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Original Article

Mediating Role of Social Support in the relationship of Distress Tolerance and Emotional Self-Regulation with Depression in the Survivors of Kermanshah Earthquake

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Abstract

Background and Objective: Depression is a serious mental health condition experienced by bereaved earthquake survivors. It seems that distress tolerance, emotional self-regulation, and social support can be good predictors of depression. The present study aimed to determine the mediating role of social support in the relationship of distress tolerance and emotional self-regulation with depression.

Materials and Methods: This descriptive study was conducted based on structural equation modeling. The statistical population of this study included the survivors of the Kermanshah earthquake who were suffering from depression in Kermanshah, Iran, in 2019. The sample size was calculated at 384 subjects who were selected via the convenience sampling method. Data were collected using social support questionnaires, a distress tolerance questionnaire, Gross and John's Emotional Self-Regulation Questionnaire, and Beck depression inventory. Data were analyzed in two descriptive statistics sections using SPSS software (version 23) and inferential statistics using structural equation modeling in SMART PLS2 software.

Results: The results of this study pointed out that the relationship between research variables is significant and distress tolerance, self-regulation, and social support can predict depression. Moreover, social support plays a mediating role in the relationship of distress tolerance and emotional self-regulation with depression. The quality of the measurement model was confirmed by the cv.com test, and the structural model was verified by the cv.red test. The effect factor of R2 variables is strong and according to the goodness of fit, the quality of the final model of the research was 0.586, indicating a strong fit of the model.

Conclusions: As evidenced by the obtained results, it can be expected that post-earthquake depression can be reduced by the enhancement of distress tolerance, emotional self-regulation, and social support.

Keywords: Earthquakes, Depression, Emotional regulation, Survivors

Background

An earthquake is a natural phenomenon and crisis that poses serious threats to the lives and properties of people in residential areas. Moreover, it causes social and psychological damages which aggravate the problems and crises of the earthquake, if left neglected. Paying attention to social and psychological consequences, as a strategic and managerial necessity, is a matter of preventing damages. Inattention to these consequences will lead to irreparable damages in earthquake-affected areas and even outside of these areas [1]. Bereavedness arises when a person loses a loved one due to death. The reactions that arise in the bereaved person are physical, psychological, and behavioral [2]. Research findings demonstrated that absence causes emotional disturbance and behavioral incompatibility. According to clinical evidence, many hot-hearted individuals are at risk of depression, anxiety disorders, physical illness, immune system malfunction, and increased risk of death [3].

The term depression is used in various cases for describing mood, identifying a characteristic, and as a concept in the psychological class. A depressed mood is regarded by most people as feeling unhappy or helpless. This experience may include

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feelings of impatience, guilt, worthlessness, self-counting, lethargy, and apathy [4]. One of the factors that can be effective in the improvement or prevention of earthquake damage is distress tolerance [5]. Distress tolerance is a variable of individual differences that refers to the capacity to experience and resist emotional distress. Distress tolerance became increasingly an important construct in a new insight into the onset and retention of psychological damages and the individual's reactions to the environment and stressful situations [6].

On the other hand, recent studies have pointed out that difficulty in emotion regulation is the main core symptom of major depressive disorder. Mainly, depressed patients often use maladaptive emotion regulation strategies and have difficulty using effective tools and adaptive strategies [7]. People use a variety of cognitive strategies in the face of stressful experiences and situations to maintain their mental health and excitement. Emotion regulation strategies prepare a person to cope with unpleasant situations [8]. Emotional self-regulation plays a role in triggering, increasing, maintaining, or reducing positive and negative emotions in response to environmental events. We are free to choose how we express our feelings, and what is emphasized is the way of expressing emotions; therefore, this method of expression can both facilitate the flow of thinking and prevent its deviation [9].

Another factor that can play a role in the rate of depression in earthquake survivors is social support [10], which mitigates the effects of stressful events and leads to a positive experience. In the absence of negative self-perceptions, the feeling of incompetence and a decreased self-esteem develops in the individual, making him/her susceptible to depression disorder [11]. Social support is of utmost importance for people bereaved by earthquakes since social sensitivity to these natural disasters is high; therefore, this social support from relatives, friends, and other people in the community can be important in stylized negative emotions. According to the aforementioned issues, it can be stated that depression is a major mental health condition experienced by bereaved people and earthquake survivors. Since it seems that distress tolerance, emotional self-regulation, and social support can be good predictors of depression, the present study aimed to analyze the structural modeling of depression prediction based on emotional self-regulation and distress tolerance by the mediating role of social support in the Kermanshah earthquake survivors.

Objectives

The current study aimed to determine the mediating role of social support in the relationship of distress tolerance and emotional self-regulation with depression.

Materials and Methods

This descriptive study was conducted based on structural equation modeling. The statistical population consisted of all survivors bereaved by the Kermanshah earthquake in 2019. This study consisted of 4 variables, and 50 subjects per variable were selected via the convenience sampling method as the sample group, which totaled 200 cases. With more than 300 estimates, 400 questionnaires were distributed to achieve this minimum amount, out of which 384 questionnaires were returned, and all non-probability questionnaires were analyzed. Kline [12] recommended that the N:q ratio should be 20 to 1, or 20 observations (participants) for each estimated parameter in the model. The "P" used for calculating the sample size was 0.05. It is worth noting that before distributing the questionnaires, the respondents were provided with sufficient explanation of the research and were asked to complete them if they were satisfied. Moreover, all distributed questionnaires were nameless, and the principle of data confidentiality was observed. The questionnaires used in this study included four general questions about gender, marital status, age, education, and 95 questions related to research variables. The items were rated on a 5-point Likert scale, ranging from “disagree” to “agree”. In this study, four questionnaires with confirmed content validity were used.

The inclusion criteria entailed surviving the earthquake of Kermanshah in 2019, lack of any other psychiatric and medical diseases, non-use of any drugs, the age range of 20-60 years, and high school education. On the other hand, the exclusion criterion was the failure to answer all questions. The ethical considerations of the present study were as follows: All participants received oral information about the research and participated in the research if they wished. The subjects were assured that all information will be kept strictly confidential and will be used only for academic research purposes. To respect privacy, the participants' names and surnames were not registered. To ensure the process, all questionnaires were conducted by the researcher himself.

Beck Depression Inventory

This questionnaire was developed by Beck et al. in

1961 and then published in 1987 with 21 items to measure depression. Subjects must answer questions on a 5-point Likert scale, ranging from 1-5. The items were on affection (n=2), cognition (n=11), overt behaviors (n=2), physical symptoms (n=5), and interpersonal semiotics (n=1). The validity of this questionnaire was reported with Cronbach's alpha of 0.78 and validity of 0.73 in the study by García-Batista et.al [13]. The Reliability of this questionnaire in the present research was 0.80.

Social Support Scale (MOS-SSS)

This is a self-report tool developed by Sherborne and Stewart. This 19-item test measures the level of social support received by the subject. The questions are placed in five subscales of tangible support, emotional support, informational support, kindness, and positive social interaction. Reliability coefficients for each subscale of emotional support, informational support, tangible support, social interaction, positive social interaction, and kindness and total scale were reported as 0.96, 0.96, 0.92, 0.91, and 0.97 [14].

Emotional self-regulation questionnaire

This questionnaire has 28 items in 7 subscales and is divided into two categories: emotion self-regulation strategies focused on antecedent and response-focused strategies. Subjects respond to the items on a 7-point Likert scale(1=strong opposition to 7=strong agreement. The validity of this questionnaire was reported favorably by Hosni and Kadivar in Iran with Cronbach's alpha coefficients from 0.73-0.89 [15].

Distress Tolerance Questionnaire

This scale is a self-assessment of emotional distress tolerance developed by Simmons and Gaher in 2005. This scale has 15 items in 4 subscales, including emotional dilated tolerance, absorption by negative emotions, mental estimation of anxiety, and adjustment of efforts to locate the persuasion. The items are scored based on a 5-point Likert scale. High scores on this scale indicate a high tolerance for anxiety. Alpha coefficients for these subscales were 0.72, 0.82, 78, 80, and 0.70, and for the whole scale, it was calculated at 0.82 [16].

Descriptive statistics were used to categorize the individual characteristics of subjects to calculate frequency, percentage, mean, and standard deviation. Kolmogorov-Smirnov test was used to determine the normality of data; moreover, the Pearson correlation coefficient and path analysis model were used. To fit the proposed model, the Chi-square index on the degree of freedom, the comparative goodness index (CFI), goodness-of-fit index (GFI), the adaptive goodness-of-fit index (AGFI), and the root mean square error of approximation (RMSEA) were investigated. The data were analyzed in SPSS (version 22) and PLS2 Smart software packages. The significance level was considered to be 0.05.

Results

Regarding gender, the majority of subjects (76%) were male. In terms of education, 35%, 47%, 10%, 7%, and 1% of participants had an undergraduate, diploma, associate's degree, bachelor's degree, and postgraduate education, respectively. Considering age, 22%, 40%, 17%, and 21% of participants were aged between 20-30, 30-40, 40-50, and above 50 years old. Regarding marital status, the majority of subjects (77%) were married. Descriptive findings related to mean, standard deviation, skewness, and elongation of research variables are presented in Table 1.

The relationship between variables and the Pearson correlation test has been investigated. The results are reported in Table 2.

As illustrated in Table 3, Cronbach's alpha value and combined reliability are more than 0.7; therefore, the equivalent reliability is confirmed and indicates the high consistency of the indicators of each of the research variables within the measurement models. The amount of extracted variance (AVE) is more than 0.5, pointing to the important role of measurability of research variables based on the indices of each of them. The determinant power (R2) of the influential variables is strong. The predictive power between Q2 and cv.com variables is moderate and strong.

The effect sizes of distress tolerance on social support and depression are 0.028 (poor effect) and 0.214 (above-average effect). The effect sizes of emotional self-regulation on social support and depression are 0.208 (above-average effect) and 0.050 (poor effect). In addition, the effect of social support on depression is 0.084 (poor effect). The criterion for the overall evaluation of the structural model, known in studies as the goodness of fit (GOF), is calculated through the following formula. This index is investigated for each variable with values of 0.20, 0.15, and 0.35, which are considered weak, moderate, and strong benchmark values, respectively.

$$GOF = \sqrt{AVE} \times \sqrt{R^2}$$

$$GOF = \sqrt{0.690} * \sqrt{0.498} = 0.831 * 0.706 = 0.586$$

Table 1. Descriptive status of research variables

Variable	Component	M	SD	Skewness	Kurtosis
Distress tolerance	Emotional distress tolerance	3.44	0.52	-0.34	-0.98
	Absorption by negative emotions	3.32	0.77	-.043	-0.84
	Mental distress estimation	3.37	0.62	-0.32	-0.95
	Regulating distress relief efforts	3.44	0.52	-0.47	-0.59
	Total score	3.39	0.36	-0.41	-0.99
Emotional self-regulation	Select Position	3.37	0.76	-058	-.90
	Adjustment of position	3.36	0.23	-.45	-0.89
	Expand attention	3.40	0.50	-0.42	-0.88
	Cognitive Change	3.39	0.42	-0.35	-0.78
	Experimental Adjustment	3.31	0.24	-0.42	-0.10
	Behavioral adjustment	3.34	0.89	-0.38	-0.79
	Biodegradation	3.32	0.87	-0.36	-0.95
	Total score	3.36	0.83	-0.46	-0.84
Social support	Tangible support	3.34	0.84	-0.56	-0.77
	Emotional support	3.43	0.40	-0.44	-0.91
	Information support	3.35	0.45	-0.35	-0.95
	Kindness	3.39	0.40	-0.41	-0.45
	Positive social interaction	3.55	0.67	-0.47	-0.86
	Total score	3.40	0.83	0.44	-0.36
Complicated grief	Sense of Guilty	2.89	0.80	0.13	-0.57
	Trying to justify and cope	2.82	0.41	0.39	-0.57
	Body Reactions	2.81	0.45	0.04	-0.97
	Feeling abandoned	2.90	0.90	-0.10	-0.21
	The judgment of the person or others about the cause of death	2.76	0.24	-0.23	-0.57
	Embarrassment and Shame	2.73	0.92	-0.34	-0.43
	bad reputation	2.86	0.52	0.12	-0.86
	Total score	2.83	0.86	0.15	-0.85
Depression		1.41	0.94	0.10	-0.77

The results of Table 5 demonstrate that the mediating role of social support in the relationship of depression with distress tolerance and emotional self-regulation is significant and it can be stated that distress tolerance, self-regulation, and social support reduce the rate of depression.

Table 2. Pearson Correlation Test Results

Components	1	2	3
Distress tolerance	1		
Emotional self-regulation	0.72**	1	
Social support	-0.64**	0.57**	1
Depression	-0.52**	-0.48**	-0.61**

**P<0.001

Table 3. Results of Fitting (Quality) Hidden Variables of Research

Variable	Cronbach's Alpha	Combined reliability	AVE	R2	Q2	cv.com
Distress tolerance	0.87	0.87	0.60	-	0.70	0.72
Emotional self-regulation	0.88	0.88	0.71	-	0.71	0.82
Social support	0.87	0.88	0.74	0.61	0.67	0.71
Depression	0.82	0.85	0.69	0.38	0.66	0.72

Table 4. Effect Size Test

Variable	Construct	Social support	Depression
Distress tolerance	Included R2	0.61	0.38
	Excluded R2	0.56	0.25
	f2	0.13	0.21
Emotional self-regulation	Included R2	0.61	0.38
	Excluded R2	0.59	0.35
	f2	0.05	0.05
Social support	Included R2	-	0.38
	Excluded R2	-	0.33
	f2	-	0.08

Table 5. Results of direct and indirect coefficients

Relationships between variables	Direct Coefficient	Indirect coefficient	t	P-value
Distress tolerance on depression with the mediating role of social support	-0.29	-0.28	2.79	0.001
Emotional self-regulation on depression with the mediating role of social support	-0.22	-0.20	2.28	0.001
Distress tolerance on social support	0.57	-	13.91	0.001
Distress tolerance on depression	-0.29	-	2.79	0.001
Emotional self-regulation on social support	0.40	-	9.33	0.001
Emotional self-regulation on depression	-0.22	-	2.28	0.001
Social support for depression	-0.49	-	4.09	0.001

Discussion

The present study aimed to investigate the mediating role of social support in the relationship of depression with distress tolerance and emotional self-regulation. Depression is one of the most common types of psychiatric disorders that have been considered by scholars for a long time. Some consider depression to be a natural reaction to life and some regard it as a disease. Depression, in addition to hereditary and genetic aspects, is often associated with social and psychological factors that are due to social environment events. Due to population growth, the complexity of the human biological system leads to many crises, problems, and diseases, complicating depression [17]. The results indicated that social support has a mediating role in the relationship of distress tolerance and emotional self-regulation with depression and can reduce the rate of depression. In this regard, it can be stated that pathological bereavement can be manifested in many forms. This support can increase the adaptability of the individual to the condition and on the other hand help to reduce depression. These results are in line with those reported by Wills & Bantum [18] and Underwood et al. [19].

Consistent with the results of this study, depression can be reduced by social support. The ability to tolerate distress in survivors makes them better able to deal with events and problems; moreover, their perceived ability to withstand negative or unpleasant emotional states is strengthened, which can be effective in the prevention or reduction of depression [18]. It can be also expected that people who are best at dealing with the current situation in the face of distressing events and focus their minds on planning and taking action to solve the problem achieve positive emotional results and better mental health, and experience lower levels of depression than others. Therefore, paying attention to the strengthening and growth of characteristics, such as distress tolerance and emotional self-regulation, can have desirable effects on these types of survivors and increase mental health in them and reduce depression. Moreover, in the case of social support from family, friends, and society, the odds of depression can be reduced in these people. Therefore, it is necessary to send psychologists, psychiatrists, and expert counselors to earthquake-affected areas in the event of natural disasters, including earthquakes, and take necessary measures to prevent psychological damage and depression. The victims of these events suffer from several problems, such as depression, due to special conditions, which is necessary for relief workers to be prepared to calm themselves and the victims.

Among the notable limitations of this study, we can refer to the use of the convenience sampling method, which lowers the generalizability power, and the use of self-report questionnaires, which can be associated with the response bias. Moreover, the economic and social status of families were not investigated due to the limitations of sampling. It is suggested that future studies assess the moderating role of economic and social status in prediction models of bereavement and depression. To achieve the causes and factors affecting earthquake survivors and complete the findings of this study, deep qualitative research is necessary. It is suggested that necessary support measures for survivors be separated into two parts: initial and immediate measures taken in the early stages after disasters and long-term measures for the victims. As a further urgent measure, it is recommended that survivors who cannot take care of themselves separate the elderly and those who show signs of hallucinations and delusions caused by post-traumatic shock and apply necessary supportive measures, such as rapid psychiatric interventions and psychotherapy.

Conclusions

As evidenced by the obtained results, it can be expected that post-earthquake depression can be reduced by the enhancement of distress tolerance, emotional self-regulation, and social support.

Compliance with ethical guidelines

All ethical principles were considered in this research. The participants were informed about the purpose of the research and its stages. Informed consent was obtained from them and they were assured of the confidentiality of their information. Moreover, the subjects were free to withdraw from the study if desired. They were also informed that they would be provided with the results of the research.

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Authors' contributions

Conceptualization [Alireza Daneshvar]; Methodology [Mohammad Ebrahim Maddahi]; Investigation [Hasan Ahadi]; Writing – Original Draft [Alireza Daneshvar]; Writing – Review & Editing, Author names [all author]; Funding Acquisition, [all author]; Resources, [all author]; Supervision, [Mohammad Ebrahim Maddahi].

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Conflicts of Interest

The authors declare that they have no conflict of interest.

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