

Opinions of Individuals Exposed to Earthquake Regarding Their Psychological Inflexibility

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Abstract

This is a qualitative study conducted to evaluate the thoughts of individuals who were exposed to the earthquake that took place on 06.02.2023, centered in Kahramanmaraş, regarding their psychological rigidity. A phenomenological approach was adopted in the study. 14 participants were included in the study. Data were collected by audio recording with a semi-structured interview form. Content analysis technique was used to analyze the data. As a result of the analysis, it was determined that individuals exposed to the earthquake avoided the emotions of joy, happiness, love, sadness, anger and fear. It was determined that thoughts are suppressed and thoughts about the loss of family members are avoided. However, there are also participants who do not have avoidant thoughts or behaviors. Individuals exposed to earthquake reported situations such as fear of loss, nightmares, anxiety, hopelessness, rumination, powerlessness, failure, fear of punishment, burnout, embarrassment, claustrophobia, crying spells, eating problems, increase in alcohol/cigarette use, sleep problems, social isolation, excessive cleaning, staying away from entertainment, and disruption of social relations. In this study, after the trauma experienced, some individuals stated that they became aware of the value of life, created new options, had positive changes in social relations, and change in the perception of self. Considering the results, it is evaluated that practices aimed at increasing psychological flexibility will reduce the negative effects of traumatic experiences and increase psychological resilience in individuals.

Key Words

Individual exposed to earthquake • Psychological inflexibility • Psychological flexibility

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Introduction

Individuals experience many positive or negative experiences throughout their lives, with or without their own control. Individuals continue their lives by being affected positively or negatively by these experiences. Natural disasters occur without the influence of individuals and affect individuals psychologically, economically, physically and mentally. Disasters are man-made, natural or technology-induced events that cause the whole or a certain part of the society to experience social, economic and physical losses, interrupt or completely terminate social activities, and in which the affected sociology is inadequate in terms of coping skills (AFAD [Disaster and Emergency Management Presidency], 2024).

Individuals experiencing the disaster try to make sense of what they are experiencing, and they strive to cope with processes such as worrying about the recurrence of the disaster, feeling insecure, having sleep problems, fear, and nutritional problems (Cankardaş & Sofuoğlu, 2019). Any situation that catches individuals suddenly and unprepared and occurs without the influence of individuals results in mental, psychological and physical reactions in individuals and causes individuals to produce different reactions depending on their state of awareness and endurance (Friedman, 2015). Considering that natural disasters occur suddenly, cause severe damage, and catch individuals unprepared, natural disasters are among the events that are difficult to cope with (Kula, 2006).

Disasters, which are devastating traumatic experiences since the beginning of the world, are classified as natural and human-related. In line with the given classification, earthquakes are included in the group of natural disasters (Çınarlı, 2023). Earthquake, which is a natural event that cannot be prevented, is the phenomenon of vibrations occurring due to fractures in the earth's crust, spreading as waves and shaking the surroundings they pass through (Edemen et al., 2023). Earthquake prevents the individual from meeting the need for safety, which is one of the most basic needs, and poses a serious life threat to the individual as it is a disaster that destroys the living space (Caia et al., 2010).

Natural disasters that cause huge losses, such as earthquakes, are not limited to the time they occur. In the following process, it is engraved in the memory of the society, and individuals who are exposed to major disasters cannot escape the psychological effects of the disaster even years later and experience psychological problems (Özçetin et al., 2008). Individuals who experience a disaster may develop reactions of different intensity (depending on the magnitude of the earthquake). These individual reactions are categorized as cognitive, physical, social, and emotional reactions (Friedman, 2015).

Individuals who were exposed to natural disasters and survived may have been exposed to difficult experiences such as losing their relatives, loss of limbs and injuries, financial losses, degeneration of their social relationships, and changes in their work and living spaces. Therefore, as a result of these difficult experiences, post-traumatic stress disorder is observed more frequently (Acierno et al., 2006). In addition, depression, anxiety disorders, and psychosomatic complaints (Caia et al., 2010, Rubin & Wessely, 2020) can be seen at different severities due to the situational characteristics of the disaster and can affect the individual for many years (Nakaya et al., 2016).

Traumatic experiences experienced by individuals can cause acute stress reactions (Taymur et al., 2020). In acute stress reaction, emotional reactions such as anger, mourning, feeling of helplessness, hopelessness, shock, fear, emotional numbness, shame, and guilt may occur. Cognitive reactions include problems in focusing, forgetfulness, self-blame, confusion, dissociation, difficulty with orientation, difficulty in speaking, and recall of disturbing images and memories (Friedman, 2015). Significant changes in sexual desire, sleep and appetite, palpitations, tension, restlessness, nausea and fatigue are seen as physical reactions. Besides, social reactions such as feeling abandoned, lonely and insecure, and intolerance, introversion, and social isolation also occur (Işıklı & Tüzün, 2017).

Traumatic experiences such as earthquakes can cause psychological problems. One of the main causes of psychological problems is psychological rigidity. As individuals' psychological rigidity levels increase, their maneuverability decreases (Harris, 2019). This situation alienates individuals from their values in the long run and causes them to take dysfunctional actions. Dysfunctional actions can also trigger a person to experience problems in areas such as family, psychological and career (Yavuz, 2015). There are many studies showing that low psychological flexibility causes psychological problems (Dawson & Golijani Moghaddam, 2020; Fernández et al., 2020; Landi et al., 2020; McCracken et al., 2021).

According to Acceptance and Commitment Therapy, psychological rigidity is characterized by loss of contact with the moment, experiential avoidance, attachment to the conceptualized self, cognitive fusion, alienation from values, and dysfunctional action (Hayes et al., 2006). Cognitive fusion, one of the dimensions of psychological rigidity, is the individual's evaluation of his thoughts as reality and defining his behavior within the framework of this situation. Cognitive unification, which is not a pathological process on its own, can make behavior rigid, limit the behavioral repertoire, and lead the individual away from his values and into dysfunctional behaviors (Hayes et al., 2012). Experiential avoidance is an effort to change the frequency and intensity of subjective experiences such as dysfunctional thoughts, emotions, memories, and bodily sensations that cause behavioral problems (Hayes et al., 1996). In experiential avoidance, the individual tries to avoid negative feelings, thoughts, and emotions. Experiential avoidance, which seems effective in the short term, limits the individual's behavioral repertoire in the long term (Hayes et al., 2013). In the case of "loss of contact with the moment," the individual is solidly in the past or future (Hayes et al., 2012). However, life is only lived in the present moment. Cognitive fusion and experiential avoidance cut off the individual's contact with the present (Hayes et al., 2013), and the individual lives in his own world and disrupts his contact with the present moment (Hayes et al., 2006).

The individual's views about himself constitute the conceptualized self. The individual's story about himself is approved by other people, and it is functional up to a point (Yavuz, 2015). However, when individuals identify highly with these stories, they will want the story to continue and will tend to reject situations where they move away from the story (Hayes et al., 2012). When an individual thinks that his story is under threat, he may resort to experiential avoidance to maintain the consistency of the story (Mendolia & Baker, 2008).

Lifelong values are dynamic life goals expressed verbally by the individual and may change over time (Yavuz, 2015). Values are included in here and now behaviors and are not a goal to be achieved but serve as a guide (Hayes,

et al., 2013). Ambiguity in values, the individual's adoption of values only for harmony, situations such as avoidance, guilt and shame constitute obstacles to reaching values (Sheldon & Elliot, 1999).

Psychological rigidity limits individuals' behavioral reserves. This situation causes the individual to take actions that are not in line with his values and goals (Hayes et al., 2013). When an individual addicted to games of chance encounters a stimulus that reminds him of games of chance or when these come to his mind, turning to this action will narrow his behavioral repertoire. However, this situation will negatively affect the individual's social relationships, family situation, professional and psychological status (Harris, 2019).

In acceptance and commitment therapy, when individuals experience psychological problems, they are encouraged to live a meaningful life in line with their values by accepting the situation, activating cognitive dissociation, contextual self and awareness (Yavuz, 2015). In this ecocycle, all psychological situations or events experienced are accepted consciously and there is openness to the experienced situations or events. The problem is not the existence of any situation or event, but the context in which it occurs and what its function is. The purpose of acceptance and commitment therapy is to accept every emotion experienced and take action to live a rich and meaningful life (Gök & Karaaziz, 2023).

Increasing psychological rigidity prompts the individual to get rid of internal experiences that he perceives as negative (Hayes & Smith, 2021). Individual may exhibit escape/avoidance behaviors in order to eliminate or reduce these internal experiences, and behaviors such as self-harm and substance use may occur. When psychological rigidity increases, the individual's behavior becomes limited. This situation prevents the individual from living his life in line with his goals (Harris, 2019).

Inflexible individuals are prone to suffering. They try to control, suppress, or avoid their unwanted internal experiences (Hayes & Smith, 2021). They live in past memories or in the future, which prevents the person from being in the present and this situation is due to the person's lack of awareness. People who are psychologically rigid also have problems connecting with their core values and their actions are limited to routine tasks that do not contribute to the direction they are going (Strosahl et al., 2019). High psychological flexibility of individuals can play a positive role in eliminating the negative effects of trauma.

This study aimed to examine the psychological rigidity of individuals exposed to the earthquake that occurred in Kahramanmaraş, southeast of Türkiye in February 2023. Research questions are:

1. What are your feelings, thoughts and behaviors that you avoid after the earthquake?
2. How do your experiences during the earthquake or your thoughts about the future affect your present?
3. What can you say about the reality of what you experienced during the earthquake or the reality of your thoughts about the future?
4. How did the earthquake affect your feelings and thoughts about yourself?
5. What are your feelings and thoughts about yourself after the earthquake?

6. What are the differences in the concepts that are meaningful and valuable to you in the period after the earthquake? Can you talk about it?

7. What kind of behavior did you do after the earthquake that made your life dysfunctional?

Method

Research Design

In the qualitative part of this study, a phenomenology approach was adopted. Phenomenology allows individuals to express their perspectives, perceptions, feelings and thoughts about a certain concept, and is a method used to describe how they experience these phenomena. Phenomenology is used to investigate phenomena that are encountered in daily life but that the individual has difficulty understanding (Yıldırım & Şimşek, 2016). Phenomenology, which emerged from a philosophical movement with the aim of making sense of human behavior, stands out by referring to the entirety of the individual's lived experiences (Giorgi, 1997). The phenomenon examined in this study is the opinions of individuals exposed to earthquakes regarding their psychological rigidity.

Study Group

In the qualitative part of this study, criterion sampling method was adopted. The criterion sampling method provides the opportunity to study all situations that meet certain predetermined criteria (Baltacı, 2018). The criteria of the study can be created by the researcher or the existing criteria list can be used (Marshall & Rossman, 2014). Having experienced an earthquake was adopted as the criterion in this study. 14 adult individuals who were exposed to the earthquake centered in Kahramanmaraş on February 6, 2023 were included in the study. The demographic characteristics of the participants are given in Table 1. Before the interview was conducted, the purpose of the interview was explained to the individuals in the study group, and a voluntary participation certificate and informed consent form were obtained. (Table 1)

Table 1

Demographic characteristics of participants

Coding	Gender	Occupation	City	Age
K1	Female	Teacher	Hatay	39
K2	Female	Teacher	Kahramanmaraş	30
K3	Female	Housewife	Kahramanmaraş	41
K4	Female	Student	Kahramanmaraş	26
K5	Female	Teacher	Kahramanmaraş	33
K6	Female	Teacher	Kahramanmaraş	35
K7	Female	Teacher	Hatay	52
K8	Male	Teacher	Hatay	58
K9	Male	Self-Employed	Hatay	36
K10	Female	Housewife	Hatay	33
K11	Male	Teacher	Hatay	40
K12	Female	Teacher	Kahramanmaraş	39
K13	Female	Teacher	Hatay	39
K14	Female	Student	Kahramanmaraş	21

Data Collection Tools

In qualitative research, data collection is carried out through sources such as observations, open/closed-ended interviews, documents (private-official documents) and audio-visual materials (video recording, e-mail, photographs, etc.). In the phenomenological research method, the data collection process is carried out through multiple in-depth interviews (Creswell, 2021). A semi-structured interview form was used during the data collection process. Initially, literature on the concepts of psychological rigidity and psychological flexibility was reviewed to formulate the questions. Confidentiality is very important in phenomenology research (Creswell, 2021). The researcher should use pseudonyms to protect the confidentiality of the individuals participating in the study (Tekindal & Arsu, 2020). In this study, pseudonyms instead of real names of individuals were used in order to protect confidentiality in reporting the interviews (K1, K2, K3...). In order to increase validity and reliability, the semi-structured interview form was sent to two researchers and their opinions were taken. In terms of reliability, instructors made final changes to the questions they deemed necessary. Then, a pilot study was conducted with two adults exposed to the earthquake. The questions were revised again in line with their feedback.

Data Collection and Analysis

This study was started with ethics committee permission. Informed consent forms and voluntary participation documents were obtained during the interviews, and audio recordings were made with the permission of the participants. The interviews lasted approximately 20 minutes. To get in-depth information, participants were asked questions such as “Can you elaborate a little?”, “Can you explain a little more?”

Content analysis technique was applied to analyze the data in this study. The purpose of content analysis is to bring together similar data in line with certain themes and concepts, and to organize and interpret the findings in an understandable form (Yıldırım & Şimşek, 2016). Accordingly, the audio data was transcribed and read several times. Themes and categories were created by preserving the integrity of the data. Afterwards, the categories were sent to two field experts, they were reviewed together, and the final version was obtained.

Results

Eight questions were asked to the adults who were exposed to the earthquake to learn their thoughts about psychological rigidity. Themes and categories were determined in line with the answers given. The numbers of coding and sample items are shown in the relevant tables.

1. Themes and Categories for Avoided Emotions

Adult individuals who were exposed to an earthquake were asked, “What are the emotions you avoid after the earthquake?” Three themes and six categories were created in line with the answers given. In the theme of positive emotions, the categories of delight/joy, happiness and love were determined. In the theme of negative emotions, the categories of sadness, anger and fear were determined. There were three participants who said that they did not avoid their emotions. (Table 2)

Table 2

Avoided emotions

Themes	Categories	Coding	Sample Answers
Positive Emotions	Delight/Joy	2	“I postponed experiencing feelings of joy and happiness. Basically, I can say that I avoided these feelings.”(K3) “To laugh. Because there are people with pain. Normally, I am a cheerful person. To be cheerful, joyful, happy like this. I mean, acting like nothing happened. When I’m cheerful and happy, it’s like I’m spiteful of those people. It’s like, it’s forbidden.”(K5)
	Happiness	7	“At first, being happy felt like cruelty. At first, there was no feeling like being happy. There was crying, anxiety and fear at first. There was concern due to constant aftershocks and shaking. Where I was, there was a lot of destruction and loss of life, young people passed away. I didn’t want to be happy when I saw people suffering around me. I did not consider myself worthy of being happy.”(K4) “I lost the feeling of trust in my future, in myself, in the place where I live. The feeling of happiness, I don’t know, being at peace for that moment, being happy, being able to laugh... After laughing at an event, I react to myself like, why are you laughing? During this process, I constantly questioned myself when I’m happy. I couldn’t ascribe happiness to myself, I felt guilty.”(K14)
	Love	1	“I didn’t want to be happy so soon after the earthquake. I didn’t want to love anyone either. Because I always thought about the pain of those who lived through that moment, I did not even want to approach my children with love. Because I always thought about what was lost. Either I didn’t want to be happy, I didn’t want to love anyone either. Mine went like this. And this situation still continues.”(K13)
Negative Emotions	Sadness	3	“Let me tell you this, we lost my husband’s family in the earthquake, we were around the rubble for about three weeks. When there was a loss of a first degree relative, I avoided feeling sad about the loss of other relatives. Much later, I started to feel sad when I thought about my other relatives who died. Thank God, I did not lose anyone in my own family. It was as if I tried to prevent my sadness out of fear that something would happen to them if I got too upset or rebelled.”(K2)
	Anger	1	“So it’s like this, first of all, I have one daughter. Since nothing happened to her, and our aim was to survive in the following periods, since this was our priority, I think I could not experience processes such as crying with sadness for the losses of my relatives. I suppressed that a bit. Because my child was alive and our priority was to ensure survival with basic life skills. Being able to find a safe place, feeding ourselves, meeting needs such as cleaning and nutrition. Because of this, I think I avoid feeling sad about the loss of my loved ones. I also avoided my anger.”(K1)
	Fear	1	“...Of course, we had to suppress many things. I tried not to make my family feel that I was afraid, at least.”(K8)
I didn’t avoid my feelings.		3	“I cried and experienced my emotions for two months after the earthquake. I was exposed to them rather than avoiding.”(K6) “We did not avoid any emotions; we experienced emotions such as fear, panic and shock. Seeing the pain of the people, the voices and noises around us... It’s a very difficult, very different feeling...”(K10)

2. Themes and Categories for Avoided Thoughts

Adult individuals who were exposed to an earthquake were asked, “What are the thoughts you avoid after the earthquake?” Two themes and two categories were determined in line with the answers given. In the theme of thoughts related to anxiety, categories of thoughts related to suppression and loss of family members were determined. Three participants stated that they did not have any thoughts that they avoided. (Table 3)

Table 3

Avoided thoughts

Themes	Categories	Coding	Sample Answers
Thought about Anxiety	Suppression	4	“Honestly, since I lost my close friend in the earthquake, I avoided feeling angry towards my friends, seeing their mistakes, and avoiding bad thoughts about them. I ignored their mistakes and faults.”(K14)
	Reflection on the Loss of Family Members	7	“We lost people we loved, I avoid remembering them. I avoid thinking about my memories with them. “The thought of going to Maraş again seemed so scary to me, I avoided it.”(K6)
I Have No Thoughts That I Avoid.			“How can I explain this? For example, I had a lot of feelings regarding loss. I didn’t even want to think about what if something had happened to my children or my husband.”(K13)
			“My family still lives there. There is still the thought that something could happen to them. I have anxious thoughts about them.”(K2)
		3	“I thought life was too short and it was wrong to worry so much. I realized that there is no need to break hearts, overthink about everything and worry.”(K3)

3. Themes and Categories of Avoided Behaviors

Adult individuals who were exposed to the earthquake disaster were asked, “What are the behaviors you avoid after the earthquake disaster?” Based on the answers given, three themes and five categories were determined. In the theme of avoidance, categories of sexual needs, spatial avoidance and differentiation in relationships were determined. In the theme of taking precautions, two categories were determined as precautions for place and needs. One participant stated that there was no behavior he avoided. (Table 4)

Table 4

Avoided behaviors

Themes	Categories	Coding	Sample Answers
Avoidance	Sexual Needs	1	“I avoided sexuality a lot after the earthquake. What if we had caught having sexual intercourse during the earthquake?”(K1)
	Spatial Avoidance	6	“I was so afraid to go to the bathroom, I’m still afraid. I still don’t close the bathroom and toilet doors. For a long time I avoided going inside a building. I’m still too afraid to sleep at night when I go to my parents. I think the same thing will happen when I close my eyes.”(K12) “I avoided crowded environments.”(K9) “Especially the bathroom. A place where we are very vulnerable. God forbid, if there is an earthquake, the fear of escaping like that, or of being caught like that, especially. I began to take a quick bath and leave. Going to the toilet is the same way. I caught in aftershocks a few times in the toilet, so I hurriedly left there.”(K4)
	Differentiation in Relationships	4	“Since I was constantly under tension after the earthquake, I started to walk soft whenever tension arose. I started to be more tolerant towards my friends and family because of the fact that I would be disconnected from them.”(K14) “... We always wanted to have a voice in the house. We tried not to be alone too much. We are constantly on guard. They say there are not many fault lines in Ankara, but we are afraid that there will be an earthquake.”(K10)
Taking Precautions	Precautions for Place	3	“After the earthquake, we do not lock the door even when going to bed at night. So that if something happens, we can leave immediately.”(K11) “Our house is stove-heated, and we didn’t even set it up in case there was an earthquake and it fell on us.”(K5)
	Precautions for Needs	2	“Of course, the process slowly started to return to normal, but at first we could not sleep at night and never turned off the lights. This went on for more than three months. We never wanted to close the doors, and I still don’t lock my apartment door at night. I leave my coat, shoes and bag somewhere I can easily reach. I never close the door to my children’s room. I make sure my daughter’s phone is fully charged.”(K13) “...I don’t come home without refueling my car anymore. Just in case anything happens. I don’t come home without money on me... I feel like I have to take precautions all the time, those thoughts are constantly going around in my head.”(K11)
There was no emotional avoidance.		1	“After the earthquake, we changed the city and we were together with different people. We talked a lot with the families of the earthquake victims; we were a balm for each other’s wounds. The fact that we left the environment we were in, came to my son, and tried to stand firm against him made it easier for us to return to normal, and we did not refrain from any behavior.”(K8)

4. Themes and Categories Related to How Emotions and Thoughts Affect Today

Adult individuals who were exposed to the earthquake disaster were asked, “How do your experiences during the earthquake or your thoughts about the future affect your present?” In line with the answers given, two themes and seven categories were determined. On the theme of negative effects, having nightmares, fear of loss, anxiety,

hopelessness and rumination categories were determined. In the theme of positive effects, the categories of taking precautions and being present in the moment were determined. One participant stated that his feelings and thoughts did not affect his present. (Table 5)

Table 5

How emotions and thoughts affect today

Themes	Categories	Coding	Sample Answers
Negative Effects	Having nightmares	1	“...I suddenly panic and become paralyzed. Therefore, it affects my relationships greatly. It’s gotten to the point where it’s uncontrollable; it’s affecting my dreams and sleep . Sometimes I can’t sleep at night because of thinking. Scenarios constantly arise in my head. Our house was not destroyed, but serious damage was reported...”(K2)
	Fear of loss	3	<p>“When I leave the children every morning and drop them off at school, I still feel like I will never see them again, that I will lose them. Likewise, I cannot go to bed at night without kissing them and telling them I love them. It feels like something will happen at night and we will go back to those days. It is not as intense as the first time, but these feelings continue now. When I leave the house, I think that when I return, I will find the house in ruins. Even when I’m coming to school, I look back to see if I can find it the way I left it.”(K13)</p> <p>“There is a fear of loss because there were losses close to us.”(K3)</p> <p>“... Scenarios are constantly forming in my head. Our house was not destroyed, but it was reported to be seriously damaged. Questions such as ‘Will it collapse again?’, ‘Is there any liquefaction on the ground?’ are constantly on my mind, and there are many negative scenarios such as the house being demolished and my mother and father passing away...”(K2)</p>
	Anxiety	3	<p>“I constantly thought that something would happen to my parents, so I started following the latest earthquake information from Kandilli Rasathanesi the internet. Due to this situation, I started to have problems in my business life, my marriage and my social relationships. I suddenly panic and become paralyzed. Therefore, it affects my relationships greatly. It’s gotten to the point where it’s uncontrollable.”(K2)</p> <p>“I can’t be like myself. I have thoughts of divorce but I can’t take a step. I can’t take a step with the thought, ‘What if something like this happens to us again and her father doesn’t take care of my daughter like he does now and leaves her alone?’ Today, I cannot react as I should in my relationships with anyone. I plan my day like the first day of the earthquake.”(K13)</p>
	Hopelessness	2	<p>“I have no hope for the future. A thought occurred to me, ‘I’ll do this, but let’s start tomorrow.’ It’s like being unsure of your next step. Everything can turn upside down in an instant.”(K14)</p> <p>“I honestly don’t feel like doing anything because I see that everything was over in a minute and a half. I’m already going into the ‘we’re going to die’ mode. Before the earthquake, I was studying for KPSS [Public Personnel Selection Examination]. It was my priority since I couldn’t be appointed. I don’t feel like working at all right now, there are already rumors that there will be another earthquake, I think it will be a period when everything will be left unfinished again and hopes will fade away. That’s why my indifference has increased a lot, especially in the field of education.”(K4)</p>

	Rumination	2	<p>“The conversations have changed. We constantly talk about earthquakes, we talk about destruction. We talk about what we will do in the future in our phone conversations.”(K11)</p> <p>“Sometimes I can’t sleep at night because of thinking. Scenarios constantly arise in my head. Our house was not destroyed, but serious damage was reported. Questions such as ‘I wonder if it will collapse again, whether there is liquefaction on the ground’ are constantly on my mind, and there are many negative scenarios such as the house collapsing and my parents passing away. I am currently receiving psychological support.”(K2)</p>
Positive Effects	Taking Precautions	1	<p>“How should I put it? Questions like, how do I protect my son when we go to bed every day... How do I take the child’s medicines with me because he is diabetic? We didn’t have anything sugary with us on the day of the earthquake. Now, I put the food my child will need in the bag, in the car, everywhere. For example, there is nothing that could fall on us in the room where we sleep. We all have it. We designed it.”(K5)</p>
	Being Present in the Moment	7	<p>“...We, as a family, do not make plans for the future. I always say, let’s live well today; I think we don’t know what will happen tomorrow. We don’t make long term plans. I want to make the most of every moment with my children. Let’s make that moment a pleasant one. If we had a nice meal with my wife and children, I count it as a reward.”(K13)</p> <p>“Lately, I started to think that I should enjoy every moment I live, how precious every moment I spend with my loved ones and family is, that one step ahead is incalculable, and that even though we make long-term plans, sometimes it has no meaning. I know that I shouldn’t worry about the little things, and that I no longer worry about many things that I used to worry about. I also have positive changes in this sense. I used to dislike some things and the house, but I don’t care about them at all anymore compared to before. I used to argue and fight because of these, but I don’t care anymore. Health, unity, togetherness and being alive are very valuable to me.”(K12)</p>

5. Themes and Categories for the Reality of Thoughts

Adult individuals who were exposed to the earthquake disaster were asked, “What can you say about the reality of what you experienced during the earthquake or the reality of your thoughts about the future?” Based on the answers received, two themes and a single category were determined. In the theme of thinking it is not real, the category of failure to find evidence was determined. There are seven participants who did not express an opinion. (Table 6)

Table 6

Evaluation of the reality of thoughts

Themes	Categories	Coding	Sample Answers
Thinking it is not real.	Failure to find evidence	7	<p>““We know it’s not real, but our traumas continue.” (K10)</p> <p>“We came here because Ankara is not an earthquake zone. We know this, but we constantly think about what we would do if there was an earthquake here, and it comes into our dreams.”(K11)</p> <p>“After a certain period of time and thinking about it, it doesn’t make sense, but people still think about such things. Of course, we cannot live today thinking that everything will disappear. I know it’s not real and it’s irrational.”(K14)</p>
			<p>Not expressing an opinion</p>
		7	<p>“There’s nothing I can say.”(K3)</p>

6. Themes and Categories of the Individual's Feelings and Thoughts about Self

Adult individuals who were exposed to the earthquake were asked, "How did the earthquake affect your feelings and thoughts about yourself?" Based on the answers given, two themes and eleven categories were determined. In the theme of negative self-perception, a total of seven categories were determined as powerlessness/weakness, failure, fear of punishment, burnout, embarrassment, avoidance, fear of loss. On the theme of post-traumatic growth, four categories were determined as realizing the value of life, creating new options, positive change in interpersonal relationships and change in self-perception. (Table 7)

Table 7

Emotions and thoughts regarding self

Theme	Categories	Coding	Sample Answers
Self-Negative Perception	Powerlessness/Weakness	4	<p>"...When all of these disappear, one inevitably feels unsuccessful and powerless. A person who cannot manage her own life. This makes me feel helpless." (K14)</p> <p>"As humans, we are helpless. The earthquake proved to us how helpless we are as humans, and that even knowledge is useless. I am motivated by thinking that there is nothing we cannot overcome with our nuclear family."(K7)</p> <p>"I saw that I was very helpless. I was a completely powerless individual. I was not someone who was not aware of earthquakes, and I could have acted more professionally during the earthquake. I was a very weak person who thought she was very strong."(K1)</p>
	Failure	2	<p>"Honestly, I didn't think my life could turn up this much. I had a school, I had my own routine. When all of these disappear, one inevitably feels unsuccessful and powerless."(K14)</p> <p>"I was a mother trying to protect her child, but I could not be an individual who protected herself. I find myself powerless and unsuccessful."(K1)</p>
	Fear of Punishment	1	"...I thought that if I don't get over it, I won't be grateful for the current situation and I will be punished with something worse."(K1)
	Burnout	2	"I don't remember many things that happened in the early days. I lost my mind, I was shocked. My anxiety and fear increased greatly. Also, I have a feeling of indifference towards the future."(K4)
	Embarrassment	1	"...After the earthquake, I felt awkward for a while. I'm normally not a very embarrassed person. I don't get hung up on things. I felt extremely embarrassed. I was ashamed to call my friends who lost their first degree relatives. I felt embarrassed that I couldn't call. You know, I didn't know what to say to them. I was even afraid to call and say my condolences, I mean, I was ashamed. I don't even know if some of them are alive or not, maybe I did something wrong, but I was afraid to call and find out if they were alive or not. For example, I learned three or four months later that some of my close friends had passed away. That embarrassment, fear, helplessness, not being able to do anything..."(K11)

	Avoidance	2	“...For a while, I avoided everything I enjoyed doing. I loved reading books, but now I can’t focus.”(K6)
	Fear of Loss	2	“... Not losing my nuclear family is above all else; if we had lost one of them or lost a limb, I would have experienced greater pain.”(K8) “On the negative side, my fear of losing has seriously increased. Fear of losing my parents, fear of losing my siblings...”(K12)
Post-traumatic growth	Realizing the Value of Life	6	“In many ways, I was positively affected by the earthquake. I don’t worry about many things as much as I used to. I started not paying much attention to physical features, belongings, time and place, any more. Being together and alive is more valuable than anything.”(K12) “I used to be someone who made very forward plans. I used to worry about everything so much. I don’t do that anymore. It doesn’t matter to me whether my house is clean or dirty. It doesn’t matter to me whether someone else’s behavior is this way or that way. My children’s school success was very important to me. Is it important now? No, it is not. If they are happy and healthy now, that’s enough for me.”(K13) “I realized that I shouldn’t postpone some things.”(K3)
	Creating New Options	1	“As a matter of fact, coming to Ankara was good for me. The job opportunity here made us economically comfortable.”(K9)
	Positive Change in Interpersonal Relationships	2	“... I accept behaviors that I would not accept and react to in the past, more moderately, I walk soft.”(K1)
	Change in Self-Perception	1	“I was very calm at the time of the earthquake. I was impatient before. I’m more patient now. I try to approach people with the thought that we are here today, gone tomorrow. For example, I had clear lines before. I don’t have such sharp lines now.”(K5)

7. Themes and Categories Related to Differences in Meaningful and Valuable Concepts for the Individual

The question “What are the differences in the concepts that are meaningful and valuable to you in the period after the earthquake?” was asked to the adult individuals who were exposed to the earthquake disaster. Three themes and six categories were determined based on the answers given. In the theme of positive change, the categories of family relations, personal development, social relations and leisure time were determined. Social relations and entertainment categories were determined in the theme of negative change. There was one participant who stated that there was no change in the concepts that were meaningful and valuable to him. (Table 8)

Table 8

Changes in valuable concepts

Theme	Categories	Coding	Sample Answers
Positive Changes	Family	9	<p>“In the past, I didn’t think it was so important to call, ask and come together. Now, even with my distant relatives, I have more thoughts like I have to get together, I have to do something, I have to ask after them. I became more appreciative of my surroundings, family and friends.”(K12)</p> <p>“I had a different approach towards my family, my mother, my father and my sister. I have become more attached (...) I try to spend a lot of time with my children.”(K10)</p> <p>“I care more about spending time with my family and sisters. I believe that if we are going to die, let’s die together. I think it’s a good thing I wasn’t appointed. If I were in another city, I might not hear from them. Experiencing that disaster together gave me strength, it made me feel good not to be alone. No matter how great a disaster we experienced, our family ties became stronger.”(K4)</p>
	Relations		
	Personal Development		
Negative Changes	Social Relations	3	<p>“Now, as a family, we have decided to be more social people. We want to do everything we haven’t done. We want to visit all the places we haven’t been able to visit. Death is with us every moment.”(K13)</p> <p>“I am very tolerant towards my friends. Since losing my best friend was like losing a part of my childhood, I inevitably experienced differences such as taking care of my other friends, wanting to spend more time with them, being able to do more activities, and communicating more often with those who are far away.”(K14)</p>
	Leisure Time	3	<p>“...I took to go to the gym and start exercising, I walk.”(K10)</p>
There was no change.	Social Relations	4	<p>“...My social relations have decreased compared to the past.”(K1)</p> <p>“So before the earthquake, our friendship was close-knit. This has disappeared now that we live in another city. Apart from that, the family was in Antakya, my whole family was there and we always used to each other. We would see someone almost every day. Now it is over, I have no relatives here. My wife and I used to take time for ourselves, we used to travel and get together, but we can’t do that here anymore. We are alone and we don’t feel like doing anything.”(K11)</p>
	Entertainment	1	<p>“...For example, I used to watch a lot of movies before the earthquake, but now I stopped doing that, I don’t know why. When I watch a movie, I feel like I’m doing injustice to those around me. I try to make myself happy when I sit on the tablet or TV and watch TV series/movies, but there are people who suffer a lot, my relatives who lost their legs, those who lost their arms, those who lost their husbands and fathers... When I constantly think of them, I feel like I’m being unfair. I don’t feel comfortable with it, I don’t enjoy it.”(K11)</p>
There was no change.		1	<p>“There has been no change in this. I am the same in Ankara after the earthquake as I was before the earthquake in Hatay.”(K9)</p>

8. Themes and Categories for Behaviors That Make Life Dysfunctional

Adult individuals who were exposed to the earthquake disaster were asked, “What behaviors did you do that made your life dysfunctional in the period after the earthquake?” In line with the answers given, two themes and seven categories were determined. In the theme of dysfunctional behaviors, categories such as claustrophobia, crying spells, excessive cleaning, eating problems, sleep problems, increase in alcohol/cigarette use, and social isolation were determined. There are three participants who said they did not have any dysfunctional behavior. (Table 9)

Table 9

Dysfunctional behaviors

Themes	Categories	Coding	Sample Answers
Dysfunctional Behaviors	Claustrophobia	2	<p>“I didn’t want crowds, constantly hearing stories of wreckage shook me a lot, I tried to stay away for a while, and I didn’t want to meet anyone except my family. I was very scared while taking a shower. I started staying in the shower for five minutes if I was going to stay for half an hour. Fear of claustrophobia developed.”(K10)</p> <p>“...I couldn’t go to the bathroom and toilet alone.”(K6)</p>
	Crying Spells	2	<p>“...And I cried a lot, I cried all the time. I had crying fits. My tears flow involuntarily.”(K7)</p> <p>“...I cried all the time for two months.”(K6)</p>
	Excessive Cleaning	1	<p>“...In the following period, a cleaning obsession developed and there was constant cleaning and cleaning of windows.”(K2)</p>
	Eating Problems	2	<p>“...I didn’t eat for a long time.”(K13)</p> <p>“...Our eating behavior has changed. We started eating more in case there was an earthquake and we were left hungry under the rubble.”(K6)</p>
	Sleep Problems	5	<p>“Since the earthquake happened at night, I still cannot sleep in comfortable clothes, in case something happens. When I was sleeping comfortably, my sleep was disturbed because I thought something would happen at night and I would be left like that. I can’t sleep until late hours.”(K14)</p> <p>“Normally I would sleep in the dark. I don’t sleep in the dark right now. There must be light.”(K12)</p> <p>“Mostly sleep... I was in the village when I experienced this disaster. There was nothing around me to give hope. Just destroyed buildings, pitched tents, sad people... I didn’t see them when I slept. I still wake up jumping all the time in my dreams. It’s like I’m actually experiencing the earthquake again.”(K4)</p> <p>“I am a working woman. I also had a constant desire to sleep after the earthquake.”(K2)</p>
	Increase in Alcohol/Cigarette Use	2	<p>“At first, smoking behavior increased slightly...”(K3)</p> <p>“It was alcohol use, very clearly and sharply. I used to drink alcohol too, but now I drink alcohol almost five/six days a week. My smoking has increased a lot. But the most challenging thing is alcohol. While I used to feel happy when I drank two glasses, now this has doubled. It helps me fall asleep easier.”(K1)</p>
	Social Isolation	2	<p>“I locked myself at home. Normally, I would go out and walk around, go to the tea garden. I can say that I never left the house for six months after the earthquake. We were temporarily in Konya. I never left the house, just sat idle</p>

		and watched the news.”(K11)
		“I didn’t want crowds, constantly hearing stories of wreckage shook me a lot, I tried to stay away for a while, I didn’t want to meet anyone except my family.”(K10)
I had no dysfunctional behavior.	3	“Since I was the head of the family, I had to stand strong. There was no dysfunctional behavior in me.”(K8)
		“Although there are moments of bitterness from time to time, it hurts as memories are shared on social media, but I have never had any behavior that made my life dysfunctional.”(K9)
		“I did not have any dysfunctional behavior. Yes, it was a very big earthquake and we experienced it twice. I tried to recover in a short time because I did not lose many close people.”(K5)

Discussion and Conclusion

In this study, it was concluded that individuals exposed to the earthquake avoid the emotions of joy, happiness, love, sadness, anger and fear, and thoughts of loss of family members; suppress their thoughts; and avoid sexual needs and social relations, and are in a state of alertness. However, there are also participants who do not have avoidant thoughts or behaviors. Additionally, individuals exposed to the earthquake reported situations such as fear of loss, having nightmares, anxiety, hopelessness, constant repetition of negative thoughts, powerlessness/weakness, failure, fear of punishment, burnout, embarrassment, claustrophobia, crying spells, eating problems, increase in alcohol/cigarette use, sleep problems, social isolation, and excessive cleaning. There are also participants who state that their activities of entertainment and social relationships have been disrupted.

The fear that aftershocks will continue after an earthquake can affect the way individuals experience and express their emotions, and can also have an impact on their subsequent emotional state (Tural et al., 2004). Individuals who experienced trauma can avoid stimuli that may trigger the memories of the event. Individuals may show symptoms of overstimulation; shy behaviors, irrational beliefs and concentration problems may occur (Cofini et al., 2015).

In a study, it was concluded that individuals who were exposed to an earthquake became anxious with the feeling that an earthquake would occur at any moment, and that they felt unusual anxiety, fear, and alertness after the earthquake. In addition, the participants stated that their priorities regarding life changed after the earthquake, they redefined the meaning of life, their thoughts about life differed and they experienced nightmares. Again in the same study, participants stated that their daily routines changed after the earthquake, there were differences in their social relationships, they experienced sleep problems, and their functionality was disrupted (Şeker & Akman, 2014).

The individual’s trauma experience can be a trigger for psychiatric problems such as mood disorders, alcohol and substance abuse, sexual dysfunctions, sleep disorders, and physical symptom disorders. While these disorders may exist before the trauma history, the trauma caused by the earthquake may trigger these disorders. However, symptoms that existed before the trauma may be aggravated by the trauma experienced (Aker, 2006).

People affected by trauma may experience situations such as hesitating to stay in closed spaces and staying away from crowded environments because these are situations that remind them of the trauma (Sönmez, 2022). In a study conducted with individuals who had traumatic experiences such as earthquakes, tsunamis and some nuclear

accidents, it was stated that a significant portion of the exposed population was mentally affected (Matsubara et al., 2014; Niitsu et al., 2014). Additionally, it was determined that anxiety, depressive complaints, post-traumatic stress disorder, eating and sleep disorders were observed in individuals (Harada et al., 2015). Individuals who lose family members experience serious psychological distress compared to individuals who do not experience loss (Montazeri et al., 2005).

The change in individuals' environments after the earthquake also causes individuals to have to adapt to new conditions (Chou et al., 2007; Brewin et al., 2000; Karanci & Rüstemli, 1995). In this study, after the trauma experienced, individuals also stated that there had awareness of the value of life, awareness of new options, positive change in social relations, and change in the self-perception. Some of the participants also expressed the need to be in the present moment and take precautions. Positive changes as a result of coping with difficult life events are considered post-traumatic growth. The development and growth observed in the individual who survives a traumatic experience can occur in many different areas. These positive changes can be characterized by situations such as increasing the value of life, increasing individual power, interpersonal relationships becoming more meaningful, enriching existential life, and changing the values that are prioritized for the individual (Duman, 2019). It is emphasized that there is a strong relationship between psychological resilience and post-traumatic growth (Özçetin & Hiçdurmaz, 2017).

Psychological flexibility, which is the opposite of psychological rigidity, consists of the components of openness, awareness and participation. *Openness* is the individual's willingness to experience internal experiences that he considers unpleasant; *awareness* is the individual's ability to perform actions by consciously paying attention, without being on autopilot; *participation* is the individual's awareness of actions that are important and valuable to him, and his steps towards carrying them out (Francis et al., 2016; Strosahl et al., 2012). A study stated that psychological flexibility acts as a buffer in the relationship between the number of critical life events and their negative interpretation and depressive symptoms. Against depressive symptoms that may occur after an important life event, "being in the present moment, accepting internal experiences as they are, and taking action in line with values" can play a protective role for the individual (Fonseca et al., 2020).

In a study it is concluded that there is a strong, negative, and significant relationship between psychological flexibility and depression. Psychological flexibility reduces the perceived negative effects of depression symptoms (Fonseca et al., 2020). It was determined that, after returning from duty, military personnel with high psychological flexibility experience lower levels of post-traumatic stress and depression than other personnel (Bryan et al., 2015). Even when it comes to negative internal experiences, the individual's ability to be in the present moment and take action in line with his values is related to many aspects of the individual's psychological health (Kashdan & Rottenberg, 2010). High psychological flexibility functions as a protective factor in crisis situations. It is thought that practices aimed at increasing individuals' psychological flexibility will reduce psychopathological effects.

Recommendations

In this study, the concept of psychological rigidity was examined based on the theory of acceptance and commitment. The study was conducted with adult individuals exposed to earthquakes. This study can be conducted

using a different psychological scale and with different socio-demographic groups. A study on psychological rigidity can be carried out with individuals who experienced a different trauma.

Ethics Committee Permission

This study was ethically approved by the decision of the Necmettin Erbakan University Scientific Research Ethics Committee dated 08/12/2023 and numbers 2023–566.

Author Contributions

First author: Literature review, process of creating scale items, results and conclusions, data collection process.

Second author: Methodology, data analysis and results.

Conflict of Interest

The authors declare that they have no conflict of interest.

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