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The Development of A Scale to Measure The Fear of Earthquake

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Abstract

This study aims to develop a scale to measure the fear level of individuals towards earthquakes. The population of the research consists of individuals who were directly and indirectly affected by the earthquake that occurred in Kahramanmaraş province of Turkey on 6 February 2023. The sample of the research consists of 357 people who voluntarily participated in the survey. Data were collected through an online survey. Experts' opinions, literature review and pilot study were utilized in the creation of the scale items. Psychometric properties of the scale were analyzed by test-retest, calculation of internal consistency coefficient, exploratory factor analysis, confirmatory factor analysis, and calculation of CR and AVE values. It was observed that the internal consistency levels, structure and adaptive levels of the statements on the scale of fear of earthquakes were very good. In addition, the validity and reliability of the scale were revealed through explanatory factor and confirmatory factor analyses. It was concluded that the earthquake fear scale is a measurement tool that can be used to measure the level of fear of earthquakes in Turkey and in the world.

Keywords: Natural disaster, Fear of earthquake, Earthquake survivor, Scale development.

Introduction and Background

An earthquake is a natural disaster that makes people uneasy and affects them negatively regardless of its location and intensity. For some individuals, an earthquake can turn into a nightmare beyond fear. People's fear of earthquakes is not related to the earthquake itself but to the potential consequences of the earthquake. These potential consequences are related to material loss and loss of life. While the fear of people, in general, is related to individuality, the fear of

earthquakes is beyond this and it is a perception that family, relatives and the entire world will be hurt. In the matter of seconds, the life of the earthquake victims can be completely different.

Earthquakes are a special type of disaster that occurs unexpectedly and unpredictably and can threaten the lives and safety of people, depending on their severity (Sumer et al., 2005). A society that is not adequately prepared for earthquakes suffers much more loss of life and material losses than a well-prepared society and can be psychologically affected for a long time (IFRC, 2014; UNISDR, 2015). Although the day and time of the earthquake remain unknown, earthquake-resistant houses, early warning systems, etc. are measures taken in developed countries, while such measures are not taken in undeveloped countries (Knopoff, 1996; Kagan, 1997).

People affected by earthquake experience serious psychological problems at the time of the event and later. Sometimes this situation may continue for a very long time (Sumer et al., 2005). Individuals exposed to the earthquake are in a different psychological position from other people. Especially, the feeling of fear is at very different levels in earthquake survivors and in individuals who have a high probability of an earthquake. The concept of fear is expressed as a disturbing state that occurs with the detection of threatening stimuli (de Hoog et al., 2008). Fear is a concept that reveals the vulnerability of the individual against an event, that he/she is not used to, feels lonely and contains a dark process (Charles Osgood & May 1975). Shaver et al. (2001) stated that the fearful individual is relatively weak and has a low level of defence. In addition, the fearful individual is under attack physically, mentally and socially and is observed in a helpless state compared to other people (Shaver et al., 2001). Fear starts with the perception of an event as dangerous and the most frightening situation is the fear of physical harm, loss, rejection and loneliness (Shaver et al., 2001; Fehr & Russell, 1984).

All of the elements that constitute fear are experienced in a destructive earthquake process. The indescribable earthquake process leaves the individual helpless in every aspect. It has been observed in many studies examining the psychological effects of the earthquake that the most common emotion reported by earthquake victims is fear (Prati et al., 2013; Khachadourian et al., 2016; O'Toole, 2017). Kowalski and Kalayjian (2001) reported that individuals exposed to a devastating earthquake in Turkey experienced high levels of fear and anxiety. Fear and anxiety are accompanied by problems such as accelerated heartbeat, insomnia, breathing problems and sleeplessness (Kowalski & Kalayjian, 2001).

After a devastating earthquake, it may take a long time for earthquake victims to return to normal life and sometimes it is not possible. In the study brought to the literature by Oishi et al. (2017), it was found that earthquake victims were less satisfied and content with life than before the earthquake, regardless of their personality and demographic characteristics (Oishi et al., 2017). In a study conducted by Frijters et al. (2021) in the USA, it was found that disaster survivors had a lower level of well-being and higher negative emotions for a long time compared to other people. Similarly, in different studies, it was found that the level of welfare of disaster victims was lower both individually and socially (Frijters et al., 2021). In many studies conducted on earthquake victims, it was found that the most important factor leading to stress was fear of earthquakes (Grimm et al., 2012; Rowney et al., 2014; Kannis-Dymand et al., 2015; Salcioglu et al., 2018).

On 6 February 2023, the Kahramanmaraş-centred earthquakes (with epicenters in Pazarcık and Elbistan), which struck Kahramanmaraş, Gaziantep, Diyarbakır, Şanlıurfa, Adana, Adıyaman, Hatay, Malatya, Osmaniye and Kilis, and were felt in many other provinces of Turkey, caused tens of thousands of casualties, although it is not known for certain at present. Scientists estimate that the Anatolian peninsula has slipped by three metres. It affected a large area of the country and a significant part of the population. Although there are many theories and information about the earthquake, given the scope of the study, it is seen that thanks to the widespread use of social media and fast communication technology, individuals who do not experience earthquakes are also seriously affected by the earthquake psychologically and this situation causes disruptions in daily life.

Considering that the most common emotion experienced after the earthquake is fear of the earthquake (Prati et al., 2013; Khachadourian et al., 2016; O'Toole, 2017), there is a need for a psychometric measurement tool to measure it. Prizmić-Larsen et al. (2023) used the items of the Covid-19 fear scale and replaced the Covid-19 expression with the earthquake expression (Prizmić-Larsen et al., 2023; Ahorsu et al., 2020). He confirmed that this scale is valid and reliable in his study. However, it is obvious that it would not be correct to evaluate the symptoms of fear of Covid-19 and earthquake-induced fear in the same way and that their reactions would be different. Prizmić-Larsen et al. (2023) found that earthquake fear was at much higher levels than Covid-19 fear (Prizmić-Larsen et al., 2023). Therefore, it is necessary to evaluate the fear of earthquakes with a different measurement tool. Based on this need, it is predicted that the development of the scale of fear of earthquake from the sample of Turkey, which has recently experienced an earthquake and the main agenda of the country is the earthquake and earthquake-

related losses, will be useful and will give more accurate results. There is no other study in the literature to develop a measurement tool that psychometrically measures the fear of earthquakes.

This study aims to develop a measurement tool based on the fear perception of individuals who have recently been exposed to earthquakes and to provide a scale based on a scientific basis to the literature. It is predicted that the data obtained from the study will make a significant contribution to the literature to guide the health services and psychological counselling services provided to earthquake victims.

Historical process of earthquake fear

Throughout human history, one of the most profound manifestations of nature's fury has undoubtedly been earthquakes. These seismic events have historically decimated societies, cities, and civilizations. Beyond the immediate physical destruction and loss of life, they have profoundly impacted the psychological well-being of individuals and communities alike.

In ancient times, earthquakes were often perceived as a manifestation of divine wrath or a revolt of nature itself. Given the lack of understanding about the causes of these tremors, they were imbued with religious and mystical interpretations. For instance, in Ancient Greece, seismic activities were attributed to the wrath of the god Poseidon. Such beliefs underscored humanity's vulnerability and ignorance in the face of natural phenomena. This overwhelming sense of helplessness in the aftermath of earthquakes often led individuals to seek metaphysical and religious explanations (Stathis, 2016).

During the Middle Ages, earthquakes were frequently interpreted as either divine retribution or portents of the apocalypse. In this era, the absence of a scientific rationale, coupled with the pervasive influence of religious doctrines, meant that the fear engendered by earthquakes often catalyzed individuals towards religious rituals and acts of worship (Belloc et al., 2016).

With the advent of the Renaissance and the ascent of scientific thought, there emerged a more informed perspective on the causes behind earthquakes. However, even in this enlightened period, comprehensive understanding of why earthquakes occurred remained elusive. By the 20th century, advances in geology elucidated that the movements of tectonic plates and the resultant stresses in the Earth's crust were responsible for these tremors (Stathis, 2016).

Historically, the fear associated with earthquakes has not merely been an individual emotional response. It has evolved into a societal phenomenon. Particularly in regions prone to seismic activity, this fear has become deeply ingrained in the collective consciousness. In contemporary times, thanks to the pervasive reach of media, the devastation wrought by earthquakes becomes widely disseminated, amplifying the fear across broader swathes of the population (Belloc et al., 2016).

Advancements in technology have facilitated the prediction of earthquakes and better preparedness against these natural calamities. However, the precise prediction of when and where an earthquake might strike remains an elusive endeavor. Consequently, the specter of earthquakes continues to loom large in the recesses of human psychology (Alruqi & Aksoy, 2023).

In conclusion, the fear elicited by earthquakes stands as one of the most primal fears experienced by humanity through the annals of history. This fear, both an individual and collective phenomenon, persists to this day. The inherent unpredictability and powerlessness felt in the face of earthquakes have perennially fueled these anxieties. Yet, with increasing scientific knowledge and technological advancements, the adverse impacts of this fear can be mitigated, ushering societies towards enhanced preparedness against seismic activities.

Fear of earthquakes: psychological implications and coping mechanisms

Throughout the annals of history, nature has unleashed its might in various forms, leaving humankind to grapple with the aftermath. Among these natural phenomena, earthquakes stand out as one of the most unsettling, predominantly due to their unpredictability and the sheer devastation they can bring about. Beyond the immediate physical destruction, the psychological toll it exacts on individuals is profound, often leading to a pervasive and persistent fear of earthquakes (Vinod, 2017).

Manifestations of earthquake fear

The fear of earthquakes, also known as 'seismophobia', manifests in various ways. Individuals might experience recurrent nightmares, heightened anxiety during minor tremors, or even an overwhelming dread at the mere mention of earthquakes. This fear can permeate day-to-day activities, leading to avoidance behaviors such as reluctance to enter tall buildings or live in seismically active areas (Çınğı & Yazgan, 2022).

Origins of the fear

Several factors contribute to the development of seismophobia. *Direct Exposure* - Individuals who have directly experienced a major earthquake often grapple with trauma, both from the immediate danger they faced and the aftermath of destruction. *Vicarious Trauma* - With the advent of modern media, even those who haven't directly experienced an earthquake can develop fear through continuous exposure to distressing images and stories. *Cultural Narratives* - In some cultures, earthquakes have significant historical or mythological implications, adding to their fearsome reputation (Zhou et al., 2017).

Psychological implications

The persistent fear of earthquakes can lead to a range of psychological issues (Schneier et al., 2014; Cénat & Derivois, 2014; Munir & Takov, 2022):

- **Generalized anxiety disorder**: Persistent worry about a future earthquake can escalate into GAD, where the anxiety extends to other facets of life.

- **Post-Traumatic stress disorder**: Direct exposure to a traumatic earthquake can lead to PTSD, characterized by flashbacks, nightmares, and severe anxiety.

- **Agoraphobia**: The fear can escalate to avoiding places or situations where escape might be difficult if an earthquake were to occur.

Coping mechanisms

Understanding and addressing seismophobia is crucial for the well-being of those affected. (Lopes et al., 2014; Toussaint et al., 2021);

- **Cognitive behavioral therapy**: This approach helps individuals recognize and challenge their irrational fears about earthquakes. Through exposure therapy, a subset of CBT, individuals are gradually and safely exposed to the feared situation, reducing their anxiety over time.

- **Preparedness training**: Knowledge is power. Training individuals on earthquake preparedness can provide a sense of control, reducing the fear of the unknown.

- **Relaxation techniques**: Methods such as deep breathing, meditation, and progressive muscle relaxation can help manage the physiological symptoms of anxiety.

- **Community support**: Sharing fears and concerns within a supportive community or support group can be therapeutic, helping individuals realize they're not alone in their fears.

The way forward

While earthquakes themselves are beyond human control, our response to them, both in terms of infrastructure and psychological resilience, can be honed. Urban planning and building codes can address the physical safety concerns, but addressing the psychological safety net is equally crucial.

In conclusion, while the fear of earthquakes is a natural response to a potentially life-threatening situation, it's essential to recognize when this fear becomes debilitating. Addressing the psychological implications of such fears through therapy, preparedness, and community support can significantly improve the quality of life for those living in earthquake-prone regions.

Methodology

Ethical aspects of the research

Once the purpose and data collection tools of the study were determined, an application was made to Artvin Çoruh University for the ethical suitability of the study. Ethics committee approval with the number E-18457941-050.99-83671 was obtained from the board. The survey was administered online. During the research process, the consent of the individuals participating in the research was obtained before filling out the survey by acting following the Helsinki Ethical Declaration.

Population and sample of the study

The population of the research consists of individuals living in Turkey, over the age of 18, who were directly exposed to the Kahramanmaraş earthquake (with the epicentre of Pazarcık and Elbistan) that took place in many provinces on 6 February 2023 or who followed the process through social media.

The sample of the study consisted of 357 people who participated voluntarily. According to Bryman and Cramer (2001) as the criteria for the adequacy of the sample mass, it was stated that 5 or 10 times more than the scale questions were sufficient for the calculation of the sample size (Bryman & Cramer, 2001). In this study, one scale was used and the total number of questions on the scale is 11. Therefore, the minimum sample size to be collected is 11*10=110. According to this criterion, it was decided that the 357 sample mass collected in the study was sufficient to represent the population.

Data collection method and creation of the scale

The data of the research was collected through face-to-face and online surveys. While preparing the survey of the research, the conceptual structure was formed based on the literature (Knopoff, 1996; Kagan, 1997; Shaver et al., 2001; Prati et al., 2013; Khachadourian et al., 2016; O'Toole, 2017; Prizmić-Larsen et al., 2023; Ahorsu et al., 2020). The question pool was created by the researchers under this conceptual structure.

Reliability of research data and pilot study

Firstly, the conceptual structure related to the scale to be developed was created by reviewing the relevant literature. In the next stage, a question pool of 13 questions was created. Regarding the question pool, the opinions of 8 experts with theoretical backgrounds were taken. Subsequently, a pilot study was carried out with 20 people and necessary corrections were made by determining expression errors, whether the questions were understood or not, and spelling mistakes. After these stages, the number of questions in the pool was reduced to 11. The content validity of the remaining 11 questions was found to be 81%. For test-retest reliability, the draft scale was administered to 27 people twice at 3-week intervals and the Pearson correlation coefficient between the first and second applications was found to be 0.81 (81%). Accordingly, a very strong positive correlation was found between the two applications. In other words, the measurements made at different times are very similar. Therefore, the scale is highly reliable. Finally, the survey was applied to a target group of 357 people.

Item analyses were performed for internal consistency reliability. A Cronbach's Alpha coefficient below 0.40, which is the criterion of internal consistency, indicates that the scale is "not reliable", a value between 0.40-0.59 indicates "low reliability", a value between 0.60-0.79 indicates "highly reliable" and a value between 0.80-1.00 indicates "high reliability" (Tavşancıl, 2006). For reliability

analysis, "Item analysis based on item-total correlation" was performed with the sample data taken from the population and the reliability coefficient Alpha was found to be 0.929. Since this value is between $0.80 \leq \alpha < 1.00$, it can be said that the scale is highly reliable.

Statistical methods used in the study

Firstly, the presence of missing data was analyzed for the data obtained in the study. Since the data were collected through an online survey, it was obligatory to answer all questions and therefore, missing data were prevented. In the analysis of the data obtained, the structure of the scale was evaluated by explanatory factor analysis (EFA). Afterwards, confirmatory factor analysis (CFA) was applied under structural equation modelling. The adaptive values of the model were calculated for the construct validity of the scale, and the CR and AVE values of the scale were calculated for the adaptive validity. IBM SPSS and AMOS package programs were used for data analysis.

Results

Findings related to EFA

An EFA has been executed on the dataset, and the results have been delineated in Table 1.

Table 1.

EFA finding

No	Factor Loadings	Core Value	Explained Variance Ratio
DK1	,817	6,481	%58,919
DK2	,800		
DK3	,798		
DK4	,785		
DK5	,782		
DK6	,779		

DK7	,767		
DK8	,753		
DK9	,737		
DK10	,726		
DK11	,691		
Evaluation Criteria		Kaiser-Meyer-Olkin Measure of Sampling Adequacy.0,919 Bartlett's Test of Sphericity Approx. Chi-Square: 2562,604 Df:55 Sig.:,000 Extraction Method: Principal Component Analysis	

In Table 1, the KMO value of the EFA of the earthquake fear scale is 0,919 and the result is excellent. The high KMO value indicates that the sample size is sufficient for EFA. In addition, the result of Bartlett's test was also significant (p(sig):,000<,05). This means that there are high correlations between the variables and the data come from multiple normal distributions. According to both findings, the data are suitable for factor analysis.

The factor loadings obtained for the items express the amount of variance that an item shares with other items. It is sufficient that the factor loading value is above 0.30. The smallest factor loading value of the analysis was found to be ,691.

Finally, the total variance explained by the scale was found to be 58.919%. Therefore, the construct validity of the model is ensured. Since only one factor was found as a result of the analysis, the component matrix was given instead of the Rotated Component Matrix. The scale consisted of a single dimension and was named " Fear of Earthquake ".

Findings related to CFA

CFA is a statistical method utilized to develop implicit variables, known as factors, based on observed variables within a previously established model. This technique is primarily employed in scale development and validation analyses or to affirm a predetermined structure. CFA is utilized in multivariate statistical evaluations concerning implicit structures that are represented by a large number of measured or observed variables. CFA is specifically deployed to investigate the correspondence of factors discovered by EFA to the factor structures identified by the hypothesis. Unlike EFA which tests the variable groups having strong correlations with each factor, CFA ascertains whether the variable groups that contribute to the determined number of factors are sufficiently represented by these factors (Aytaç & Öngen, 2012). To summarize, in structural equation models, data is utilized to examine the conceptual model that exists in theory, confirming or negating its validity. CFA and structural validity analysis were performed and the diagram of model adaptation is given below.

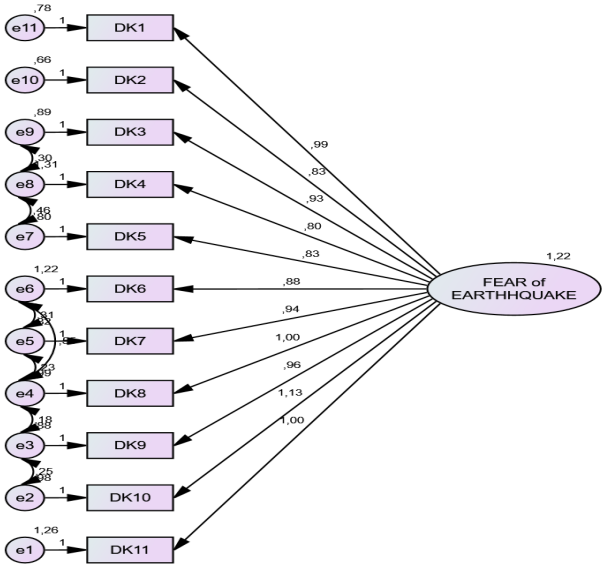

Fig. 1. *CFA using SPSS Amos*

In CFA, model adaptive values were checked first. There is no limitation in adaptive values. The reported values may vary according to the values that the researcher wants to highlight. Accordingly, the values obtained from the model are expressed in Table 2.

Table 2.

Criteria for model-data fit regarding the model

Criteria for Model Fit	Model value	Criteria value	Conclusion
CMIN/DF	4,586	<5	Good fit
GFI	0,921	0,85≤	Good fit
AGFI	0,859	0,85≤	Good fit
NFI	0,935	0,90≤	Good fit
RFI	0,903	0,90≤	Good fit
IFI	0,948	0,90≤	Good fit
TLI	0,922	0,90≤	Good fit
CFI	0,948	0,90≤	Good fit
SRMR	0,0422	<0,08	Good fit

The model fit values examined show that the data fit the model well. The good fit of the data to the model indicates that the model enjoyes construct validity.

Table 3 shows regression coefficients, prediction values, standard error, C.R and p values related to CFA.

Table 3.

Baseline values related to CFA

Observed Variable		Implicit Variable	Regression Coefficients	Forecast	S.E.	C.R.	P
DK11	<---	Fear_of_Earthquake	,702	1,000			

Observed Variable		Implicit Variable	Regression Coefficients	Forecast	S.E.	C.R.	P
DK10	<---	Fear_of_Earthquake	,783	1,128	,082	13,744	***
DK9	<---	Fear_of_Earthquake	,748	,959	,073	13,135	***
DK8	<---	Fear_of_Earthquake	,743	1,000	,077	13,049	***
DK7	<---	Fear_of_Earthquake	,756	,944	,071	13,294	***
DK6	<---	Fear_of_Earthquake	,661	,879	,075	11,664	***
DK5	<---	Fear_of_Earthquake	,714	,826	,065	12,616	***
DK4	<---	Fear_of_Earthquake	,611	,798	,074	10,807	***
DK3	<---	Fear_of_Earthquake	,738	,934	,072	13,014	***
DK2	<---	Fear_of_Earthquake	,749	,828	,063	13,195	***
DK1	<---	Fear_of_Earthquake	,779	,989	,072	13,698	***

Regression values show the power of observed variables to predict implicit variables, i.e. factor loadings. Since the "p" values for each binary relationship above are less than 001, the factor loadings are significant. The significant p values indicate that the factor loadings of the items are correct.

In addition, standardized regression coefficients of 0,611 and higher indicate that the power of predicting implicit variables, namely the factor loadings of each item is high. In addition, the variance values of the error terms were also found to be significant ($p<0.001$).

Finally, CR and AVE values were calculated for the convergent validity of the scale structure. Accordingly, since the AVE values calculated were 0.53 and the CR value was 0.86, the model satisfies the convergent validity (Hair et al., 2010).

Discussion

In this study, which was conducted to develop a earthquake fear scale, the adaptive values obtained by EFA and CFA show that the data fit the model well. The good fit of the data to the model shows that the model has construct validity. Moreover, since the AVE value of the model obtained by CFA is greater than 0.50 and the CR value is greater than 0.70, it is seen that the factors meet the model validity condition due to their convergent validity. Since reliability =,929, the model is highly reliable. The results obtained reveals that the developed scale of fear of earthquakes has the conditions of validity and reliability.

When an earthquake occurs anywhere, people experience various emotions. In many studies, it has been found that the most common emotion experienced by earthquake survivors during the earthquake process is fear (Bourque et al., 1993; Alexander, 1990; Prati et al., 2013; Lindell et al., 2016; Goltz & Bourque, 2017; Santos-Reyes & Gouzeva, 2021; Santos-Reyes & Gouzeva, 2021; Raphael & Ma, 2011). Prizmić-Larsen et al. (2023) found that fear of earthquakes was experienced higher than fear of Covid-19 in their study on the Croatian sample (Prizmić-Larsen et al., 2023). Santos-Reyes and Gouzeva (2021) found that the biggest risk factor among various natural disasters is earthquakes (Santos-Reyes & Gouzeva, 2021). In Ronan et al. (2001) study, approximately 14% of children stated that they often felt 'sad or scared' when thinking about or talking about earthquakes, 25% were not sad and 60% were scared to some extent (Ronan et al., 2001).

There are different measurement methods in the literature to determine the fear of earthquakes. Prati et al. (2012) asked the participants to rate the perceived fear intensity on a scale ranging from "0 to 100". High scores were interpreted as high fear of earthquakes and low scores were interpreted as low fear of earthquakes or no fear of earthquakes (Prati et al., 2012). In this method, it is predicted that evaluating the fear of earthquakes in one way and with one answer cannot measure the actual level of fear of earthquakes. Because while some of the earthquake survivors are afraid of passing by the buildings, some of them cannot sleep due to fear of being exposed to an earthquake during sleep, etc. It is thought that measuring such fear symptoms for an earthquake with a single question will cause significant deficiencies and erroneous results. Such a measurement model will not fill the gap in the literature regarding the measurement tool for fear of earthquakes.

Another measurement tool developed to measure the level of fear of earthquakes was developed by Prizmić-Larsen et al. (2023). This scale was inspired by the

scale of Covid-19 fear developed by Ahorsu et al. (2020). The scale was created by replacing the word Covid-19 in the scale of Covid-19 fear with the word earthquake and the reliability level was determined as 0.90. The covid-19 pandemic and destructive earthquakes also cause major disasters. However, the reactions and symptoms of fear are different. During the Covid-19 pandemic, there was a fear of loss of life of a certain age group towards oneself, family and relatives. Covid-19, a disaster with a limited scope and low probability of death, caused 758 million cases and 6.88 million deaths worldwide between 2019 December-4 March 2023 (WHO, 2023). It has caused many deaths in the long term. However, earthquakes can cause serious deaths within a few minutes and sometimes within seconds. For example, the Kahramanmaraş earthquake (with epicentre in Pazarcık and Elbistan) that occurred on 6 February in Turkey caused the death of tens of thousands of people and the collapse of thousands of buildings within minutes. Although the exact number is unknown, it caused both losses of life and loss of property. The severity of the disaster and its consequences cause people to react differently. Therefore, it is thought that measuring of fear of earthquakes and fear of Covid-19 with the same scale will not give accurate results. Some of the items in the scale of fear of earthquakes developed in this study, such as the fear of passing by tall buildings, the fear of feeling as if the walls are coming on you while sitting at home, and the fear of not coming out alive in the morning after going to sleep in the evening and the fear of losing all relatives at once, are not included in the Covid-19 fear scale. It is predicted that important contributions and more accurate results will be obtained with this scale of fear of earthquakes developed to fill this gap in the literature.

Conclusion

The validity and reliability conditions are met for the scale of fear of earthquakes developed in the study. Therefore, the " Scale of Fear of Earthquake" can be used to measure the attitudes of individuals towards fear of earthquakes. It is foreseen that an important tool has been developed to provide an idea to health service providers for individuals with high fear of earthquakes or individuals who have become a problem.

It is expected that new studies will provide useful information in examining the difference in fear of earthquakes according to demographic variables and its relationship with various factors.

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ANNEXES SCALE OF FEAR OF EARTHQUAKE

		Strongly disagree	Disagree	Somnew hat agree	Agree	Strongly agree
DK1	I can't sleep because the earthquake comes to my mind					
DK2	I feel uncomfortable when the earthquake comes to my mind.					
DK3	My hands tremble when the earthquake comes to my mind.					
DK4	My eyes fill up with tears when the earthquake comes to my mind.					
DK5	I feel sad for a long time when the earthquake comes to my mind.					
DK6	I am afraid of dying because of the earthquake.					
DK7	I panic when I read or see news about earthquakes.					
DK8	My heart starts beating faster when I think that I will die because of the earthquake.					
DK9	When I am sitting at home, I feel as if the walls are closing in on me.					
DK10	Sometimes I think I will not be able to get up in the morning because of the earthquake.					
DK11	I get worried when I pass by tall buildings.					