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The Relationship Between Earthquake Risk Perception and Claustrophobia Level and Affecting Factors

Fatma Akgül [1] **Melike Demir Doğan** [2]

Abstract

Purpose: This research was planned as correlational and cross-sectional to examine the relationship between earthquake risk perception and claustrophobia and the affecting factors.
Method: This correlational cross-sectional study was conducted to identify the relationship between earthquake risk perception and claustrophobia level in earthquake victims who experienced the Elazığ earthquake on January 24, 2020, and the affecting factors. The population of the research is individuals who experienced the earthquake in Elazığ city. The sample group of the research consisted of 400 people who agreed to participate in the research and were over the age of 18. In this study, data were collected via online survey method between 01.07.2023 and 01.09.2023. Data were collected using an information form on socio-demographic characteristics and a questionnaire prepared by the researchers by scanning the relevant literature.
Results: It was identified that the average age of the study participants was 35.08±12.51, half of them were women (54.8%) and 55% had children. According to the T-Test analyses in this research; it was found that there are significant differences between women's and men's perception of earthquake risk. According to the Anova Test analyses in this research; it was observed that as the education level of earthquake victims increased, the severity of claustrophobia decreased and as the level of damage in their homes increased, the severity of claustrophobia increased. It was identified that there was a positive significant relationship between claustrophobia behavior and earthquake risk perception and its affective and cognitive sub-dimensions. In other words, individuals with high claustrophobia behavior also have high earthquake risk perception.
Conclusion: As a result, it was seen that education status and gender have significant differences on earthquake risk perception, and significant relationship between affective and cognitive earthquake risk perception and claustrophobia.

Keywords: Disaster Management, Earthquake Risk Perception, Claustrophobia

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Deprem Risk Algısı ve Klostrofobi Düzeyi Arasındaki İlişki ve Etkileyen Faktörler

Fatma Akgül [1] **Melike Demir Doğan** [2]

Öz

Amaç: Bu araştırma deprem risk algısı ile klostrofobi arasındaki ilişki ve etkileyen faktörleri incelemek amacıyla ilişkisel ve kesitsel olarak planlanmıştır.

Yöntem: Bu ilişkisel kesitsel çalışma, 24 Ocak 2020'de Elâzığ depremini yaşayan depremzedelerde oluşan deprem risk algısı ile klostrofobi düzeyi arasındaki ilişki ve etkileyen faktörleri belirlemek amacıyla yapılmıştır. Araştırmanın evreni Elâzığ ilinde depremi yaşamış bireylerdir. Araştırmaya katılmayı kabul eden, 18 yaşını doldurmuş 400 kişi araştırmanın örneklem grubunu oluşturmuştur. Bu çalışmada veriler 01.07.2023 ile 01.09.2023 tarihleri arasında çevrimiçi anket yöntemiyle toplanmıştır. Veriler, sosyo-demografik özelliklere ilişkin bilgi formu ve araştırmacılar tarafından ilgili literatür taranarak hazırlanan anket kullanılarak toplanmıştır.

Bulgular: Çalışmaya katılanların yaş ortalamasının 35,08±12,51 olduğu, yarısının kadın olduğu (%54,8) ve %55'inin çocuk sahibi olduğu belirlendi. Araştırmada uygulanan T-Testi analizlerine göre, deprem risk algısının kadınlar ve erkekler arasında anlamlı düzeyde farklılıklar gösterdiği yönünde bulgulara ulaşılmıştır. Anova Testi analizlerine göre ise depremzedelerin eğitim düzeyleri arttıkça klostrofobi davranışlarının azaldığı; evlerindeki hasar düzeyi arttıkça ise klostrobi davranışlarının da arttığı gözlemlenmiştir. Klostrofobi davranışı ile deprem risk algısı ve duyuşsal ve bilişsel alt boyutları arasında pozitif yönde anlamlı bir ilişki olduğu saptandı. Yani klostrofobi davranışı yüksek olan bireylerin deprem risk algısı da yüksektir.

Sonuç: Elde edilen bulgular neticesinde, eğitim durumu ve cinsiyetin deprem riski algısı üzerinde anlamlı farklılıklara sahip olduğu, duyuşsal ve bilişsel deprem riski algısı ile klostrofobi arasında ise anlamlı bir ilişki olduğu görülmüştür.

Anahtar Kelimeler: Afet Yönetimi, Deprem Risk Algısı, Klostrofobi

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Introduction

Disaster is a concept defined as sudden, dramatic, and unplanned events that may cause large-scale losses (Doğru and Ede, 2020: 26). Disasters, whose place and time are unknown, affect human life in various ways and are impossible to control, causing a lot of material and emotional losses (Özlemiş and Eren, 2024: 860). Disasters create long-standing social problems throughout human history and require rapid intervention, especially today. Strict steps must be taken to minimize the inevitable negative effects of disasters, which can cause injuries and deaths in society and serious disruptions in the flow of life (Odabaşı and Cengiz, 2021: 521). Because disasters affect human life, causing untimely deaths, decline in health conditions throughout the society, and negative conditions in residential areas (Kopuz, Bekdemir and Yılmazer, 2024: 359). Although it is often not possible to prevent disasters, reducing their devastating effects may depend on people's disaster awareness and perception of disaster (Akgül, 2023: 181). Creating disaster-resistant societies is the first step in minimizing the negative effects of disasters. A society that is resilient to disasters means a society that is prepared for possible disasters. Education is seen as the key that can open the door to being prepared for disasters (Kotan, 2024: 905). Natural disasters cause loss and damage and can affect subjective expectations about the prevalence and severity of future disasters (Brown, Daigneault, Tjernström and Zou, 2018: 310). Earthquakes are one of the events that have the greatest devastating effect among disasters. Earthquakes are one of the most severe and unpredictable natural disasters, often causing huge economic losses and loss of life (Ao, Zhang, Yang, Wang, Martek and Wang, 2021: 2). Earthquakes have caused high losses of life and property in various parts of the world throughout history.

Disasters, which affect the whole or a certain part of the society in which they occur and cause disruptions in individual activities and social life, exceed the coping capacity of the society. As a result, socio-economic and physical losses are experienced (Doğru, 2024: 1186). Nowadays, the necessity of being prepared for earthquakes to overcome them with the least damage is an undeniable fact. The first step to being prepared for earthquakes is the understanding of earthquake risk perception by society members (Özdemir, 2018: 5). Perception can be explained as the process by which a person mentally processes a certain part of all kinds of stimuli coming from the outside world, gives meaning to them, and reaches a conclusion as a result of this process (Kırmızıgül, 2020: 1). Risk perception is considered the primary motivation for initiating disaster preparedness actions. However, this does not always mean that people who have had previous disaster experiences or have a high-risk perception are more prepared for disasters. The relationship between risk perception and disaster preparedness can be more complex when evaluated for hazards with different characteristics (Cisternas, Cifuentes, Bronfman and Repetto, 2024: 1). The formation of earthquake risk perception in society can occur as a result of an awareness process. Because risk perception focuses especially on understanding human interaction with natural and technological hazards (Marshall, 2020: 1). If people perceive that environmental risks are increasing, they may be willing to take the necessary steps to manage these risks (Bardsley, Moskwa, Weber, Robinson, Waschl and Bardsley, 2018: 1). As in all kinds of disasters, people's quality of life may be indirectly impaired through risk perception in an earthquake (Cui and Han, 2019: 1). Therefore, not being able to manage risk perception correctly determines the reactions of the individual during or after a possible earthquake. Perception management is defined as the efforts of individuals or institutions to convince and direct individuals, groups, or masses in line

with the messages they want to give (Akdemir and Kırmızıgül, 2015: 223). Since managing the perception of earthquake risk will identify the reactions of individuals in the event of a possible earthquake, it can reduce the occurrence of traumatic situations.

Especially in recent years, there has been a significant increase in the frequency and severity of disasters. This increase is effective in both the loss of life and the increase in economic losses (Atalay, 2024: 142). Disasters such as earthquakes, landslides, floods, and avalanches cause social losses, injuries, and destruction. In other words, it is observed that major disasters have profound negative effects on both the individual and society. Again, the sudden occurrence of disasters and the losses that people experience as a result of disasters cause feelings of fear, anxiety, and helplessness. Due to these effects, disasters are considered to be traumatic events (Çavuşoğlu and Karaaziz, 2024: 764). An earthquake is when vibrations that occur suddenly and unexpectedly as a result of fractures in the earth's crust spread as waves and make themselves felt in the form of a tremor on the earth (Edemen, Okkay, Tugrul, Kurt, Bircan and Yoldaş, 2023: 720). Turkey is a seismically active region worldwide. More than 60% of the loss of life as a result of disasters in Turkey occurs due to earthquakes. Studies conducted around this information show that earthquake awareness increases the disaster resilience of society (Atalay, 2024: 142).

An earthquake is a natural event that has physical and financial threats and can bring profound social and psychological consequences in the long term. After disasters, especially earthquakes, survivors may experience trauma such as going into shock, experiencing severe fears, feelings of helplessness and anger, distressing memories, and loss of concentration while doing daily tasks (Eliasi Sarzali, 2019: 1). After major tragic events such as earthquakes, the reactions of individuals or the psychological damage they may receive may vary depending on the person's preparedness for the disaster, demographic factors, or whether they have a previous psychological disorder (Önder, 2022: 13). When the psychological state of individuals was examined after the Sar Pole Zahab earthquake that occurred in the autumn of 2016, claustrophobia findings were observed (Eliasi Sarzalı, 2019: 1). Phobia can be defined as a fear that causes a significant impairment in an individual's ability to continue daily life (Vadakkan and Siddiqui, 2023: 1). Claustrophobia is the fear of enclosed spaces. Most people who experience fear find ways to cope, often by engaging in intentional escape behavior from small or enclosed spaces. Small or locked rooms, tunnels, cellars, elevators, subway trains, and crowded places are stimuli that can trigger fear, and people who react to one of these situations will likely react to all of them (Rachman, 1997: 163). Fears of restriction and being trapped, such as sitting in a dentist's chair or waiting in a long line, are also associated with the fear of being in enclosed spaces and are generally considered symptoms of claustrophobia. A claustrophobic person is not afraid of an enclosed space, they are afraid of what might happen in an enclosed space (Radomsky, Rachman, Thordarson, McIsaac and Teachman, 2001: 287).

Since Turkey is an earthquake country, earthquakes occur at certain intervals in different regions. These earthquakes bring with them many economic, social, and psychological consequences depending on their size. It may take many years to rehabilitate the severe situation caused by sudden earthquakes in seconds. Earthquakes that leave behind death, injury, destruction, fear, and anxiety can often leave traumatic consequences that can last for years (Gülyol, 2024: 37). Among the individuals who experience a major earthquake,

those who are trapped under the rubble experience a state of mind that is very difficult to endure, such as waiting for death helplessly and being buried alive. Even if they are not trapped under the rubble, the feeling of having lost their home, workplace, and savings, and having to accept a difficult picture such as the end of their old life creates traumatic situations in individuals that are difficult to repair. When the safe space in which an individual who previously lived without needing anyone is destroyed, their basic sense of trust is shaken (Uğuz, 2023: 7). Most people who experience earthquake fear and lose their sense of security usually try to cope by exhibiting escape behavior from small or closed places.

The idea that the earthquake may have created claustrophobia in people because people did not enter their homes and preferred to stay outside after the earthquake gave birth to the idea of this study. The reason to see how the 6.8 magnitude earthquake that occurred in Elazığ in 2020 affected people's fear of entering enclosed spaces makes this study necessary. People living in Elazığ feel many tremors after this earthquake, both in the epicenter of Elazığ and in the surrounding cities. As a result of this situation, it has been seen those individuals living in Elazığ experience fear when entering their homes or enclosed spaces. The necessity of this study was considered based on the curiosity of measuring the severity of claustrophobia of individuals, as it was seen that earthquake victims exhibited behaviors such as not being able to enter enclosed areas and staying together with their relatives in detached houses in the village or garden after the earthquake.

1. Materials and Methods

1.1. Purpose of the Research

This study aims to examine the relationship between earthquake risk perception and the level of claustrophobia among earthquake victims following the Elazığ earthquake on January 24, 2020, as well as the factors influencing this relationship.

1.2. Type of Research, Population, and Sample

The population of this correlational and cross-sectional study consisted of individuals who experienced the earthquake in Elazığ city. The sample of the research is identified as a minimum of 384 according to the purposive sampling method. For a 95% confidence interval and 5% sampling error, the number of samples is taken as 384 when the population size is 1,000,000 and above (Yazıcıoğlu and Erdoğan, 2004: 50). The sample group of the research consisted of 400 people who agreed to participate in the research, were over the age of 18, and could read and write. Data were collected by applying an online survey. Before applying the online survey, the sample group was briefly informed about the study. After the data were collected from 414 people, 14 questionnaires that were found to be deficient were removed from the study. Analyzes of the study were made on the questionnaires of the remaining 400 people.

1.3. Data Collection and Data Collection Tools

In this study, data were collected using an online survey between 01.07.2023 and 01.09.2023. Data in the study were collected using the Personal Characteristics Form, Earthquake Risk Perception Scale, and DSM-5 Specific Phobia Severity Scale.

1.3.1. Personal Characteristics Form

The personal characteristics form created by the researchers in line with the literature includes the following questions: gender, age, marital status, having children status, education status, did you have a mental illness before the earthquake, did you have a fear of staying in enclosed spaces before the earthquake, did you have a fear of staying in enclosed spaces after the earthquake, did you fear leaving your child alone at home after the earthquake, what is your home damage status, did you lose a relative in the earthquake, did you experience financial loss due to the earthquake, did you have to get financial support due to the earthquake, did you receive psychological support due to the earthquake, do you experience fear while staying at home after the earthquake, are you worried about staying in enclosed spaces after the earthquake, are you worried about an earthquake while you are sleeping in different rooms with your children or when you are away from your family.

1.3.2. Earthquake Risk Perception Scale

The earthquake risk perception scale, adapted and Turkish validity and reliability by Mızrak et al., consists of 8 items and 2 sub-dimensions: Affective Earthquake Risk Perception (Items 1-4) and Cognitive Earthquake Risk Perception (Items 5-8). While grading on a Likert-type scale; Numbering was made as (1) I Strongly Disagree, (2) I Disagree, (3) I Moderately Agree, (4) I Agree, (5) I Completely Agree. The increase in the average score indicates that the perception of earthquake risk also increases (Mızrak, Özdemir and Aslan, 2021).

1.3.3. DSM-5 Specific Phobia Severity Scale

It is a 10-item scale that evaluates the severity of specific phobia in adult individuals aged 18 and over. Each item on the scale is rated on a 5-item score (0: Never, 1: Sometimes, 2: Half of the Week, 3: Most of the Week, and 4: All of the Week). The total score ranges from 0 to 40 points, with a higher score indicating more severe specific phobia symptoms (Öztekin, Aydın and Aydemir, 2017).

1.4. Analysis of Data

Descriptive statistics, including mean, standard deviation, frequency, and percentage, were used to analyze the study data. Inferential statistics such as T-Test, Mann-Whitney U, Pearson Correlation, and Spearman Correlation analyses were also applied. Results were reported within a 95% confidence interval, with statistical significance set as $p<0.05$.

1.5. The Ethical Aspect of Research

For the Earthquake Risk Perception Scale (Mızrak et al., 2021) and the DSM-5 Specific Phobia Severity Scale (Öztekin et al., 2017), whose Turkish validity and reliability studies were conducted by Öztekin et al., used in the research, permission was obtained from the scale owners via e-mail and ethics committee approval from Gümüşhane University. Participants were given preliminary information on the research questionnaire and were achieved to participate in the study if they approved.

1.6. Limitations of the Research

The limitation of the research is that the research survey was applied only to earthquake victims in Elazığ city and that the surveys were conducted online.

2. Results

The average age of the participants was 35.08±12.51 years. Half of the participants were women (54.8%), and 55% had children. A total of 31.5% held a bachelor's degree, and 94.5% reported no history of mental illness before the earthquake. Among the participants, 85% indicated they had no fear of enclosed spaces before the earthquake, whereas 52.5% reported a fear of staying in enclosed spaces afterward. It was found that 61% were afraid of leaving their child alone at home after the earthquake, 89% did not lose a relative in the earthquake, and 72.8% did not experience financial loss. Additionally, 94.3% did not receive psychological support due to the earthquake. However, 64% reported fear while staying at home, 58.5% expressed concern about staying in enclosed spaces, and 77.3% experienced anxiety while sleeping in different rooms with their children (Table 1).

Table 1. Socio-Demographic Characteristics

Variables	n	%
Gender		
Woman	219	54.8
Man	181	45.3
Do you have children?		
I do have	220	55.0
I don't have	180	45.0
Education status		
Primary education	46	11.5
High school	107	26.8
Associate's degree	76	19.0
Bachelor's degree	126	31.5
Postgraduate degree	45	11.3
Did you have a mental illness before the earthquake?		
I did have	22	5.5
I didn't have	378	94.5
Did you have a fear of staying in enclosed spaces before the earthquake?		
I did have	60	15.0
I didn't have	340	85.0
Did you have a fear of staying in enclosed spaces after the earthquake?		
Yes	190	47.5
No	210	52.5
Did you fear leaving your child alone at home after the earthquake?		
Yes	244	61.0
No	156	39.0
What is your home damage status?		
Undamaged	249	62.3
Less Damaged	106	26.5
Medium Damaged	16	4.0
Severely Damaged	27	6.8
Destruction	2	0.5
Did you lose a relative in the earthquake?		
Yes	44	11.0
No	356	89.0
Did you experience financial loss due to the earthquake?		
Yes	109	27.3
No	291	72.8
Did you have to get financial support due to the earthquake?		
Yes	77	19.3
No	323	80.8
Did you receive psychological support due to the earthquake?		
Yes	23	5.8

No	377	94.3

Table 1…

Variables	n	%
Do you experience fear while staying at home after the earthquake?		
Yes	256	64.0
No	144	36.0
Are you worried about staying in enclosed spaces after the earthquake?		
Yes	234	58.5
No	166	41.5
Are you worried about an earthquake while you are sleeping in different rooms with your children or when you are away from your family?		
Yes	309	77.3
No	91	22.8

The average score on the claustrophobia scale was 19.53±9.37. No statistically significant differences were observed in claustrophobic behavior based on gender, marital status, or having children. The mean claustrophobia scale scores were significantly higher in individuals who had pre-existing claustrophobia compared to those without (p<0.001). Similarly, those who developed claustrophobia after the earthquake had higher average scores than those who did not (p<0.001). The mean claustrophobia scale scores were also significantly higher in individuals who experienced anxiety about leaving their children home alone after the earthquake compared to those who did not (p<0.001). Furthermore, individuals who lost a relative in the earthquake had significantly higher claustrophobia scale scores compared to those who did not experience such a loss (p=0.003). The average claustrophobia scale scores were higher in individuals who experienced financial loss due to the earthquake, who received financial support after the earthquake, who received psychological support, and who expressed concern about sleeping in separate rooms from their children after the earthquake, compared to those who did not experience these factors (respectively: p=0.001; p<0.001; p=0.005; p<0.001) (Table 2).

Table 2. Variables Affecting Claustrophobia Scale, Earthquake Risk Perception Scale, and Sub-Dimensions (t-test, Mann-Whitney U)

	Claustrophobia Scale total score		Earthquake Risk Perception Scale total score average		Affective Earthquake Risk Perception subscale total score average		Cognitive Earthquake Risk Perception subscale total score average	
	mean±SD	p	mean±SD	P	mean±SD	p	mean±SD	p
Gender								
Woman	19.90±9.27	0.384*	4.06±0.68	**0.001***	3.95±0.84	**P<0.001***	4.18±0.71	0.185*
Man	19.08±9.51		3.81±0.77		3.55±0.95		4.08±0.79	
Marital status								
Married	19.90±9.59	0.369*	3.98±0.71	0.308*	3.87±0.85	**0.014****	4.10±0.77	0.302*
Single	19.05±9.10		3.91±0.76		3.64±0.97		4.18±0.73	
Do you have children?								
I do have	19.98±9.74	0.290*	3.98±0.71	0.353*	3.87±0.85	**0.013****	4.09±0.76	0.211*
I don't have	18.98±8.90		3.91±0.76		3.64±0.98		4.19±0.73	
Did you have a fear of staying in enclosed spaces before the earthquake?								
I did have	26.88±10.24	**P<0.001****	4.26±0.64	**P<0.001***	4.18±0.78	**P<0.001***	4.35±0.66	**0.019***
I didn't have	18.23±8.60		3.90±0.73		3.70±0.92		4.10±0.76	
Did you have a fear of staying in enclosed spaces after the earthquake?								
Yes	24.39±9.62	**P<0.001****	4.23±0.61	**P<0.001****	4.15±0.73	**P<0.001****	4.31±0.65	**P<0.001****
No	15.13±6.57		3.70±0.74		3.42±0.92		3.97±0.80	
Did you fear leaving your child alone at home after the earthquake?								
Yes	21.63±9.94	**P<0.001****	4.12±0.67	**P<0.001***	4.04±0.79	**P<0.001***	4.21±0.74	**0.016***
No	16.23±7.32		3.68±0.74		3.35±0.94		4.02±0.76	
Did you lose a relative in the earthquake?								
Yes	23.43±10.06	**0.003***	4.06±0.67	0.284*	3.90±0.89	0.317*	4.23±0.67	0.385*

No	19.05±9.19		3.94±0.74		3.75±0.92		4.12±0.76	

Table 2…

	Claustrophobia Scale total score		Earthquake Risk Perception Scale total score average		Affective Earthquake Risk Perception subscale total score average		Cognitive Earthquake Risk Perception subscale total score average	
	mean±SD	**p**	**mean±SD**	**P**	**mean±SD**	**p**	**mean±SD**	**p**
Did you experience financial loss due to the earthquake?								
Yes	22.46±11.57	**0.001****	4.09±0.70	**0.022***	3.90±0.95	0.086*	4.28±0.65	**0.017***
No	18.43±8.16		3.90±0.74		3.72±0.90		4.08±0.78	
Did you have to get financial support due to the earthquake?								
Yes	24.37±12.26	**P<0.001****	4.14±0.66	**0.012***	3.96±0.87	**0.038***	4.32±0.64	**0.017***
No	18.37±8.15		3.91±0.74		3.72±0.92		4.09±0.77	
Did you receive psychological support due to the earthquake?								
Yes	26.86±11.77	**0.005****	4.44±0.48	**P<0.001****	4.34±0.62	**P<0.001****	4.54±0.56	**0.008***
No	19.08±9.04		3.92±0.73		3.73±0.92		4.11±0.76	
Are you worried about an earthquake while you are sleeping in different rooms with your children or when you are away from your family?								
Yes	21.02±9.67	**P<0.001****	4.09±0.68	**P<0.001***	3.97±0.81	**P<0.001***	4.21±0.73	**0.001***
No	14.47±5.98		3.50±0.73		3.10±0.92		3.89±0.79	

*t-test, **Mann-Whitney U

The average total score on the earthquake risk perception scale was 3.95±0.73, with the affective subdimension scoring 3.77±0.91 and the cognitive subdimension scoring 4.13±0.75 Women's average total earthquake risk perception scores were found to be significantly higher than those of men (p=0.001). A significant difference was observed between marital status and the affective subdimension of the earthquake risk perception scale (p=0.014). Specifically, married individuals had higher average affective earthquake risk perception scores than single individuals. Additionally, individuals with children had higher average affective earthquake risk perception scores compared to those without children (p=0.013) (Table 3).

Table 3. Correlation Between Claustrophobia Scale, Disaster Risk Perception Scale and Sub-Dimensions, and Some Variables

	Claustrophobia scale total score		Earthquake Risk Perception Scale total score average		Affective Earthquake Risk Perception subscale total score average		Cognitive Earthquake Risk Perception subscale total score average	
	r	**p**	**r**	**p**	**r**	**p**	**r**	**p**
Education status	-0.124	**0.013****	-0.014	0.781**	0.007	0.890**	-0.036	0.478**
Damage situation at home	0.157	**0.002****	0.063	0.212**	0.055	0.274**	0.055	0.270**
Claustrophobia scale total score	1		0.508	**P<0.001***	0.502	**P<0.001***	0.380	**P<0.001***
Earthquake Risk Perception Scale total score average	0.508	**P<0.001***	1		0.902	**P<0.001***	0.852	**P<0.001***
Affective Earthquake Risk Perception subscale total score average	0.502	**P<0.001***	0.902	**P<0.001***	1		0.543	**P<0.001***
Cognitive Earthquake Risk Perception subscale total score average	0.380	**P<0.001***	0.852	**P<0.001***	0.543	**P<0.001***	1	

*Pearson Correlation, **Spearman's Correlation

It was found that individuals "who had a fear of staying in enclosed spaces before the earthquake", "who began to be afraid of staying in enclosed spaces after the earthquake", "who developed fear behavior to leave their child alone at home after the earthquake", "who had to receive financial and psychological support due to the earthquake", and "who was worried about staying in different rooms with their children after the earthquake" had higher claustrophobia scale mean scores, earthquake risk perception total mean scores, and earthquake risk perception sub-dimension mean scores (Table 2). A very weak negative relationship was found between educational status and claustrophobia (r=-0.124; p=0.013). In other words, increasing people's education level has a very weak effect on decreasing claustrophobic behavior. It was identified that there was a positive and very weak relationship between the damage status of the house and claustrophobia, and that earthquake victims with more damage to their houses had higher claustrophobic behavior (r=0.157; p=0.002). It was identified that there was a moderately and positive significant relationship between claustrophobia behavior and earthquake risk perception (r=0.508; p=0.001) and its sub-dimensions. In other words, individuals with high claustrophobia behavior also have high earthquake risk perception. There is a significant positive relationship between earthquake risk perception and affective (r=0.902; p=0.001) and cognitive (r=0.852; p=0.001) earthquake risk perception. Therefore, it was observed that people with high earthquake risk perception also had high affective and cognitive earthquake risk perception (Table 3).

The linear regression model established to identify the effect of claustrophobia and some variables (age, gender, marital status, having children, education status, affective earthquake risk perception, cognitive earthquake risk perception) is statistically significant (p<0.001). It was observed that education status, affective earthquake risk perception, and cognitive earthquake risk perception affected claustrophobia (Table 4).

Table 4. Effect of Some Variables on Claustrophobia Scale Score (Linear Regression)

Dependent Variable = Claustrophobia Scale score
R = 0.540 R^2 = 0.291 F = 23.031 df.1= 7 df.2 = 392 Sig. F = 0.000

	Non-Standardized Coefficients		Standardized Coefficients	t	p
Independent Variable	**B**	**Std. Hata**	**Beta**		
Age	0.062	0.043	0.082	1.425	0.155
Gender	1.137	0.826	0.060	1.377	0.169
Marital status	0.646	1.523	0.034	0.424	0.672
Having children	0.465	1.642	0.025	0.283	0.777
Education status	-0.889	0.330	-0.116	-2.692	**0.007**
Affective earthquake risk perception	4.534	0.542	0.444	8.368	**0.000**
Cognitive earthquake risk perception	1.739	0.639	0.140	2.722	**0.007**

The regression model established to identify the effect of earthquake risk perception and some variables (age, gender, marital status, having children, education status) is statistically significant (p=0.022). It was observed that only gender affected earthquake risk perception (Table 5).

Table 5. Effect of Some Variables on Earthquake Risk Perception Total Score Average

Dependent Variable = Earthquake Risk Perception Scale total score R = 0.180 R^2 = 0.033 F = 2.653 df.1= 5 df.2 = 394 Sig. F = 0.022					
	Non-Standardized Coefficients		**Standardized Coefficients**	**t**	**p**
Independent Variable	**B**	**Std. Hata**	**Beta**		
Age	-0.003	0.004	-0.045	-0.674	0.501
Gender	-0.247	0.074	-0.167	-3.352	**0.001**
Marital status	-0.057	0.139	-0.039	-0.413	0.680
Having children	-0.073	0.150	-0.049	-0.485	0.628
Education status	-0.007	0.030	-0.011	-0.227	0.820

3. Discussion

The frequency of high-intensity and devastating earthquakes in Turkey has increased in recent years. It was observed that individuals, especially those who experienced the earthquake and who witnessed the loss of life and property caused by the earthquake through the media, hesitated to enter their homes and enclosed spaces. Based on the idea that this situation may cause claustrophobia in individuals, this research was conducted to identify the effect of people's earthquake risk perception on their claustrophobia severity. According to the research, it was identified that women's earthquake risk perception was higher than men's. In the study conducted by Mızrak et. al, it was identified that many of the women were more sensitive to earthquakes and experienced greater fear of earthquakes and financial anxiety. Living with a fear of earthquakes, experiencing depression, and worrying about future generations were cited as the reasons why women feel more sensitive (Mızrak et. al., 2021: 2241). Although there are not many studies on earthquake risk perception, it appears that women's disaster risk perception is higher. In the study of Zhang, Wang, Lin, Zhang, Shang and Wang (2017: 6), it was found that women were more afraid of typhoons than men, and in the study of Petraroli and Bas (2022: 1), women were prone to gender-based disaster risks. In his study where Tercan (2023: 1283) examined individuals' disaster risk perception according to different variables, he found that women's disaster risk perception was higher. The reason for this difference in women's perception and their excess fear and anxiety may be the instinct to protect their children or relatives, as well as the fact that they have been assigned certain roles by society.

In this study, while there was no significant relationship between educational status and earthquake risk perception, it was found that educational status had a very weak negative relationship with claustrophobia. In the study by Qasim, Khan, Shrestha and Qasim (2015: 373) examining flood risk perception, it was found that education level increased risk perception. The reason for this was that education improves and raises people's awareness of environmental risks.

While age and marital status have an effect on risk perception in various disaster-related studies, no significant effect of age and marital status on earthquake risk perception was observed in the findings of this study. In this study, a positive significant relationship was found between house damage and claustrophobia. In Önder's (2022: 66,70) study, which investigated the post-traumatic stress state, claustrophobia development, and psychological resilience of earthquake victims after the İzmir earthquake, results that were compatible with our findings were obtained. Education status and damage to the house affected claustrophobia. As education level increased, the development of

claustrophobia decreased. The development of claustrophobia was more common in individuals with more damage in the house. In our study, the higher severity of claustrophobia among earthquake victims whose houses were damaged in the Elazığ earthquake may be associated with the magnitude of the trauma they experienced and their inability to get rid of the effects of thoughts that the house might collapse. Demirarslan and Demirarslan (2021: 1) studied that creating open-air spaces in homes would be less claustrophobic during the Covid-19 period. Including open spaces such as gardens in homes can also reduce the perception of earthquake risk and reduce the fear of enclosed spaces caused by earthquakes. The number of studies examining the occurrence of claustrophobia after an earthquake is quite low. Eliasi Sarzalı (2019: 1) detected claustrophobia findings in individuals after the Sar Pole Zahab earthquake that occurred in 2016. Şahan (2021: 227) found that claustrophobia was observed in hospitalized patients after Covid-19. Sheek-Hussein, Abu-Zidan and Stip (2021: 3) found that claustrophobia occurred in women and elderly individuals during the quarantine conditions caused by Covid-19 in India. In the study by Köse (2023: 61) about the experiences of volunteer search and rescue workers in witnessing trauma at the earthquake site, there was also a claustrophobic experience. When Cansel and Ucuz (2022: 83) examined post-traumatic stress and related factors among healthcare workers after the 2020 Malatya-Elazığ earthquake, claustrophobia was among the variables examined. While no significant relationship was noted regarding claustrophobia, trauma scores were found to be high.

Jo and Baek (2023) revealed that the feeling of being confined to homes increased due to social isolation during the Covid 19 period. It was observed that people's feeling of claustrophobia increased within the scope of social measures due to Covid 19, which is a biological disaster. Geçit and Kesici (2024: 196), in their study examining the psychological states of individuals exposed to an earthquake, asked individuals the question "What behaviors did you do that made your life dysfunctional after the earthquake?" In the answers given, situations such as eating problems and crying spells, as well as the occurrence of claustrophobia, were also remarkable. Studies show that earthquakes cause people to have fear of staying in enclosed spaces. In this regard, Karakan and Çolak (2024: 474) conducted a study on children affected by the earthquake and concluded that recreational activities reduce the level of claustrophobia in children who survived the earthquake and make them feel safer. One of the most probable situations after an earthquake is difficulty in re-entering closed spaces. Tanhan and Kayri (2013: 1017) developed a scale that identifies the level of trauma after the earthquake and included claustrophobia under the dimension of behavioral problems. This is also proven by the fact that people were not able to enter their homes after the earthquake, but stayed in meeting areas, in their cars, or in the houses of relatives who had detached houses with gardens. This is also why claustrophobia is taken into account when determining the level of trauma. In the study titled “Black Feminist Storytelling After the 2010 Earthquake” by Durban (2024), the discussion in the content of the book “What Storm, What Thunder” addressed the difficult contents in the book, such as physical and sexual violence, suicide and mental illness. Duhan mentioned that focusing on the Haiti earthquake in the book gave a devastatingly claustrophobic feeling even while reading the book.

Conclusions

The findings of this research revealed that women's earthquake risk perception is higher than men's. According to the research findings, education status and gender have significant difference on earthquake risk perception and there is significant relationship between cognitive earthquake risk perception and claustrophobia. It has been observed that when people's education level increases, their claustrophobic behavior is not affected much, and the severity of claustrophobia is higher in earthquake victims whose homes were damaged. Additionally, it has been observed that individuals with high levels of claustrophobia have high earthquake risk perceptions. High awareness of earthquake risk perception among people will increase society's preparation behavior to reduce the destructive effects of earthquakes. Therefore, it is predicted that there will be a decrease in the claustrophobic behavior of individuals who are prepared for an earthquake.

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References / Kaynakça

Akdemir, B., & Kırmızıgül, B. (2015). Turistlerin geldikleri ülkelere göre destinasyon algıları arasındaki farklılığı belirlemeye yönelik bir araştırma. İnönü Üniversitesi Uluslararası Sosyal Bilimler Dergisi, 4(2), 222-243.

Akgül, F. (2023). Sürdürülebilir kalkınma ve afet yönetimi. Turan, M. (Ed.), Bütünleşik afet yönetimi kapsamında afet lojistiğinin sürdürülebilir kalkınmaya etkisi (pp. 173-188), Ankara: Gazi Kitabevi.

Ao, Y., Zhang, H., Yang, L., Wang, Y., Martek, I., & Wang, G. (2021). Impacts of earthquake knowledge and risk perception on earthquake preparedness of rural residents. Natural Hazards, 107, 1287-1310. https://doi.org/10.1007/s11069-021-04632-w

Atalay, E. (2024). Sağlık hizmetleri meslek yüksekokulu öğrencilerinin deprem bilgi düzeylerinin belirlenmesi. Yüzüncü Yıl Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, (64), 141-152. https://doi.org/10.53568/yyusbed.1438961

Bardsley, D. K., Moskwa, E., Weber, D., Robinson, G. M., Waschl, N., & Bardsley, A. M. (2018). Climate change, bushfire risk, and environmental values: examining a potential risk perception threshold in peri-urban South Australia. Society & Natural Resources, 31(4), 424-441. https://doi.org/10.1080/08941920.2017.1421733

Brown, P., Daigneault, A. J., Tjernström, E., & Zou, W. (2018). Natural disasters, social protection, and risk perceptions. World development, 104, 310-325. https://doi.org/10.1016/j.worlddev.2017.12.002

Cansel, N., & Ucuz, I. (2022). Post-traumatic stress and associated factors among healthcare workers in the early stage following the 2020 Malatya-Elazığ earthquake. Konuralp Medical Journal, 14(1), 81-91. https://doi.org/10.18521/ktd.1000636

Çavuşoğlu, İ., & Karaaziz, M. (2024). 2023 Hatay depremini yaşayanlarda depremin travma sonrası stres bozukluğu belirtileri ve travma sonrası büyüme arasındaki ilişkide psikolojik esnekliğin aracı rolü. Ulusal ve Uluslararası Sosyoloji ve Ekonomi Dergisi, 5(4), 764-776. https://doi.org/10.5281/zenodo.11406139

Cisternas, P. C., Cifuentes, L. A., Bronfman, N. C., & Repetto, P. B. (2024). The influence of risk awareness and government trust on risk perception and preparedness for natural hazards. Risk analysis, 44(2), 333-348. https://doi.org/10.1111/risa.14151

Cui, K., & Han, Z. (2019). Association between disaster experience and quality of life: The mediating role of disaster risk perception. Quality of life research, 28, 509-513. https://doi.org/10.1007/s11136-018-2011-4

Demirarslan, D., & Demirarslan, O. (2021). A study on determining the need for use of outdoor spaces in houses during the covid-19 pandemic period. Sosyal Bilimler Dergisi/The Journal of Social Science, 8(50), 1-25.

Doğru, S. (2024). Afet risk algısının afet gönüllüsü olma tutumu üzerine etkisi. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 13(3), 1185-1193. https://doi.org/10.37989/gumussagbil.1459390

Doğru, S., & Ede, G. (2020). Planning food and nutrition support in disaster situations. Current Perspectives on Health Sciences, 1(1), 25-34.

Durban, E. L. (2024). Black feminist storytelling in the wake of the 2010 earthquake. Palimpsest: A Journal on Women, Gender, and the Black International, 13(1), 136-144. https://doi.org/10.1353/pal.2024.a930531

Edemen, M., Okkay, M., Tugrul, R., Kurt, M. Ş., Bircan, O., Yoldaş, H., ... & Aslan, A. (2023). Deprem nedir? Nasıl oluşur? Türkiye'de oluşmuş depremler ve etkileri nelerdir? Depremlere karşı alınabılecek tedbirler hususunda öneriler. International Journal of Social and Humanities Sciences Research (JSHSR), 10(93), 719-734. https://doi.org/10.26450/jshsr.3584

Eliasi Sarzali, F. (2019). Analysis of post-earthquake psycho-social traumas: The case of Sar-Pole-Zahab earthquake. Journal of Iranian Social Studies, 13(2), 5-28. https://doi.org/10.22034/jss.2019.43298

Geçit, H. K., & Kesici, Ş. (2024). Opinions of individuals exposed to earthquake regarding their psychological inflexibility. Research on Education and Psychology, 8(1), 182-204. https://doi.org/10.54535/rep.1467625

Gülyol, Y. (2024). Deprem kaynaklı ikincil travmatik strese genel bir bakış. Habitus Toplumbilim Dergisi, 5(5), 37-60. https://doi.org/10.62156/habitus.1412564

Jo, H., & Baek, E. M. (2023). Impacts of social isolation and risk perception on social networking intensity among university students during covid-19. Plos one, 18(4), e0283997. https://doi.org/10.1371/journal.pone.0283997

Karakan, H. İ., & Çolak, O. (2024). A study on expert opinions on the impact of recreational activities on earthquake-affected children. I. International Istiklal Symposium, 06-08 Şubat-February 2024, Kahramanmaras, Türkiye, (s. 469-477).

Kırmızıgül, B. (2020). Post truth çağda algı ve algı yönetimi turizm destinasyonlarında algı oluşturma. 1.bs., Ankara: Gazi Kitapevi.

Kopuz, B., Bekdemir, Ü., & Yılmazer, A. (2024). Sosyal bilgiler ders kitaplarında doğal afet ile ilgili konular ve bu konuların öğretiminin önemi. Karadeniz Sosyal Bilimler Dergisi, 16(30), 358-380. https://doi.org/10.38155/ksbd.1355236

Köse, A. (2023). Voluntary search-and-rescue workers' experiences after witnessing trauma in the earthquake field. OPUS Journal of Society Research, 20(51), 56-66. https://doi.org/10.26466/opusjsr.1214128

Kotan, H. (2024). Ders kitaplarında yer alan afet eğitimi konularının incelenmesi. International Journal of Social and Humanities Sciences Research (JSHSR), 11(107), 905-919. https://doi.org/10.5281/zenodo.11404168

Marshall, T. M. (2020). Risk perception and safety culture: Tools for improving the implementation of disaster risk reduction strategies. International journal of disaster risk reduction, 47, 101557. https://doi.org/10.1016/j.ijdrr.2020.101557

Mızrak, S., Özdemir, A., & Aslan, R. (2021). Adaptation of hurricane risk perception scale to earthquake risk perception and determining the factors affecting women's earthquake risk perception. Natural Hazards, 109(3), 2241-2259. https://doi.org/10.1007/s11069-021-04918-z

Odabaş, L., & Cengiz, S. (2021). Eğitim kurumları idarecilerinin kriz anında afet ve acil durumlara yönelik yeterliliklerinin değerlendirilmesi: Gümüşhane ili örneği. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 10(3), 521-531. https://doi.org/10.37989/gumussagbil.943792

Önder, D. (2022). 2020 izmir Depremi sonrası depremzedelerin travma sonrası stres, klostrofobi gelişimi ve psikolojik dayanıklılık açısından değerlendirilmesi (Master's thesis, Ege Üniversitesi).

Özdemir, A. (2018). Toplumun afet risk algısı ve afete hazırlıklı olma durumu: Kocaeli ili örneği (Master's thesis, Sosyal Bilimler Enstitüsü).

Özlemiş, Ş., & Eren, T. (2024). Afet sonrası kullanılacak geçici barınma alanlarının çok kriterli karar verme yöntemleri kullanılarak seçilmesi üzerine bir uygulama. International Journal of Engineering Research and Development, 16(2), 861-880. https://doi.org/10.29137/umagd.1469270

Öztekin, S., Aydın, O., & Aydemir, Ö. (2017). DSM-5 özgül fobi şiddet ölçeği Türkçe formunun geçerliliği ve güvenilirliği. Anatolian Journal of Psychiatry/Anadolu Psikiyatri Dergisi, 18(2), 31-37. https://doi.org/10.5455/apd.240709

Petraroli, I., & Baars, R. (2022). To be a woman in Japan: Disaster vulnerabilities and gendered discourses in disaster preparedness in Japan. International Journal of Disaster Risk Reduction, 70, 102767. https://doi.org/10.1016/j.ijdrr.2021.102767

Qasim, S., Khan, A. N., Shrestha, R. P., & Qasim, M. (2015). Risk perception of the people in the flood prone Khyber Pukhthunkhwa province of Pakistan. International Journal of Disaster Risk Reduction, 14, 373-378. https://doi.org/10.1016/j.ijdrr.2015.09.001

Rachman, S. (1997). Claustrophobia. Phobias: A handbook of theory, research and treatment, 163-182. https://doi.org/10.1891/0889-8391.14.1.115

Radomsky, A. S., Rachman, S., Thordarson, D. S., McIsaac, H. K., & Teachman, B. A. (2001). The claustrophobia questionnaire. Journal of anxiety disorders, 15(4), 287-297. https://doi.org/10.1016/S0887-6185(01)00064-0

Şahan, E. (2021). Hasta penceresinden Covid-19 tanısıyla tek başına bir hastane odasında olmak: nitel çalışma. Cukurova Medical Journal, 46(1), 223-232.

Sheek-Hussein, M., Abu-Zidan, F. M., & Stip, E. (2021). Disaster management of the psychological impact of the COVID-19 pandemic. International journal of emergency medicine, 14(1), 1-10. https://doi.org/10.1186/s12245-021-00342-z

Tanhan, F., & Kayri, M. (2013). Deprem sonrası travma düzeyini belirleme ölçeğinin geçerlik ve güvenirlik çalışması. Kuram ve Uygulamada Eğitim Bilimleri, 13(2), 1013-1025.

Tercan, B. (2023). Bireylerin afet risk algısının çeşitli değişkenler açısından değerlendirilmesi. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 12(3), 1279-1287. https://doi.org/10.37989/gumussagbil.1180447

Uğuz, Ş. (2023). Depremlerin görünmez yıkımı: insanların psikolojik sağlığı üzerindeki etkileri. Turkish Journal of Family Medicine and Primary Care, 17(1), 6-9. https://doi.org/10.21763/tjfmpc.1256896

Vadakkan, C., & Siddiqui, W. (2023). Claustrophobia. In StatPearls. Statpearls Publishing.

Yazıcıoğlu, Y., & Erdoğan, S. (2004). SPSS, uygulamalı bilimsel araştırma yöntemleri. Detay Yayıncılık.

Zhang, W., Wang, W., Lin, J., Zhang, Y., Shang, X., Wang, X., ... & Ma, W. (2017). Perception, knowledge and behaviors related to typhoon: A cross sectional study among rural residents in Zhejiang, China. International journal of environmental research and public health, 14(5), 492. https://doi.org/10.3390/ijerph14050492