cognitive behavioral techniques that people use to deal with their challenges and problems in stressful situations. They play a crucial part in both physical and mental health. Coping techniques lessen an individual's response to high-stress levels and decrease its negative consequences (Birmi, Hashemi, 2013). Even high tension levels are not always undesirable or unforgiving; the key is how you handle them. Consequently, a person's coping mechanisms comprise a component of his susceptibility. Adopting a policy of inadequate coping mechanisms can make issues worse while employing suitable coping mechanisms can provide beneficial effects. Even though diseases have a variety of sources and causes, lifestyle choices and personality traits are important factors in their emergence. Appropriate coping mechanisms can avoid the formation of diseases brought on by stress. Psychologists think that altering people's reaction patterns is necessary for even the most severe physical disorders to be treated (Behzadipour, 2012).

Numerous studies have been conducted in recent years on how people manage stress in daily life (Pollard, Lee, 2003). People utilize coping mechanisms, which include behavioral and cognitive techniques, to lessen stress. These techniques can be either adaptive or maladaptive, problem- or emotion-oriented, depending on the situation and time they are utilized. While emotional-oriented confrontations merely aim to lessen the excitement brought on by stress, problem-oriented confrontations concentrate on finding a solution to the issue at hand. Whether problem- or emotion-focused, adaptive coping strategies work to restore the organism's state of balance. At the same time, incompatible coping strategies place the organism in a state of instability and not only do not undo the harm but also very likely produce more harm (Powell and Enright, 2005). Combining several views of the five primary stages of coping, Cohen and Lazarus stated it as such in 1979:

1. Lessens environmental harm while raising hopes for recovery.
2. They help people keep an optimistic view of themselves.
3. They aid in helping a person adjust to bad circumstances.
4- They play a valuable part in preserving emotional equilibrium.
5- They help you build and sustain satisfying connections with others (Cohen and Lazarus, 1997, cited from Pahlavani, 2015).

Folkman et al. discovered many forms of coping in a factor analysis of the questions on the coping methods scale. These conflicts consist of the following:

1- Confrontation 2- Distancing 3- Self-inhibition 4- Seeking social support 5- Reasoned acceptance 6- Escape, avoidance 7- Planning to solve the problem 8- Positive reappraisal.

The best and most thorough classification of coping mechanisms was made by Parker and Endler (1990), who identified three types of stress management: problem-oriented coping, which involves actively addressing the issue to manage and solve it, emotion-oriented coping, which focuses on emotional reactions to the issue, and avoidant coping, which involves avoiding the issue altogether (Ovolvik, 2008). The quality of life affects how one chooses to cope with stress. The sentiments that a person feels about oneself or herself play a significant role in comprehending and assessing a person's quality of life. People who feel well about themselves tend to think well about themselves and their lives (Bond, Koerner, 2018). Phillips looks at both the individual and social facets of life quality. According to him, a person's quality of life is

crucial in the objective sense of being able to satisfy their fundamental wants and the social expectations of their fellow citizens. It refers to the ability to take independent action to improve one's mental well-being, including engaging in pleasurable activities, feeling content, having a purpose in life, growing personally, progressing and prospering along the path of happiness, social reciprocity, and engaging in a lot of social activities. Norms, trust, altruism, and altruistic behavior are stressed, as well as fairness, social justice, and equality. Its collective dimension depends on the stability and stability of the physical and social environment. Social resources within the groups and societies in which they live, such as civic cohesion, integration, extensive network relationships, and temporary links at all levels of society, are also important (Phillips, 2006, cited from Ghaffari and Omidi, 2018).

Quality of life is described as a person's conception of how to live their life, as well as circumstances like the local environment or cultural norms in a particular civilization. Whatever the case, there are several definitions for this structure, resulting from its multidimensionality, use in various sectors of expertise, and level of analysis. The following Table illustrates how this structure has been applied in six domains from a conceptual standpoint: (France, 1996; cited from Ghaffari and Omidi, 2018).

Table 2.6. Areas of application of the concept of quality of life-based on France's study

Areas of application of the concept	Effective elements in conceptualization
Normal life	Ability to meet basic needs and maintain health/focus on functional abilities
Social desirability	A person's ability to create a functional social life / play an influential role in society / have a suitable job position
Happiness	The interaction between excitement and depression / affected by external and internal factors / temporary and short-term
Life satisfaction	A person's positive assessment of the quality of life/is oriented to the person's abilities/satisfaction in areas such as love, marriage, friendships, free time, etc.
Achieving personal goals	A person's ability to achieve goals / personal satisfaction, self-confidence, and satisfaction when comparing oneself with others / minimal gap between the actual situation and the person's expectations
Innate talents	Actual and potential physical and mental abilities and talents of a person (naturally)

The term "quality of life" refers to a person's overall state of health, which includes their physical, psychological, emotional, mental, and social well-being. Several variables, including age, gender, economic and social status, risk factors for behavior, the environment, and the presence or absence of disease, have an impact on one's quality of life. The ability to attain goals and select a desirable lifestyle is vital for the quality of life. In general, the term "quality of life" refers to the confluence of psychological characteristics and environmental factors through which a person experiences happiness and misery and makes decisions to keep or alter his living circumstances. It is a broad notion that encompasses a person's physical and emotional well-being, level of financial independence, and interaction with the environment's fundamental elements (Pepik et al., 2011).

One of the largest and most critical problems facing the nation's healthcare system is chronic renal failure and individuals undergoing hemodialysis. However, because no studies have systematically and experimentally examined the impact of coping mechanisms on the aspects of quality of life in hemodialysis patients as well as the high incidence of depression and anxiety (Kasiski, 2004), the quality of life of these people is poor (Abbas Zadeh, 2010). We decided to investigate how coping mechanisms affected several aspects of the quality of life for hemodialysis patients at Imam Khomeini Hospital in Estaban.

Method:

Research Design: Pre-test, post-test, and a 3-month follow-up are included in this quasi-experimental study. It employed an experimental and control group.

Subjects: All renal patients referred to Imam Khomeini (RA) Estahban Hospital's hemodialysis unit in the fall of 2018 made up the study's statistical population. The research sample comprised 40 patients who were randomly split into two groups of 20 each after being chosen randomly from the statistical population or patients who had been referred to the hemodialysis unit. The following requirements must be met to participate in the study: participants must be over 25 years old, have a minimum level of education in reading and writing, not have severe personality disorders as determined by an interview and the Minnesota Multifaceted Personality Questionnaire, not be enrolled in any other treatment programs concurrently, not be receiving individual counseling or drug therapy, and be able and willing to participate in training sessions. Participants must also sign an informed consent form.

Tools:

Warosherbon Quality of Life Standard Questionnaire (36 SF-) (1992)

Physical dimensions (10), playing a physical role (4 statements), physical pain (2 statements), general health (5 statements), fatigue (4 statements), social performance (2 phrases), playing an emotional role (3 phrases), and mental health (5 phrases) are among the 36 statements on this questionnaire that assess eight different aspects of health and life quality. Two more general subscales are produced by integrating the subscales, and these are:

Physical health subscale: The total physical function (PF), role disturbance (RP), pain (P), and general health (GH) subscales (GH).

Mental health subscale: The total role disorder subscales for emotional health (RE), energy/fatigue (EF), emotional well-being (EW), and social functioning (SF).

The lowest score in this questionnaire is zero, and the highest is 100. In questions 3 to 9, the range of answers is wide from 1 = very much to 5 = not at all. Questions 5, 6, 7, 8, and 9 are graded in reverse. The range of answers for questions 10 to 14 is from not at all = 1 to completely = 5, question 15 is from very bad = 1 to very good = 5, questions 16 to 25 are from very dissatisfied = 1 to very satisfied = 5 and question 26 is always = 1 to never =5. The psychometric characteristics of this instrument were examined by Squington, Lotfi, and O'Connell (2004) in 24 cities across many nations. In this study, there were 11,830 participants with ages ranging from 97 to 12, the average age being 45, with a standard deviation of 16. The reliability of this questionnaire was examined using the internal consistency approach (Cronbach's alpha). For social interactions, Cronbach's alpha was 0.68, 0.81 for mental health, 0.80 for environmental health, and 0.82 for physical health. This tool's validity was examined utilizing the differential validity and structural validity approaches, and it was found to be acceptable. The Cronbach's alpha coefficient for the four subscales, as well as the entire scale, was found to range between 0.73 and 0.89 in the findings of research by the World Health Organization's quality of life scale designers group, which was carried out in 15 worldwide centers of this organization. For the dependability of the scale in Iran, Nasiri (2016) utilized three ways of retesting with a three-week interval: split and Cronbach's alpha, which were equivalent to 0.67, 0.84, and 0.87, respectively. Rahimi (2006) examined the consistency of the quality of life scale and found that it had an alpha coefficient of 0.88 overall, 0.70 for physical health, 0.77 for mental health, 0.65 for social interactions, and 0.77 for the quality of the living environment. By measuring the correlation coefficient between the overall score of the test and its subscales and the total score and subscales of the general health questionnaire, Nasiri (2016) employed the concurrent validity approach to assess the scale's validity. Based on the educational therapy plan developed by Gandkar et al., coping mechanisms would be taught (2013). The Table below summarizes the eight 90-minute sessions on coping methods, which were held once a week.

Sessions	Measures
Session 1	Acquaintance and introduction, explanation of the goals and rules of the group, conceptualization and description of stress, its symptoms and consequences.
Session 2	Teaching body relaxation and stress relief, providing tasks in this field to the members
Session 3	Reviewing the tasks of the past session, getting familiar with cognitive concepts, the role of thoughts in causing stress and the connection of thoughts with emotions and behavior, the characteristics of negative spontaneous thoughts, introducing cognitive errors, and presenting related tasks.
Session 4	Reviewing tasks and solving problems, teaching how to deal with negative thoughts
Session 5	Guided self-talk training and the role of negative self-talk in creating stress, setting assignments, and receiving feedback
Session 6	Solving problems and reviewing the tasks of the last meeting, training and concentrating on thought and attention techniques
Session 7	Teaching problem solving, dividing the problem into smaller components, getting familiar with the brainstorming method to find different solutions, evaluating the available solutions and choosing the best ones, determining the plan and its details in the form of a mental review, determining the assignment to complete the sheets of the six stages of problem-solving.
Session 8	Practicing the skills learned in the 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, review the tasks of the previous session and answer the questions raised by the group members.

Data collection

Following the determination of the sample size, the chosen individuals were split randomly into an intervention group and a control group. Both groups completed the standard

questionnaire of quality of life (Varosherbon) in the pre-test. Then, for eight sessions totaling one and a half hours, the intervention group underwent coping strategy training, whereas the control group received no such training. To ascertain the impact of the independent variable on the dependent variables, all patients (40 persons) completed quality of life and psychological well-being questionnaires following the conclusion of the training course and a two-week training break.

Data analysis

The differences between the two research groups were examined using data in the SPSS 25 software environment and descriptive statistics methods, such as mean, standard deviation, and standard error, at a significance level of 0.05 (P0.05), followed by inferential statistics methods (analysis of covariance with default assumptions). In this study, the post-test and follow-up scores were adjusted to account for the effects of pre-test control factors, and the residual scores were used to compare the two groups.

Ethical considerations and how to get the code of ethics

We need research approval from the medical sciences unit of Shiraz to conduct the study at the hemodialysis unit of Imam Khomeini Hospital (RA) in Estahban city after the research subject has been approved in the research unit of Islamic Azad University, Sirjan branch. The research was authorized with the reference number IR.SUMS.REC.1398.859 by submitting the proposal and questionnaires to the research vice-chancellor of the relevant university to obtain research permission and issue the code of research ethics. This was done after the research ethics committee had been established by the research vice-chancellor of the relevant university. The informed consent forms for the research had been filled out, and the researcher agreed to abide by the ethics code.

Findings:

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
		Experiment		control	
Age	25-41 years	8	40%	8	40%
	42-58 years	7	35%	3	15%
	59-75 years	5	25%	9	45%
Duration of hemodialysis	1-5 years	17	85%	19	95%
	6-10 years	-	-	1	5%
	10-16 years	3	15%	-	-
Academic level	Literacy for reading and writing	4	20%	2	10%
	Secondary	9	45%	10	50%
	Diploma	7	35%	2	10%
	University	-	-	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 quality of life scores of two experimental and control groups in pre-test and post-test

Variable		Test	Number	Mean	SD	Variance	Score range
Life Quality	Experiment	Pre-test	20	42.7	3.74	14.01	34-52
		Posttest	20	64.1	4.19	17.56	56-73
	Control	Pre-test	20	58.4	10.38	107.93	41.74
		Posttest	20	61.8	9.81	96.37	45-75

According to the data in the Table above, the pre-test control group's quality of life was 58.4 and 10.38, while the post-test control group's mean and standard deviation of the quality of life variable were 61.8 and 9.81, respectively. The mean and standard deviation of the quality of life variable in the pre-test

control group were 42.7 and 3.74, respectively, while the post-test control group's quality of life was 1.64 and 4.19.

Table 3. The mean and standard deviation of the scores of the quality of life dimensions of the experimental and control groups in the pre-test and post-test

			Mean	SD	Variance	Variation range
Pre-test	Experiment	Physical dimensions	8.2	2.23	5.01	5-13
		Playing a physical role	3.75	0.17	0.51	2-5
		Physical pains	4.1	0.19	0.83	3-6
		General Health	5.05	1.19	1.41	3-7
		Fatigue	7.65	1.26	1.6	5-9
		Social performance	2.9	1.2	1.46	2-6
		Playing an emotional role	2.8	0.76	0.58	1-4
		Mental health	8.25	1.77	3.14	5-12
	Control	Physical dimensions	14.95	4.6	21.1	8.30
		Playing a physical role	5.75	1.51	2.3	3-8
		Physical pains	4.3	1.75	3.06	2-7
		General Health	7.8	2.33	5.43	5-13
		Fatigue	8.35	2.56	6.55	4-12
		Social performance	3.15	1.18	1.39	1-5
		Playing an emotional role	3.95	1.09	1.2	2-6
		Mental health	10.15	3.31	10.97	5-15
Posttest	Experiment	Physical dimensions	11	2.10	4.42	7-15
		Playing a physical role	6.15	1.13	1.29	3-8
		Physical pains	7.65	1.26	1.6	5-9
		General Health	7.9	1.16	1.35	6-10
		Fatigue	10.12	1.19	1.43	8-12
		Social performance	5.6	1.56	2.46	3-9
		Playing an emotional role	5.2	0.76	0.58	4-6
		Mental health	10.4	1.46	2.14	8-14
	Control	Physical dimensions	15.7	4.47	20.01	9-30
		Playing a physical role	6.1	1.61	2.62	3-8
		Physical pains	4.6	1.6	2.56	2-7
		General Health	8.25	2.46	6.09	5-13

		Fatigue	8.7	2.55	6.53	4-12
		Social performance	3.55	1.31	1.73	2-7
		Playing an emotional role	4.3	1.12	1.27	2-6
		Mental health	10.6	3.36	11.3	5-50

Inferential findings

Multivariate covariance analysis was utilized to verify the findings. Cronbach's alpha coefficients for the study variables were obtained before completing multivariate covariance analysis to confirm the degree of internal consistency validity. The findings are shown in Table 4.

Table 4. The Cronbach's alpha value calculated for the quality of life variable

	Quality of life
Cronbach's alpha	87%

Table (4) findings demonstrate that the study variables' internal consistency validity (Cronbach's alpha coefficient) is in good condition.

Conditions must be satisfied in this kind of analysis to be sure of the ensuing conditions. The normality of the data distribution was examined using Kolmogorov-Smirnov tests.

Table 5. The results of the normality test of the quality of life variable

Variable	Kolmogorov-Smirnov		
	Statistics	Degrees of freedom	Significance level
Quality of life	1.18	39	0.1

Given that the determined significance level is greater than 0.05, it can be concluded that this variable's distribution is normal.

Table 6. The results of Levin's test to measure the equality of error variances of the quality of life variable

	F	df_1	df_2	P
Quality of life	2.064	1	38	0.15

Table 6 shows that the quality of life variable in this Table is bigger than 0.05 in the F statistic's error level.

Table 7. M box test for the assumption of homogeneity of the covariance matrix in the quality of life test

Variable	Box test				
	box M	df.1	df.2	F	P
Quality of life	18.59	3	2.59	5.95	0.23

Box's test was applied to determine if the variance-covariance matrix is homogenous. The findings reveal that (P=0.23 > 0.05, F=95.5, and M Box = 18.59) the computed quality of life has a significance level of Box's test of 0.5 0 is greater.

Table 8. Tests of inter-subject effects based on the impact of coping strategies training on the quality of life variable

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Quality of life	1346.99	1	1346.99	223.43	0.001	0.856
Test	Quality of life	1941.94	1	1941.94	322.12	0.001	0.406
Group*Test	Quality of life	1949.36	2	974.68	134.29	0.001	0.852

As shown, the quality of life variable shows a significant change (P=0.001, F=134.29) as a result of the coping techniques training session variable's influence. Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (322.12). The chance of this F value (0.001) being less than the 0.05 level makes it significant. Now that the connection between the independent variable and the seventh premise has been verified, it can be concluded that the average quality of life score varies statistically among individuals. In other words, holding the coping skills training session has improved the quality of life. The Eta coefficient demonstrated that the intervention's effect (85%) is on the overall quality of life.

Table 9. Tests of inter-subject effects based on the impact of coping strategies training on the variable of the physical dimension of quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Physical dimensions	14.23	1	13.23	22.69	0.001	0.720
Test	Physical dimensions	440.99	1	440.99	703.03	0.001	0.488
Group*test	Physical dimension	657.19	2	328.59	435.67	0.001	0.597

As shown, the physical dimension variable of quality of life shows a statistically significant difference (P=0.001, F=435.67) as a result of the coping techniques training session variable's influence. Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (703.03). The chance of this F value (0.001) being less than the 0.05 level makes it significant. Now that the correlation between independent and covariant factors has been established, it can be argued that the seventh assumption has been verified and that statistically, each person's average score for the physical aspect of quality of life varies. This means that conducting the coping skills training session had a favorable impact on the physical part of life. The eta coefficient showed the intervention's impact to be on the physical dimension component (59%).

Table 10. Tests of inter-subject effects based on the impact of coping strategies training on the physical role-playing dimension of quality of life.

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Playing a physical role dimension	18.10	1	18.10	19.49	0.001	0.388
Test	Playing a physical role dimension	39.98	1	39.98	43.04	0.001	0.490
Group*test	Playing a physical role dimension	34.40	2	17.2	15.92	0.001	0.370

As shown, playing a physical role in the quality of life is affected by the coping strategies training session variable in such a way that there is a statistically significant difference (P=0.001, F=15.92). Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (43.04). The chance of this F value (0.001) being less than the 0.05 level makes it significant. Now that the connection between independent and covariant variables has been established, it can be concluded that the seventh assumption has been verified and that, statistically, there are individual differences in the average score for the physical role-playing component of quality of life. In other words, the coping techniques training session successfully improved the physical role-playing component of life. According to the Eta coefficient, the intervention had a 37% positive impact on performing a physical role.

Table 11. Tests of inter-subject effects based on the impact of coping strategies training on the variable of physical pain dimension of quality of life.

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Physical pain dimension	102.47	1	102.47	117.92	0.001	0.902
Test	Physical pain dimension	47.20	1	47.20	54.32	0.001	0.582
Group*test	Physical pain dimension	130.52	2	65.26	57.69	0.001	0.784

As shown, the physical pain dimension of quality of life is significantly different from other dimensions of quality of life as a result of the coping techniques training session variable (P=0.001, F=57.69). Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (54.32). The chance of this F value (0.001) being less than the 0.05 level makes it significant. The correlation between the covariate and independent variables, which was the seventh premise, may now be said to have been fulfilled. According to statistics, each person has a distinct average score on the quality of life dimension measuring physical discomfort. In other words, holding a workshop on coping mechanisms has improved both the aspect of physical discomfort and quality of life. Eta coefficient results indicated that the intervention had a 78% positive impact on the component of physical discomfort.

Table 12. Tests of inter-subject effects based on the impact of coping strategies training on the general health variable of quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	General health dimension	30.85	1	30.85	39.54	0.001	0.752
Test	General health dimension	112.67	1	112.67	144.4	0.001	0.438
Group*test	General health dimension	104.28	2	52.14	50.12	0.001	0.549

As shown, the general health component of quality of life is significantly different from other dimensions of quality of life due to the coping techniques training session variable (P=0.001, F=50.12). Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (144.4). The chance of this F value (0.001) being less than the 0.05 level of significance makes it significant. The link between independent and covariant factors, which was the sixth assumption, has now been shown to be correct. Statistically, different persons score differently on the general health component of quality of life. In other words, the coping skills training session successfully improved the general health component of quality of life. The Eta coefficient demonstrated that the intervention's impact was felt most strongly by the public health component (54%).

Table 13. Tests of inter-subject effects based on the impact of coping strategies training on the fatigue dimension of quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Fatigue	44.33	1	44.33	73.53	0.001	0.797
Test	Fatigue	129.09	1	129.09	214.11	0.001	0.421
Group*test	Fatigue	145.46	2	72.73	94.65	0.001	0.685

As shown, The variable of the fatigue dimension of quality of life has a significant change due to the variable of the coping strategies training session's influence on it (P=0.001, F=94.65). Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (214.11). The chance of this F value (0.001) being less than the 0.05 level of significance makes it significant. Now that the association between independent and covariant variables has been established, it can be argued that the seventh assumption has been verified and that each person's average score for tiredness after the quality of life varies statistically. In other words,

conducting the coping methods training session has positively impacted the component of life's quality that deals with weariness. The Eta coefficient indicated that the intervention had a 68% positive impact on the tiredness component.

Table 14. Tests of inter-subject effects based on the impact of coping strategies training on the variable of social performance dimension of quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Social performance	52.34	1	52.34	77.46	0.001	0.658
Test	Social performance	54.75	1	54.75	81.03	0.001	0.497
Group*test	Social performance	91.68	2	45.84	56.37	0.001	0.697

As shown, the social performance dimension of quality of life is affected by the variable of the coping strategies training session in such a way that there is a significant difference between the two (P=0.001, F=56.37). Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (81.03). The chance of this F value (0.001) being less than the 0.05 level of significance makes it significant. The correlation between independent and divergent factors, which was the sixth assumption, has now been shown to be correct. Statistically, people's average scores on the dimension of social performance of quality of life vary. That is, providing a training session on coping mechanisms benefited the quality of life element of social performance. The Eta coefficient indicated that the intervention's impact on social functioning was 67%.

Table 15. Tests of inter-subject effects based on the impact of coping strategies training on the variable of playing an emotional role in the quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Playing an emotional role dimension	24.57	1	24.57	74.07	0.001	0.741
Test	Playing an emotional role dimension	23.12	1	23.12	69.67	0.001	0.550
Group*test	Playing an emotional role dimension	26.44	2	13.22	28.69	0.001	0.545

As displayed, the emotional role-playing dimension variable of the quality of life shows a significant change (P=0.001, F=28.69) as a result of the coping techniques training session variable's influence. Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (67.69). The chance of this F value (0.001) being less than the 0.05 level makes it significant. The eighth assumption that the independent and covariant variables correlate has now been proven true. According to statistics, each person has a different mean score for their emotional role in determining their quality of life. That is, the coping techniques training session had a favorable impact on the emotional role-playing aspect of life. According to the eta coefficient (54%), the intervention's effect plays an emotional role.

Table 16. Tests of inter-subject effects based on the impact of coping strategies training on the mental health performance dimension of quality of life

Source	Dependent variable	Total squares	df	Mean squares	F	Significance level	Eta square
Group	Playing mental health role	22.36	1	22.36	49.7	0.001	0.846
Test	Playing mental health role	238.95	1	238.95	530.99	0.001	0.476

Group*test	Playing mental health role	233.84	2	116.92	195.3	0.001	0.811

As indicated, the coping techniques training session had a favorable impact on the emotional role-playing aspect of life. According to the eta coefficient (54%), the intervention's effect plays an emotional role. Regression slope homogeneity, the sixth assumption, is not satisfied in this case. The F value in the test section displays the impact of the covariance variable (530.99). The chance of this F value (0.001) being less than the 0.05 level makes it significant. Now that the connection between independent and covariant variables has been established, it can be concluded that the seventh assumption has been verified and that each person's average score on the quality of life dimension related to mental health varies statistically. That is, holding the coping skills training session had a favorable impact on the quality of life component pertaining to mental health. The Eta coefficient demonstrated that the intervention's impact on mental health is 81%.

Discussion

One of the critical elements of health and how people respond to issues in life is their capacity for coping. A person often responds reflexively to stressful situations by employing a variety of coping mechanisms to minimize or remove the negative effects of stress on his performance altogether (Ukueberuwa & Arnett, 2014). Patients on hemodialysis may experience both good and negative effects on their quality of life depending on their coping techniques. The patient's acceptance of his illness is linked to a high quality of life and excellent health (Mitchell et al., 2015). On the other hand, coping techniques seem connected to the disease, and the capacity to regulate the disease may contribute to improvement throughout the disease. Hence, to enhance their mental health, identify concerns and challenges, and provide training. It appears crucial to investigate life quality to find fresh approaches to enhancing health and well-being (Albuquerqu, Geraldo, Martins & Riberio, 2015).

Effective coping mechanisms cause people's stress levels to be adjusted, which improves people's performance. The more individuals can deal with life's challenges rationally and consistently, and the more adequate planning they have for problem-solving, the greater their quality of life will be. Teaching coping skills can significantly impact people's physical and mental health. It is also possible to successfully avoid both physical and mental sickness by applying the right measures. Psychological therapies generally enhance mental and physical well-being and lessen depressive, anxiety, and tension symptoms. Compared to standard therapies and care, most psychological treatments are effective (Pagnini et al., 2014). According to Gravin and Grant's (2013) research, using the right coping mechanisms impacts one's quality of life and mental health and is crucial to enhancing both. Utilizing effective coping mechanisms can reduce stress, improve physical and mental health, and ultimately improve quality of life (Emri and Jackson, 2010, Yazdi, 2008).

Additionally, Taylor et al. (2008) and Abbott et al. (2008) concluded that coping behavior is a mediating variable between life stressors and psychological adjustment and is crucial in describing the quality of life. Most coping research has also reached this conclusion. They believed that the best way to reduce stress and prevent sickness was to be successful. Therefore, one of the doable methods to raise the effectiveness of mental health is to use educational and therapeutic programs to strengthen coping mechanisms.

The findings in Table 9 indicate a favorable and significant impact of teaching coping mechanisms on the physical aspect of quality of life in hemodialysis patients. To explain this finding, it may be claimed that a person's physical health impacts their mental health, just as their mental health impacts their physical health. Both of these factors are influenced by social and cultural factors. Quality of life is now viewed as one of the significant side effects of illness therapy and is assessed as one of the therapy's deciding factors. In addition to physical limitations, people with illnesses can experience psychological side effects from these restricting situations. Beyond physical health, the idea of the quality of life must be measured separately as one of the key objectives (Sharifi et al., 2012).

The findings in Table 10 demonstrate a favorable and substantial impact of teaching coping mechanisms on the physical role-playing aspect of quality of life in hemodialysis patients.

This finding explains that health is unquestionably one of the most significant parts of a person's life. If they feel healthy and are regarded as healthy by society, everyone can be completely active (Salimi et al., 2016). Humans are concerned about their health because it impacts their quality of life and comfort. However, social issues impacting the quality of life can also cause difficulties because of the reciprocal link between health and quality of life. Health, health issues, and medical interventions impact the quality of life. Every person initially experiences the physical dimension when learning about themselves. There is no escaping what is considered the attractiveness of physical appearance in today's culture, which is influenced by the media, movies, billboards, etc. (Asghari and Mehrboud, 2014).

According to Table 11's findings, teaching coping mechanisms to hemodialysis patients has a good and significant impact on their quality of life's physical discomfort component. This finding can be explained by the fact that physical pain is one

of the world's major contributors to a disability, health issues, and the need for medical care, which imposes enormous costs on societies each year and significantly lowers people's quality of life. These patients go through a lot of stress due to their illness and social expectations. It will therefore have an impact on their quality of life. Patient's health is put under a lot of physical strain while caregiving.

The results of Table 12 indicate that teaching coping mechanisms has a favorable and significant impact on the general health component of quality of life in hemodialysis patients. The findings of this realization are in line with the research of Livarjani et al. (2014), the research of Mohammadi (2014) under the heading of examining the state of mental health at Ardabil University of Medical Sciences, as well as with the study of Godarzi and Moeini Rudbali (2014), and with the study of Godarzi and Moeini Rudbali (2014) under the heading of the effect of authentic leadership styles on psychological well-being.

Health is one of the fundamental human needs essential to sustainable development, which is how this result can be explained. Another topic that has been debated for many years by specialists in behavioral science, mental health, counseling, and psychology is public health. Numerous social issues, communication issues, and emotional diseases, such as depression, are brought on by people's mental health issues (Najarpour Ostadi, Aghdami Baher, and Birami, 2019).

Stressful events can generate unpleasant emotions and physical arousal, which makes people want to find relief. The tactics used to cope with stressful situations are the same for everyone. By concentrating on it, you might try to modify or steer clear of a particular issue or scenario. A person's health improves with the number of coping mechanisms he employs. Public health unquestionably contributes significantly to the vitality and effectiveness of every society. As a result, improving hemodialysis patients' general health can help them study more and be more conscious of how science affects society (Saki and Kikhani, 2013). Table 13 indicates that teaching coping mechanisms have a favorable and significant impact on improving the tiredness component of quality of life in hemodialysis patients.

To explain this finding, it might be claimed that people encounter various challenges when adjusting to new circumstances in their life. Although it can also be a general sign of a health or mental disease, fatigue is a significant and natural reaction to intense physical exercise, ongoing psychological stress, and lack of sleep. The impact of fatigue permeates all facets of a person's life. This ambiguous and unpleasant symptom negatively impacts the person's capacity to carry out tasks and jobs. Many people often have a common understanding of the complicated mental experience of fatigue (Sajadi and Abu Talebi, 2012).

Based on Table 14, the findings indicate that teaching coping mechanisms has a positive and substantial impact on improving the quality of life of hemodialysis patients' social performance component. To explain this outcome, it might be claimed that the patients' social performance was unaffected by the coping strategy training. In the social approach to health, it is not only the person responsible for preserving or recovering his health, but society is also responsible for ensuring healthy living circumstances and providing equitable treatment facilities for all its members (Green and Elgrint, 2011). (Green and Elgrint, 2011). Link and Flan's (1995) theory of basic causes emphasizes the tight connection between social conditions and disease and death. According to this theory, social elements, which include a variety of resources such as money, education, dignity, power, and secure and advantageous social relationships, significantly impact the health-related quality of life for various social groups (Flan et al., 2010). Table 15 shows that training coping skills has a good and substantial impact on improving the emotional role dimension variable of quality of life in hemodialysis patients. It may be inferred from this finding that teaching coping mechanisms affects patients' emotional roles. Patients develop the skills essential to handle various problems in a pleasant and stress-free atmosphere by taking on emotional roles that help them become used to new social surroundings and scenarios they would encounter in real life (Khosro Javaid and Kazemi Ali Abad, 2017). Based on Table (16), the findings indicate that teaching coping mechanisms has a good and substantial impact on improving the mental health component of quality of life in hemodialysis patients.

To explain this outcome, it might be claimed that health is a heavenly gift everyone has to some degree and relies on it to go through each day. A factor that is important in many facets of life, including collaboration, interpersonal connections, education, and employment, and whose absence results in partial or total incapacity (Aghdasi and Eidi, 2019).

Adopting appropriate coping mechanisms against stress can lessen its negative effects on a person's mental health and, as a result, help them adapt as much as possible. Effective coping strategies play an important role in reducing the formation and durability of stressful events in life. To guide the subject (Folkman and Moskowitz, 2004).

Conclusion:

The obtained results demonstrated that coping mechanisms could enhance patients' quality of life. Given that the researchers believe that progress in mental health is influenced by the quality of life, it can be inferred that the proper and appropriate methods of managing the disease by enhancing the quality of life can increase the likelihood of the patient's rehabilitation and improve his mental health. To improve treatment, maintain health, and lessen disease complications in

patients with chronic kidney failure receiving hemodialysis, it is crucial to focus on the development of coping mechanisms and teaching patients effective ways to handle stress to reduce the experience of negative emotions and improve quality of life (Khosravani et al., 2011).

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