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The role of quality of life components with the mediation of psychological capital in reducing PTSD among earthquake victims in Kermanshah

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ABSTRACT

Background and Aim: Natural and human traumatic events have always had destructive physical, economic, social and of course psychological effects. The aim of the present study was to investigate the role of quality of life components with the mediation of psychological capital in reducing post-traumatic stress disorder among earthquake victims in Kermanshah. **Methods:** The research method was descriptive and structural equation modeling. The statistical population of the research included all earthquake victims of the recent Kermanshah earthquake. The number of sample people was 386 people who were affected by the earthquake, who were selected according to the criteria of entering and exiting the research and being available. The research tools included Mississippi PTSD Citizenship Scale (1988), World Health Organization Quality of Life Questionnaire (1996) and McGee Psychological Capital Questionnaire (2011). The collected data were analyzed by structural equation modeling method and using AMOS software. **Results:** The results of data analysis showed that the prediction model of spiritual health based on resilience, mindfulness and personal values, taking into account the mediating role of cognitive emotion regulation based on experimental data, has a favorable fit. Also, the direct and indirect effects of personal values, resilience and mindfulness on spiritual health were confirmed ($p<0.05$). Also, the cognitive regulation of emotion directly affects the spiritual health of artists ($p<0.05$). **Conclusion:** It can be concluded that the quality of life components were effective in reducing post-traumatic stress disorder among the earthquake victims of Kermanshah through the mediation of psychological capital.

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Introduction

The inevitability of natural and human traumatic events throughout history is obvious, events that have always had destructive physical, economic, social, and of course psychological effects (Litz et al., 2018). Post-traumatic stress is a severe psychological disorder that occurs after the intense experience of traumatic events such as natural disasters, war, hostage-taking, domestic and urban violence, sexual assault, and accidents (Enea & Dafinho, 2013; cited by Baharvand, Dortaj, Nasri, and Nasralhi, 2020). Epidemiological studies have shown that according to the criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), about 89.7% of adults have encountered a traumatic event during their lifetime. However, only 10% of them suffer from post-traumatic stress disorder (PTSD) (Karmasi et al., 2020). According to DSM-5, this disorder consists of symptoms such as psychological re-experiencing of the traumatic event, avoidance of trauma-related stimuli, and persistently increased irritability. It can include disturbances in cognitive processes, hyperactivity, intense startle response, and increased physiological arousal to cues that are symbolic of the traumatic event (Walton et al., 2018). There are several underlying factors related to the vulnerability of suffering from post-traumatic stress disorder. Young and very older people find it more difficult to deal with traumatic events than middle-aged people. People who are psychologically healthy before the injury are at the lowest risk of post-traumatic stress disorder. On the other hand, if the event is horrific enough, it will not protect your previous mental health. Another possible factor that contributes to vulnerability to PTSD is genetic predisposition. Some people get infected and others do not because of three factors: childhood experiences, personality, and social support system. People who have had psychological problems due to personality traits, have lacked the richness of social relationships, or who consider themselves unable to control difficult life events, are highly prepared to suffer from post-traumatic stress disorder (Ktgasner et al., 2019). Therefore, in this research, the relationship between quality of life and post-traumatic stress disorder was studied, as well as considering the mediating role of psychological capital in earthquake victims.

One of the variables that can be related to symptoms of post-traumatic stress disorder is quality of life (Burnos & Bargeil-Matoswicz, 2018). The World Health Organization (2014) considers the four dimensions of physical health, mental health, social relationships and living environment for quality of life. According to the World Health Organization (2014) definition, quality of life is people's understanding of their position in life in the cultural context and value systems in which they live, and it is related to their understanding of their goals, expectations, standards and interests. Quality of life is a concept with a wide scope, which is influenced in a complex way by physical health, psychological status, degree of non-dependence and social relations of the person and his relations with his surroundings (Troizan, Miyazaki, Silva, and Rock, 2017). Quality of life is a broad concept that includes all aspects of life, including health. This term is used in various political, social and economic fields; It is often used in medical studies and according to most experts, it includes different physical, physiological, social and spiritual dimensions. Quality of life literally means how to live. However, its meaning is unique and different for everyone. Some researchers consider this word too complicated to be described in one sentence. Although in this case that the quality of life is a multi-dimensional and complex structure and is determined based on the patient's assessment of his own condition in the physical, psychological and social fields, there is a general agreement among researchers. However, there needs to be more agreement in the theoretical and operational definitions and determining its specific areas (Limbers & Skipper, 2014).

Another variable related to post-traumatic stress disorder symptoms is psychological capital (Idmudia et al., 2020). Psychological capital originates from "positive psychology" as proposed in the postmodern school (Di Clercco et al., 2019). Psychological capital includes human behavior's strengths and positive aspects (Kaus & Goken, 2015). Luthans saw positivism as more in line with paying attention and strengthening people's capabilities than managing their weaknesses (Yu, 2016). Psychological capital focuses on activities that lead to the well-being of individuals, building positive individuals, thriving communities, and social justice. The image that positivist

psychologists give of human nature is optimistic and hopeful because they believe in the ability to expand, nurture, flourish, and perfect human beings and become what is humanly capable (Bitmis & Argenili, 2015). Therefore, psychological capital is a combined and interconnected structure that includes four perceptual-cognitive components, i.e. optimism, resilience, hope and self-efficacy (Lee & Chu, 2016). Optimism is an interpretation style that attributes positive events to permanent, personal, and pervasive causes, and negative events to external, temporary, and specific circumstances (Newman, et al., 2018). Resilience is a class of phenomena characterized by a pattern of positive adaptation in the context of considerable problems and risks (Georgiou & Nicolaou, 2019). Hope is a positive motivational state based on a proactive driver of a sense of dynamic success and a sense of success of strategies (Hargrove, Casa, & McCarter, 2019). Finally, self-efficacy is a person's firm belief in his abilities to mobilize motivational and cognitive resources and the strategies needed to implement certain successes (Bandura, 1997). These components, in an interactive and evaluative process, give meaning to a person's life, continue the person's efforts to change stressful situations, prepare them to enter the scene of action, and guarantee their resistance and tenacity in achieving their goals (Wu & Chen, 2018).

According to the said material, it seems that with a deeper understanding of the relationship between quality of life and psychological capital and post-traumatic stress disorder in people, steps can be taken to improve them. Naturally, this deep understanding and awareness is obtained with the help of research that directly confronts the experienced people and obtains a comprehensive and general view of their perceptions, imaginations and feelings. According to the mentioned materials, the aim of the present study was to investigate the role of quality of life components with the mediation of psychological capital in reducing post-traumatic stress disorder among earthquake victims in Kermanshah.

Method

This research was carried out using the method of correlational research and structural equation modeling. This method was used to study the amount of changes in the criterion variable (post-traumatic stress disorder) based on predictor variables (components of quality of life). In addition to determining the intensity of the relationship between the variables, the contribution of each of the predictor variables in predicting the criterion variable was determined, and then the mediating role of psychological capital in the relationship between the variables was studied. The statistical population of the research included all the earthquake victims of the recent Kermanshah earthquake, whose number is about 21,000 people.

There are various opinions about the sample size in the research related to the structural equation model correlation research method, but everyone agrees that the structural equation model is similar to the factor analysis of statistical techniques that can be implemented with a large sample. Based on the expected effect size and the distribution of the measured variables and considering the power of the test, at least 10 subjects are sufficient for each estimated parameter, provided that the estimated effect size is large and the measured variables have a normal distribution (Tabachnik & Fidel, 2007). Considering the suitability of a sample size of at least 300 people for confirmatory factor analysis and structural equation modeling according to some sources (Kriazos, 2018), in this study, the minimum sample size of the current research, taking into account the number of parameters estimated in the model, is at least 350 people. Taking into account the possible falls, 400 earthquake victims were selected as the research sample. After discarding incomplete questionnaires, 386 questionnaires were entered into the final analysis. The sampling method in this research was available. It should be noted that in order to control intervening variables, the criteria for entering the research will be: being in the age group between 30 and 50 years old, having at least a high school diploma. In order to comply with the ethical issues of the research, a consent letter was prepared in which the general purpose of the research was explained. The participants first read the consent form and participated in the research if they wished. Among the things that were explained to the participants were the following: 1- Obtaining a research license from universities and related study centers; 2- obtaining written consent from the study participants; 3- Respecting the subjects' rights in relation to stopping or continuing cooperation at every stage of the research; 4- Not mentioning the name of the participants in the information form in order to be confidential and give people confidence; 5- Providing the necessary explanations to the participants regarding the purpose of the research and respecting their rights in terms of accepting or rejecting participation in the research.

Materials

1. Mississippi Post-Traumatic Stress Disorder (PTSD) Citizenship Scale. This test is a self-report scale developed by Kian et al. in 1988 and is used to

assess the severity of post-traumatic stress disorder symptoms. This scale has 35 questions and the subjects answer these questions on a 5-point scale, where these options are scored as 1, 2, 3, 4, 5 respectively. The range of a person's total scores will be from 35 to 175, and a score of 107 and above indicates the presence of post-traumatic stress disorder in a person. Cronbach's alpha coefficient of this test is reported in the range of 0.86 to 0.94, Cronbach's alpha coefficient of this test in Sajjad Beshrpour's study under the title of the effectiveness of cognitive processing therapy on improving post-traumatic symptoms, quality of life, self-esteem and marital satisfaction of women faced with marital infidelity 79 0/ was obtained. This test has a high validity and has a very good correlation with other tools for measuring post-traumatic stress disorder. Kian et al., 1988. This scale was validated in Iran by Goderzi in 2001 and Cronbach's alpha coefficient was reported as 0.92. In order to determine the concurrent validity of this scale, three life events list, PTSD list and Padova list were used. The correlation coefficient of the Mississippi scale with each of them has been reported as 0.23, 0.82 and 0.75 respectively (Goudarzi, Shafiei, and Tarikhi, 2012).

2. World Health Organization Quality of Life Questionnaire 26 questions (WHOQOL-BREF). The World Health Organization commissioned a group to create a questionnaire in order to have consistency in research and measure the quality of life. The result of this group's work was a 100-question quality of life questionnaire (WHOQOL-100). A few years later, a short form of this questionnaire was prepared for easier use. The 26-question World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) is a 26-question questionnaire that measures a person's overall quality of life. This scale was created in 1996 by a group of experts of the World Health Organization and by adjusting the items of the 100-question form of this questionnaire. This questionnaire has 4 subscales and a total score. These subscales are: physical health, mental health, social relationships, health of the surrounding environment and an overall score. First, a raw score is obtained for each subscale. A higher score indicates a higher quality of life. To check the validity and reliability of this questionnaire, a research was conducted on 1167 people of Tehran. The participants were divided into two groups with chronic and non-chronic diseases. Test-retest reliability for the subscales was obtained as follows: physical health was 0.77, mental health was 0.77, social relations was 0.75, and environmental health was 0.84 (Jatt et al., 2006).

3. McGee Psychological Capital Questionnaire (2011) (PCQ). To measure psychological capital, a twenty-four question questionnaire provided by McGee (2011; quoted by Golparvar et al., 2013) with four subscales of self-efficacy, hope, resilience and optimism was used. The response scale used in this research for this questionnaire is six-point (completely disagree = 1 to completely agree = 6). McGee (2011; quoted by Golperor et al., 2012) examined the validity and reliability of this questionnaire along with the twenty-five and twelve-question forms of psychological capital and provided evidence of the validity and reliability of this questionnaire. For example, McGee (2011) found a positive and significant correlation between psychological capital and self-efficacy as evidence of the concurrent validity of this questionnaire with other versions of the psychological capital questionnaire. In addition, between 0.48 and 0.54, with positive and significant correlation hope between 0.40 and 0.61, with resilience positive and significant correlation between 0.48 and 0.55. Finally, it has reported positive and significant correlation between 0.47 and 0.50 with optimism. The face validity of this questionnaire has also been checked and confirmed (Golperor et al., 2013). In Golparvar et al.'s (2013) research, exploratory factor analysis with Varimax rotation on 26 questions of this questionnaire yielded the same four factors introduced in the original questionnaire. Cronbach's alpha was 0.91, 0.89, 0.83, and 0.70 for self-efficacy, hope, resilience, and optimism, respectively.

Implementation

In this research, the required information has been collected in two stages. In the first stage: by referring to library sources including books, magazines and authentic scientific articles, the materials related to the research literature have been collected. In the second step: In this research, information has been collected in the field using a questionnaire tool. The research questionnaire consists of two parts. First, the general characteristics of the subjects and then the questions related to the research. In order to comply with the ethical issues of the research, a consent letter was prepared in which the purpose of the research was explained in general. The participants first read the consent form and participated in the research if they wish. The research consent form is provided in the attached section. One of the things explained to the participants was that they were assured that there was no personal abuse involved in this research. In addition, some participants wanted to know the result of their answers to the questionnaire and the report of the interpretation of the questionnaires was provided to them in simple language. Finally, necessary explanations were given to the subjects about the confidentiality of the questionnaires and their results.

In the descriptive part, percentage, frequency distribution, table, graph, and figure were used to describe the demographic characteristics, and mean, standard deviation, skewness, and kurtosis were used to describe the research variables. Structural equation modeling was used in the inferential part according

to the nature of the research question and research hypotheses. Data were analyzed using correlation coefficient tests, multivariate regression and path analysis. It should be noted that SPSS-24 and AMOS statistical software were used for data analysis.

Results

Based on the demographic findings, 52.07% of the sample group are women, and 47.93% are men. Most people in the sample group for earthquake victims are 41 to 45 years old.

Table 1. Descriptive findings of research subscales

statistics components	Mean	Standard deviation	Kurtosis	Skewness
Physical health	18.18	6.01	0.91	-0.56
mental health	17.86	5.61	0.91	-0.36
Community Relations	17.41	5.40	1.07	-0.04
environmental health	16.17	4.76	1.72	2.09
Efficacy	17.28	3.65	-0.03	-0.14
Hope	16.55	5.03	0.13	-0.68
Resilience	16.63	6.80	-0.74	-0.44
optimism	15.30	5.77	0.09	-0.60
PTSD	108.99	12.96	0.39	0.20

To check the normality of a single variable, a general criterion recommends that if the skewness and kurtosis are not in the interval (3, -3), the data does not have a normal distribution. (Culliken, 2009). Based on the data in Table 3-4, it is clear that the skewness and elongation index of none of the indicators is outside the range of (3, -3), and therefore they can be considered normal or close to normal. One of the assumptions of structural equation modeling is the normality of multivariate distribution. For this purpose, Mardia's multivariate elongation coefficient is used in AMOS software. Bentler (2005) suggests that values greater than 5 for the Mardia coefficient indicate a non-normal data distribution (Berne, 2010). The value of Mardia's coefficient for the present study's data is equal to 2.82, which shows that the assumption of multivariate normality is valid. When the continuous data does not significantly deviate from normality, the maximum likelihood (ML) estimation method can be used.

Table 2. Coefficients and significance of factor loadings of measurement models

Variable	Component	Standardized weight	T statistics	sig
Quality of life	Physical health	0.38	5.53	0.001
	mental health	0.51	6.65	0.001
	Community Relations	0.44	6.95	0.001
	environmental health	0.47		0.001
Psychological capital	Efficacy	0.47		0.001
	optimism	0.54	6.86	0.001
	Hope	0.39	5.66	0.001
	Resilience	0.43	5.97	0.001

The results of Table 2 show that the factors of both scales have a significant factor load at the 99% confidence level. Considering that in the models tested above, the paths between the variables are the same as the research hypotheses, in the following, other research hypotheses have been tested along with the tables of direct and indirect effects.

Table 3. Fit indices of confirmatory factor analysis

Index	Fit	
	Value	Bound

$\frac{\chi^2}{df}$	2/81	< 3
RMSEA	0/05	< 0.1
CFI	0/94	> 0.9
NFI	0/94	> 0.9
GFI	0/93	> 0.9
AGFI	0/90	> 0.9

Based on the results obtained from the above table, it can be generally stated that in working with the EMOS program, each of the obtained indicators alone is not the reason for the suitability or lack of suitability of the model, and these indicators should be interpreted together. The obtained values for these indicators show that overall the model has a good condition in terms of explanation and fitting. In the following, the indicators of the measurement model are reported first. The results related to the implementation of the initial model in the standard mode, along with some of the most important indicators of the initial model fit, are presented in Figure 1.

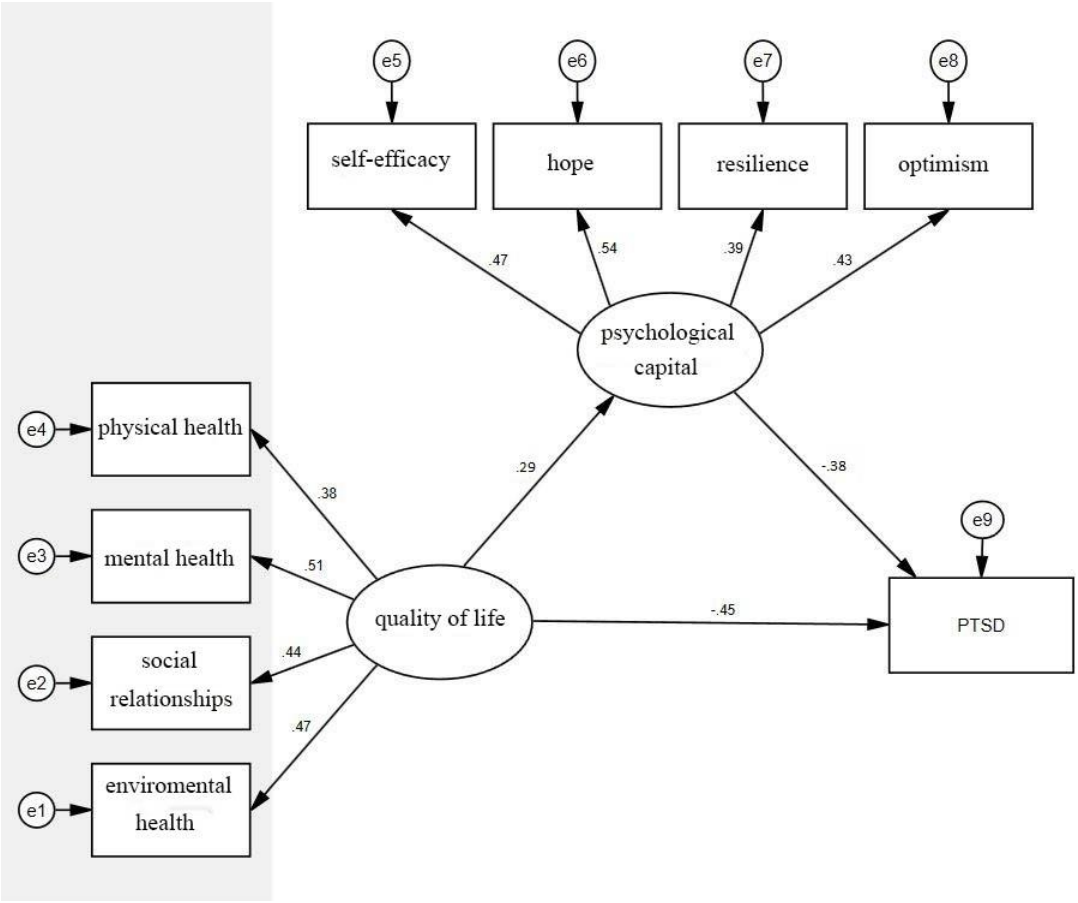

Figure 1. The initial model in the case of standardized coefficients

Conclusion

The aim of the current study was to investigate the role of quality of life components with the mediation of psychological capital in reducing PTSD among earthquake victims in Kermanshah. The statistical test results showed that the fit indices of the research model are in a favorable condition. Also, quality of life components has direct and indirect effects on post-traumatic stress disorder.

In line with this finding, Hu et al. (2018) showed in research that exposure to earthquakes is related to the severity of post-traumatic stress disorder symptoms and is directly related to quality of life. Bonicini and Tremolada (2021) showed in a study that married/partnered people, non-workers and people with a lower

level of education perceive a better quality of life and less post-traumatic stress disorder.

In explaining this finding, it should first be pointed out that in earthquake victims who have post-traumatic stress disorder, since physical problems or a decline in general health cause limitations in activities such as participation in social relations and performing physical activities, Naturally, they have a lower score in the physical components of the quality of life. In other words, due to the physical and mental problems caused by the earthquake and the chronicity of the symptoms over time and the addition of other issues such as financial problems, unemployment, physical and mental pain tolerance, weak interpersonal relationships, violence, feelings of hopelessness and many other factors, naturally have a lower quality of life (Hu et al., 2018).

Post-traumatic stress disorder causes changes in the feelings and behavior of the affected person, and as a result, problems arise in the field of interpersonal and family relationships. The affected person may become cold in terms of emotional and emotional relationships and feel distant and alienated from others. The existence of irritable behaviors, defensive states, jumping up early, anxiety and worry can affect these people's quality of life. On the other hand, nightmares related to earthquake scenes also prevent the affected person from spending the night peacefully with other family members. In this way, stressful conditions lead to the recurrence of the disorder, and these factors affect his general-psychological condition, social functioning and overall quality of life (Bonicini & Tremolada, 2021).

On the other hand, physical and mental problems are traumatic effects of any accident that may occur to people who were directly or indirectly present at the scene. The creation of these problems changes and affects the quality of life of these people such as physical, mental, family, social, occupational and economic status. Several findings showed that the earthquake survivors who suffered from post-traumatic stress disorder have an unfavorable quality of life. They mostly experience problems regarding intimate relationships and family roles, psychosocial problems, weaker family adaptation and poor physical performance, and its symptoms are related to incompatibility, illness and interpersonal violence in post-traumatic stress sufferers.

Some studies have shown that mental disorders, especially post-traumatic stress disorder, negatively impact the whole family and their economy, and even the people who are related to them, and threaten the quality of life of the affected person and other family members. Taking care of the disease disrupts family relationships, bears stressful responsibilities and adversely affects the quality of life of other members of the family and even society and creates an unsafe environment in the families of earthquake victims. This causes a decrease in the individual's social performance, disintegration of the family system, anger, anxiety, depression, and fear in other family members, and finally, intensification of post-traumatic stress. On the other hand, the presence of irritable behaviors, defensive states, jumping up early, anxiety and worry are factors that can affect the quality of life. Due to recalling the memories related to earthquake scenes in a person suffering from post-traumatic stress disorder, the slightest problem disrupts his life and leads to a constant feeling of worry about the possibility of a vague but terrible danger (Bonichini & Tremolada, 2021).

The statistical test results showed that the fit indices of the research model are in a favorable condition. Also, psychological capital factors have significantly affected post-traumatic stress disorder. In explaining these findings, it should first be pointed out that people with high psychological capital have a comprehensive attitude in dealing with problems and occupy themselves with divergent thoughts, essential for creativity, and consider different priorities in assessing the situation. This attitude is the opposite of convergent (one-dimensional) thinking, one of the main characteristics of depressed people. Resilience, self-efficacy, hope and optimism make these people so that stressful situations and changing conditions - good and bad - are opportunities for them to fight. These people accept their thoughts and feelings and then actively experience changing what they don't want. They embrace life and are emotionally engaged in what they are doing in the present, and even when they are resting they are focused on their rest.

In the framework of Bandura's theory, people with a high level of psychological capital adapt

to problems, when the situation becomes dire, they set great goals because they know how to use problem-oriented skills and strategies. In other words, they have the ability to choose from among the methods of facing events, they have cognitive control, that is, the ability to interpret and evaluate stressful events to plans in progress and neutralize its adverse effects, as well as the ability to adapt, which means having a larger treasury of appropriate responses in All situations that have arisen following a specific stimulus have In accordance with these conditions, the current conceptualizations of post-traumatic stress disorder have pointed out that people with the disorder try to limit or avoid facing the symptoms related to the stressful event and also prevent the activation of trauma-related emotions. Therefore, the cognitive models of the disorder suggest that the incorrect and negative evaluation of the stressful event and the lack of review based on the new information received causes a sense of threat and, as a result, the continuation of post-traumatic stress disorder symptoms. Finally, it should be pointed out that in unstable people, emotional instability and imbalance, possibility of aggressive reaction, complaints of numerous physical pains, anxiety, obsession, self-deprecation, lack of independence, lack of vitality and guilt are seen, and this causes Stress intensifies in them (Hu et al., 2018).

Among the limitations of this research, it can be mentioned that it is cross-sectional and there is no comparison group in the study. Also, in order to increase the accuracy and accuracy of the results and the comparability of the findings with some clinical studies in this field, it is better to use clinical tests to measure the incidence of post-traumatic stress disorder. Since the symptoms and effects of post-traumatic stress disorder appear over time after repeated encounters with unfortunate events, it is recommended that future studies be designed in the manner of longitudinal studies with a comparison group in mind, so that in the long run, causal relationships between quality of life variables can be established. and to measure psychological capital with post-traumatic stress without the confounding effects of other variables. In future researches, qualitative methods and clinical tests such as diagnostic interview based on DSM-V and CAPS clinical scale should be used to evaluate predictive factors of PTSD.

What was confirmed in this study is the inverse relationship of quality of life in the field of mental health, environmental health and social relations with post-traumatic stress disorder. It is worth noting that these results are only specific to the studied group and cannot be generalized to other post-traumatic stress groups. This study suggests that the strategies to deal with the psychological trauma caused by the earthquake should be implemented with the support of the upstream institutions. Several factors such as increasing social support from support organizations, increasing psychological capital in individual counseling, roles and pieces of training that help increase individual resistance, such as resilience training, are known as protective factors against the symptoms of post-traumatic disorders. The implementation of strategies to deal with mental disorders based on approaches that strengthen psychological capital will make it easier for earthquake victims to return to their optimal conditions, and this will result in improving resilience, self-efficacy, optimism and hope and increasing their quality of life. The findings of the above research confirm the current research results, that the quality of life components are related to the severity of post-traumatic stress disorder symptoms. These findings can identify important components that may lead to the reduction of post-traumatic stress disorder symptoms and the development of treatment plans to help these patients improve their quality of life in various family, social and occupational fields.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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