TRC JOURNAL OF HUMANITARIAN ACTION
https://doi.org/10.55280/trcjha.2024.3.1.0099

TÜRK KIZILAY

RESEARCH ARTICLE

Social-Cognitive Factors of Individual Earthquake Preparedness Behavior: A Scale Adaptation and Correlational Survey Research

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ABSTRACT

Improving individuals' disaster preparedness behaviors is critical to promoting sustainable disaster risk reduction. This survey-based research has two main objectives: (1) to adapt an Earthquake Preparedness Behavior Scale to Turkish based on Wang et al.'s Preparedness Behavior Scale and social cognitive scales for social trust, subjective norms, self-efficacy, outcome expectations, and risk perception and (2) to identify the correlational relationships the social-cognitive and demographic factors have with earthquake preparedness behavior. The psychometric properties of the scales are examined using exploratory factor and reliability analyses. The relationships among the variables are examined using the Pearson and Spearman correlation analyses. The study includes a sample of 496 participants from different cities in Türkiye. The results of the validity and reliability analyses show the psychometric properties of the Turkish forms of the scales to be quite good. The findings from the correlation analysis show preparedness behavior to generally not have strong relationships with social cognitive and demographic factors. According to the study results, social cognitive factors are generally related to earthquake risk perception.

ARTICLE HISTORY
Received April 3, 2024
Revised June 2, 2024
Accepted July 30, 2024

KEYWORDS
social cognitive theory • disaster risk reduction • preparedness behavior • risk perception • earthquake • scale adaptation

Earthquakes are severe and unpredictable natural disasters that often cause significant loss of life and economic losses (Ao et al., 2021). Due to the unpredictability of earthquakes, the magnitude of their impact, and the damage they cause, earthquake preparedness is crucial for minimizing the risks and damages associated with earthquakes (Metrikayanto & Valabia, 2021). Earthquakes can cause buildings to collapse, landslides, and the release of hazardous gases. Preparedness can help both individuals and communities take the necessary precautions to protect themselves and their environment. As such, earthquake preparedness includes having emergency supplies, developing an emergency communication plan, and knowing evacuation routes. These preparations can help individuals and communities respond quickly and effectively in the aftermath of an earthquake, ensuring that the necessary resources and assistance are mobilized immediately. In geographies where the preparedness of individuals and communities is low, the loss of life due to earthquakes can exceed estimates (Kurniawan et al., 2021). Therefore, earthquake preparedness is important for protecting lives, preventing injuries, reducing property damage, ensuring a rapid and effective response and recovery, increasing resilience, and promoting social cohesion (Davarani et al., 2023).

Individuals and communities can minimize earthquake-related risks and losses by being prepared (Metrikayanto & Valabia, 2021). A large body of literature shows that disaster preparedness is crucial for minimizing the impacts disasters have on societies. Although individual preparedness for earthquakes emerges as an important phenomenon, many factors exist that affect preparedness attitudes and behaviors. Research has shown that individuals who have experienced earthquakes are more likely to be prepared for future events (Habibi & Feld, 2020). In addition, increasing social trust can increase communities' preparedness for earthquakes (Ranjbar et al., 2018). Empirical evidence has also shown that improved forecasting techniques are

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To cite this article: Topal, M. H., Başpınar, A., & Güntürkün, M. (2024). Social-cognitive factors of individual earthquake preparedness behavior: A scale adaptation and correlational survey research. *TRC Journal of Humaratian Action, 3,* 71–104. https://doi.org/10.55280/trcjha.2024.3.1.0099

able to increase earthquake preparedness, especially during periods of increased probability of large earthquakes (Merz et al., 2020). Understanding how residents choose earthquake preparedness measures is also necessary for guiding preparedness efforts (Ao et al., 2022). Educating the masses through earthquake awareness campaigns is an important step toward developing earthquake-resilient communities (Dey et al., 2021). Furthermore, raising awareness about the benefits of earthquake preparedness can reduce physical and emotional harm to families (Kinanthi et al., 2023).

Individual earthquake preparedness is closely related to social cognitive factors, as various studies have shown. For example, the study that developed the Earthquake Preparedness Measurement Tool (Ranjbar et al., 2018) emphasized the impact of individual, social, and environmental factors on preparedness behavior. Among the factors affecting earthquake preparedness, risk perception comes first. Individuals who perceive a higher risk of an earthquake are more likely to prioritize and participate in preparedness activities (Rahman, 2019). This factor is followed by knowledge and awareness. Understanding the nature of earthquakes, their potential impacts, and the appropriate response steps to take motivates individuals to prepare for such events (Ranjbar et al., 2018). In addition, access to information and resources, social support, high self-efficacy beliefs, a perceived lack of barriers, and expectations of a positive outcome can help individuals mobilize and prepare for earthquakes (Rahman, 2019). Studies are also found to have shown how social factors interact with the way individuals make sense of earthquake information, as well as how this influences subsequent earthquake preparedness behavior (Becker et al., 2014). A strong intention to be prepared for an earthquake has been shown to be predicted by more positive attitudes toward and more supportive subjective norms regarding earthquake preparedness (Vrselja et al., 2022). Meanwhile, the unit value of housing and individuals' educational levels have been found to be factors that positively affect participants' earthquake preparedness (Wu et al., 2018). These findings are consistent with the argument that a universal cross-cultural equivalence exists regarding how hazard beliefs and social characteristics interact for predicting the degree to which people will adopt earthquake preparedness measures (Paton et al., 2010). Again, a systematic review was conducted to identify social cognitive theory constructs in research on households' earthquake preparedness (Davarani et al., 2023). In conclusion, the literature provides important evidence that individual earthquake preparedness can be explained by social cognitive factors.

The Turkish national literature has some studies that were conducted to measure and compare individuals' earthquake preparedness levels (Oral et al., 2015). These studies often assess the impact that previous earthquake experiences, cultural factors, and social influences have on earthquake preparedness (Joffe et al., 2013; Joffe et al., 2019; Öcal & Topkaya, 2011). Among the earthquake survivors in Türkiye, anxiety about future earthquakes, perceived control, and social trust were found to be important predictors of preparedness behavior (Aleskerov et al., 2005; Karanci et al., 2005). In addition, participation in earthquake preparedness efforts in the Turkish context has tended to be low due to various cultural and sociological factors (Wu et al., 2018). Moreover, factors such as education level, living in earthquake-prone areas, participation in rescue and solidarity activities, high earthquake knowledge, and home ownership have been identified as important determinants of preparedness in Istanbul (Moon et al., 2019). The literature has also emphasized the importance of increasing individuals' awareness of earthquake preparedness as an important variable regarding attitudes toward preparedness intentions (Ranjbar et al., 2018). However, some studies have reported low levels of individual and societal earthquake preparedness among people living in earthquake-prone areas in Türkiye, despite the public efforts and significant expenditures on educational activities (Ardalan & Sohrabizadeh, 2016).

The national literature also provides a comprehensive understanding of individual earthquake preparedness, emphasizing the influence of cultural, social, and psychological factors on preparedness behaviors. As Çinği and Yazgan (2022) emphasized, however, the need still exists for culturally adapted instruments and native language instruments for collecting more reliable information on earthquake preparedness due to the scarcity of research in the literature. In this context, the primary aims of this study are to conduct a Turkish language adaptation of the scales on individual preparedness behavior and on the social cognitive factors related to preparedness behavior and to evaluate the psychometric adequacy of the related scales. The psychometric adequacy of six scales measuring preparedness behavior, risk perception, social trust, subjective norms, self-efficacy, and outcome expectations has been validated through exploratory factor and reliability analyses. The second part of the study then goes on to examine the relationships among the five social cognitive factors, the participants' sociodemographic characteristics, and their preparation behaviors through correlation analyses.

The study consists of this introductory section followed by three main chapters and a discussion section. Chapter 1 introduces the theoretical framework and empirical evidence from previous studies on the relationships that social cognitive factors have with participants' sociodemographic characteristics and individual earthquake preparedness behaviors. The second chapter introduces the research procedure and research methodology of this study. The third chapter reports the results of the empirical investigation of this study. The paper concludes with a Discussion section discussing the empirical findings.

Literature Review

Social-cognitive theory (SCT) is a theoretical framework that analyzes human motivation, thought, and action and adopts an interactive causal model in which behavior, cognition, personal factors, and environmental influences operate bidirectionally. SCT emphasizes the role of observational learning, self-efficacy, and self-regulation in shaping human behavior (Bandura, 1999). The theory has been adapted to many fields, including mass communication, career and academic interest, choice and performance, telehealth systems, and social cognition in schizophrenia. SCT also provides a valuable framework for understanding the cognitive and social factors that influence disaster preparedness.

The relationship between disaster preparedness and social-cognitive factors is multifaceted and covers various dimensions. For example, many studies have emphasized the role social cognitive factors such as risk perception, self-efficacy, social capital, and knowledge have in shaping individuals' disaster preparedness (Adams et al., 2019; Azali & Ludin, 2020; Davarani et al., 2023; Hasegawa et al., 2018; Reininger et al., 2013; Sugisawa et al., 2017; Wang et al., 2021). These studies particularly recognize the importance of understanding how social cognitive factors influence individuals' attitudes, behaviors, and decision-making processes related to disaster preparedness. Moreover, the relationship between disaster preparedness and social cognitive factors extends to various contexts, such as households, communities, healthcare delivery settings, and public policies. Some studies have also investigated the impact of social-cognitive factors on disaster preparedness among population groups such as individuals with disabilities, older adults, and healthcare providers (Adams et al., 2019; Azali & Ludin, 2020; Hasegawa et al., 2018; Reininger et al., 2013; Sugisawa et al., 2017). Furthermore, the role social cognitive factors have in shaping disaster preparedness behaviors and intentions has been examined under a variety of settings, including natural hazard-prone areas, tourism accommodations, and urban environments (Emaliyawati et al., 2022; Gershon et al., 2016; Muttarak & Pothisiri, 2013; Nurjanah & Rezza, 2021; Priyanti et al., 2019; Rizal, 2021; Sahadev et al., 2023; Sandanam et al., 2018; Tang & Feng, 2018). In conclusion, the relationship between disaster preparedness and social cognitive factors is complex and multifaceted and has a rich volume of literature.

Social Trust

Trust can be defined as the trustor's positive evaluation of the trustee and the belief that the trustee's behavior is beneficial for the trustor. The presence of trust makes the trustor willing to engage in behaviors created by trust (Cai et al., 2023). Individuals can develop a sense of trust through the sources of social information provided by the social environment, which in turn shapes social trust. Social trust (ST) refers to the trust and belief that individuals have in the trustworthiness, honesty, and benevolence of those in their social networks and society at large. In the context of disasters, ST plays an important role in influencing various aspects of disaster preparedness, response, and recovery. Empirical evidence has highlighted the importance of ST in disaster-prone areas, suggesting that it can be associated with a community's ability to effectively plan and respond to disasters (Reininger et al., 2013). Furthermore, post-disaster social capital that includes trust has been shown to facilitate collective action and enhance the ability of communities to recover after disasters, demonstrating the role ST has in enabling collective community action and recovery (Mukherji, 2014).

However, questions remain regarding the impact disasters have on ST, as some studies have shown a decrease in social ties and trust after a disaster, while others have found an increase in altruism and volunteerism after a disaster (Lee, 2020). This highlights the complex and dynamic nature of ST following disasters, one that is influenced by various contextual factors. Moreover, ST has been identified as an important factor in influencing levels of disaster preparedness, as beliefs about the effectiveness of disaster preparedness interact with social context factors, including trust, to influence preparedness behaviors (Paton et al., 2009). Moreover, social influences that include trust have been found effective in making meaning and being prepared for earthquakes. This underlines the role ST has in shaping disaster preparedness and response (Becker et al., 2014). In general, ST plays a multifaceted role in the context of disasters by influencing community resilience, collective action, and individual preparedness behaviors, and understanding ST dynamics in disaster-affected communities is essential for developing effective strategies for disaster management and recovery.

Empirical evidence has revealed an important relationship between ST and preparedness behavior in the context of disasters. For example, one study on earthquake preparedness in households in Tehran found ST to be the most important predictor of preparedness behavior and preparedness intention (Ranjbar et al., 2018). This emphasizes the effective role ST has in individuals' preparedness actions against earthquake risks. In addition, a study on the impact of the "false shepherd" effect on community preparedness and the effectiveness of early warning systems found that recent false

alarms had negatively affected preparedness actions, pointing to the impact that a community's collective trust has on community responses to warnings (Sawada et al., 2022). This shows the influence trust has on preparedness behaviors at the community level. Bixler et al.'s (2021) study of US households found the strength of bonding social capital (i.e., personal networks, neighborhood cohesion, and trust) to be positively associated with harm reduction behavior and social vulnerability to be negatively associated with risk perception. Han et al. (2021) examined risk perception and preparedness through the concept of trust in a study conducted with survivors of the Wenchuan earthquake and showed ST to have an important place in terms of individual and household preparedness for earthquakes.

Subjective Norms

Subjective norms (SNs) refer to the social pressure people experience to perform certain behaviors (Ajzen, 1991). This social pressure originates from people whose opinions, expectations, and relationships with them are valued, such as by family members, close friends, or colleagues (Cai et al., 2023). In the context of disasters, SNs play an important role in influencing individuals' preparedness behaviors and responses to disaster events. Empirical evidence from various studies supports the relationship between SNs and disaster-related behaviors. For example, a systematic review of factors related to earthquake preparedness (Davarani et al., 2023) found higher SNs to be associated with stronger attitudes toward preparedness and increased preparedness behaviors toward disasters. Similarly, a study on earthquake preparedness intention among residents of Croatia showed the SNs of earthquake preparedness to increase the intention to engage in such preparedness (Vrselja et al., 2022). Furthermore, a study on evacuation attitudes of disaster survivors revealed that perceived social approval, an SNs component, is a determinant of evacuation behavior (Strang, 2014).

Some studies have examined the relationship between SNs and preparedness behavior under various contexts and provided strong evidence for the relationship between them. For example, some studies have examined the direct relationship between SNs and earthquake preparedness and shown earthquake preparedness intention (Vrselja et al., 2022) and behavior (Matha et al., 2022) to be predicted by SNs. Becker et al. (2014) emphasized the complexity of the relationships between variables in models on the meaning of earthquake information and household preparedness and revealed social influences to play a role in shaping preparedness behavior. Ong et al. (2021) examined the factors affecting the intention to prepare for a major earthquake in the Philippines. As a result, their research determined the most important of these factors to be SNs. Zaremohzzabieh et al. (2021) aimed to analyze the earthquake preparedness of households in Malaysia and concluded attitudes, SNs, community involvement, and community-institutional trust to be important predictors of households' intention to be prepared for earthquakes.

Self-Efficacy

Outcome expectancies and self-efficacy (SE) are cognitive factors of SCT. SE indicates whether an individual is able to adapt and/or cope with any difficulty or problem (Davarani et al., 2023). In the context of disasters, SE refers to an individual's perceived ability to respond effectively to certain hazards when they occur. SE also plays an important role in influencing disaster preparedness and response behaviors. Empirical evidence from various studies supports the importance of self-efficacy in disaster-related contexts. For example, Kamanyire et al. (2021) showed SE to be an important determinant of disaster response, with measures being necessary to increase disaster self-efficacy in nursing students. Wang et al. (2021) determined SE to directly promote disaster preparedness and to play a mediating role between other variables such as place attachment and disaster preparedness behaviors. Adams et al. (2019) emphasized the importance of SE in shaping preparedness behaviors by showing it to significantly mediate the relationship between self-evaluated health and disaster preparedness. Tang and Feng (2018) associated SE with response adequacy and barriers, behavioral intentions, and disaster preparedness behaviors in the context of earthquake preparedness. Meanwhile, Kinanthi et al. (2023) identified SE as an important factor for increasing students' earthquake preparedness and emphasized its role in promoting preparedness behaviors. Marceron and Rohrbeck (2018) pointed out how SE motivates individuals to take precautionary steps to reduce the negative health effects of natural and man-made disasters, as well as how it affects proactive behaviors in reducing disaster risk. Schyns (2004) also found SE to be positively associated with initiative taking and emphasized its role in influencing proactive behaviors and preparedness. Weber et al. (2023) found both inverse and positive relationships between disaster SE and disaster preparedness, indicating higher levels of SE to increase preparedness behaviors. Yu et al. (2020) investigated the respective mediating and moderating roles of individuals' disaster preparedness knowledge and SE in Shaanxi province of China and showed those with higher levels of SE to be more likely to prepare for disasters after receiving disaster risk reduction information from village authorities; however, this effect was not significant for villagers with lower SE levels.

Outcome Expectations

Outcome expectations (OEs) are a judgment about the likely consequences of an action or a motivation that encourages people to engage in a particular behavior (Cai et al., 2023). In the context of disaster preparedness and disaster management, OEs refer to the foreseeability of possible outcomes from certain actions or measures (Davarani et al., 2023). OEs play an important role in influencing individuals' decisions regarding preparedness measures and their responses to disaster events (Fullerton et al., 2010). These expectations are influenced by various social, cultural, and spiritual factors, as well as past experiences and perceptions of such events (Fullerton et al., 2010). Moreover, the performance and outcomes of disaster management are significantly related to OEs, as is satisfaction with property loss and government compensation (Pang et al., 2022). The consequences of disaster experiences are meaningful aspects defined from the perspectives of highly traumatized disaster survivors and emphasize the importance of understanding the subjective experiences and consequences of individuals who've been affected by disasters (Lee et al., 2022). Moreover, the relationship between OEs and disaster management is also influenced by the social context, with evidence suggesting that this context plays an important role in influencing individuals' decisions on whether or not to prepare for disasters (Sagala et al., 2009). Overall, OEs are crucial in shaping individuals' and communities' responses to disasters, in influencing preparedness measures, and ultimately in affecting the outcomes of disaster management efforts. The relationship between OEs and preparedness behavior has been empirically demonstrated in various contexts. For example, Davarani et al.'s (2023) systematic review of factors related to earthquake preparedness found higher positive OEs to be associated with increased disaster preparedness intentions and behaviors, while higher negative OEs are associated with decreased preparedness intentions and behaviors. In addition, Hong et al. (2022) showed SE as a form of OE to be positively associated with individuals' stages of emergency preparedness, including individual preparedness and cooperation.

Risk Perception

Risk perception (RP) is often one of the most discussed concepts in the field of disaster risk management. RP refers to an individual's or group's intuitive judgment based on awareness, emotion, and behavior to assess the probability of occurrence and consequences of natural disasters (Le et al., 2021). Ho et al. (2008) explained the impact that disaster characteristics have on RP based on the importance of victim characteristics and disaster type with regard to shaping RP. Other studies have suggested disaster RP to be influenced by various factors such as disaster experience, with traditional and social networks contributing to shaping individuals' perceptions of disaster risks (Xu et al., 2020; Xue et al., 2021). Moreover, RP is influenced not only by individual factors but also by sense of place (Xu et al., 2017) and social capital (Reininger et al., 2013; Xu et al., 2017). RP's multifaceted nature has also been pointed out in studies emphasizing how financial preparedness and disaster experience significantly influence households' disaster RP (Le et al., 2021; Reininger et al., 2013). As a result, RP is recognized to play a critical role in disaster management and decision-making processes, and various factors such as disaster characteristics, individual experiences, social networks, and financial preparedness are seen to influence disaster RP.

The relationship between RP and preparedness behavior has been the subject of empirical research in various contexts. While some studies have suggested a weak or statistically insignificant link between RP and preparedness behavior (Wachinger et al., 2012), others have argued a positive relationship to exist between RP and precautionary behavior (Bubeck et al., 2012). For example, research on disaster preparedness behavior in the context of typhoons has highlighted RP as having a central role (Ng, 2022). In a study on earthquake preparedness after the Meinong Taiwan earthquake, Tang and Feng (2018) found higher RP to tend to result in more realistic behaviors regarding disaster preparedness. However, some findings from studies on the relationship among prior experience, preparedness, and RP in disaster situations remain inconsistent (Bronfman et al., 2020). Similarly, research on children's earthquake preparedness and RP has revealed the relationship between RP and preparedness to perhaps be non-existent or weak (Yildiz et al., 2020). On the other hand, a study conducted in southwest China provided an understanding of the relationships RP and sense of place have with disaster preparedness in farmer households threatened by geological disasters (Li et al., 2018). Furthermore, research on the disaster RP of rural residents in a multi-disaster environment revealed residents' anxiety and perceptions of flood risk probability to be positively associated with prevention preparedness (Xue et al., 2021). A study in China found RP to have a weak effect on emergency preparedness behaviors (Ning et al., 2021). In conclusion, the empirical evidence on the relationship between RP and preparedness behavior varies, with some studies suggesting a positive correlation and others suggesting a weak link.

Sociodemographic Characteristics

The relationship between individuals' sociodemographic characteristics and earthquake preparedness has been the subject of much research. Studies have shown variables such as gender, age, marital status, education level, economic status, and home ownership to be associated with earthquake preparedness (e.g., Rostami-Moez et al., 2020; Russell et al., 1995). According to studies' results, people with physical disabilities and their families and individuals with poorer social status or human resources have been determined to possess lower beliefs, intentions, knowledge, and disaster preparedness behaviors (Cai et al., 2023; Davarani et al., 2023). In general, people with higher education and income levels have been reported to be more prepared for disasters due to their higher SE. The effect of gender and age on preparedness behavior is inconclusive. Some studies (e.g., Armaş et al., 2017; Hong et al., 2020) have found men and young people to have more reasonable beliefs, intentions, and disaster preparedness behaviors, while other studies (Adams et al., 2017; Xu et al., 2015) found women and the elderly to report more preparedness behaviors and intentions due to their higher RP and tendency to take responsibility. In addition, the impact that factors such as earthquake experience, fatalistic beliefs, and lack of physical capabilities have on earthquake preparedness has also been examined (e.g., Liu & Sun, 2021; Shapira et al., 2016; Sun & Xue, 2020). However, the findings differ significantly. These differences regarding studies' findings may be due to the varying cultural, social, and economic contexts of the study samples.

Methodology

Scale Adaption, Sample and Data Collection

Turkish Adaption of Scales and Face Validity. The study collects its research data using the quantitative method. Before administering the questionnaire, the scales used in the study were translated into the participants' native language, and the statements were adapted to the Turkish culture. Prior to translation, permission was requested from the various authors (see Table 1) who'd developed/used the scales regarding their use in this study. The study then ensured the language validity of the scales by applying the translation-retranslation technique with the help of experts competent in the Turkish and English languages. Firstly, two experts independently translated the scales into Turkish and agreed on the final version by making final checks. Two different experts then independently back-translated the scales from Turkish to English and agreed on the final reversion. The original and back-translated versions of the scales were checked and finalized by a certified professional translator. The face validity of the scales was assessed by one psychology expert and one sociology expert. The two experts worked together on the back-translated form to check and finalize the statements for comprehensibility by the target group and for cultural equivalence.

Sample and Data Collection. The research population consists of individuals aged 18 and older. When the exact population size is unknown and there is no prior information about the proportions of people with or without a particular characteristic (p and q), assuming p and q to be 0.50, the sample size required for a population exceeding one million, at a 95% confidence level, is 384 (Kortlik et al., 2001). The sample units were selected using convenience sampling, a non-probability sampling method. The questionnaire includes Turkish-adapted scale statements (51 in total) and sociodemographic questions (8 questions); it was transferred to the online environment using Google Forms, after which an online link to the questionnaire was shared with the target audience on digital platforms (e.g., e-mail, X, WhatsApp). The survey remained available from November 6-December 5, 2023, with 496 people from the target group being included in the sample.

The questionnaire consists of an online consent page and two parts. The informed consent page includes a brief explanation of the purpose of the study and instructions on how to complete the questionnaire, as well as an estimated time to complete it. In addition, the consent page assures participants that the data will only be used for scientific research, that their answers will remain confidential, and that their anonymity is guaranteed. All participants were informed about these matters and were permitted to complete the questionnaire only after giving their consent. The first part of the questionnaire includes a total of 51 statements measuring participants' social trust (ST), subjective norms (SNs), self-efficacy (SE), outcome expectations (OEs), risk perception (RP), and preparedness behaviors. The second part of the questionnaire includes close-ended questions to determine some of the participants' demographic characteristics (i.e., gender, age, education, monthly household income, home ownership, earthquake experience, fatalism, and presence of vulnerable household members).

After the data collection tool was prepared, ethics committee approval was granted by the National Defense University on July 21, 2023.

Instruments

This study deals with the social and cognitive factors of individual earthquake preparedness and uses a total of six scales as data collection tools. Five of the scales are related to the social and cognitive factors affecting individual preparedness for an earthquake, while one scale evaluates the participants' individual preparedness behaviors through different dimensions. Table 1 shows the names, numbers of dimensions and items, measurement levels, and sources of the research scales.

Table 1

The Research Instruments

Scales	No. of Dimension	No. of Items	Measure	Variable Type	Source
Social Trust **(ST)**	1	3	Likert	continuous	Bixler et al. (2021)
Subjective Norms **(SNs)**	1	3	Likert	continuous	Chai et al. (2023)
Self-Efficacy **(SE)**	1	7	Likert	continuous	Armaş et al. (2016)
Outcome Expectations **(OEs)**	1	6	Likert	continuous	Adams et al. (2017)
Risk Perception **(RP)**	3	14	Likert	continuous	Ao et al. (2021)
Preparedness Behavior **(PB)**	3	18	Binary	categorical	Wang et al. (2021)

The Social Trust (ST) Scale. This scale was adapted from the Social Capital Scale developed by Bixler et al. (2023). Participants' ST levels are measured through three items. The scale items measure the participants' general trust in the people in the neighborhood where they live, the willingness of the people in the neighborhood to help, and the participants' levels of feeling safe. Participants' responses are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Subjective Norms (SNs) Scale. The Subjective Norms Scale was adapted from Chai et al.'s (2023) study. The scale consists of three items that measure whether family and relatives, close circles, social groups, and the media are effective regarding the participants' earthquake preparedness. Participants' responses are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The Self-Efficacy (SE) Scale. This scale was adapted from Armaş et al. (2016). The 7-item Self-Efficacy Scale measures participants' SE levels in the face of difficulties. The items are generally related to participants' capacity and skills for coping, managing, and feeling safe in the face of earthquakes and/or other difficulties. Participants' responses are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Outcome Expectation (OEs) Scale. This scale was adapted from Adams et al. (2016) and has six items. The scale's items are related to the participants' evaluations of whether some precautions to be taken before and after an earthquake (e.g., preparing an earthquake bag, securing furniture, cooperating with people) will provide practical benefits during or after an earthquake. Participants' responses are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The Risk Perception (RP) Scale. This scale was adapted from Ao et al.'s (2021) study. The scale consists of three dimensions and 14 items. The first dimension of the scale has six items and measures RP toward the psychological effects of an earthquake (e.g., panic, confusion, anxiety, stress, fear, and tension). The second dimension of the scale also has six items and measures RP toward the consequences of an earthquake (e.g., perception of disaster, state of alertness, being directly affected, susceptibility to earthquake aftershocks, negative long-term consequences, and sensitization to earthquake tremors). The third dimension of the scale has two items and measures the RP of earthquake occurrence (risk of severe earthquake and living in an earthquake-prone area). Participants' responses are measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Preparedness Behavior (PB) Scale. This scale was adapted from the study of Wang et al. (2021). The scale has three dimensions and 18 items. The first dimension of the scale has seven items and measures the participants' individual earthquake preparedness behaviors in terms of materials and equipment (e.g., smartphone, earthquake kit, flashlight, adequate water and food, medical supplies, and special needs). The second dimension of the scale has seven items that measure the participants' levels of individual earthquake preparedness in terms of behavior (e.g., emergency plan preparation, basic earthquake knowledge, training and drills, family agreements. The third dimension of the scale has four items and measures the participants' individual earthquake preparedness behavior in terms of awareness (e.g., knowing the emergency meeting place and emergency phone number, being able to ask for help, knowing the emergency exit and evacuation route). Participants' responses are measured binarily (No = 0, Yes = 1).

Statistical Analysis

This study conducts a three-stage statistical analysis (see Figure 1) and uses the programs Statistical Package for Social Sciences (SPSS v.21) and FACTOR[1] to statistically analyze the collected data.

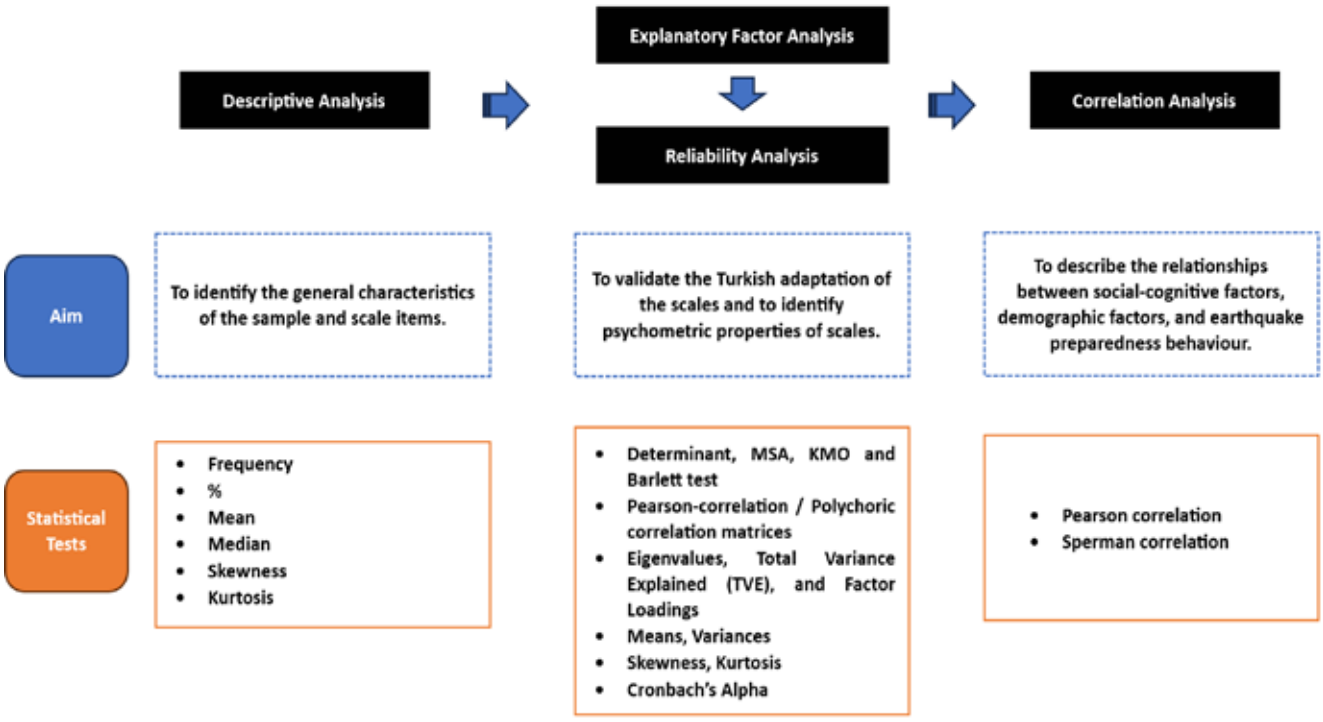

Figure 1. Statistical analysis procedures.

The first stage of the data analysis process applies the frequency analysis and other descriptive analyses. Frequency and descriptive analyses provide an understanding of the characteristics of the sample and the data structure of the research variables by presenting the frequency, percentage (%), mean (*M*), median, standard deviation (*SD*), and skewness and kurtosis values of the observations of the question statements. Knowing the data structure of the variables also gives an idea about which statistical procedures and techniques should be followed in the next stages of the analysis. For example, if the observations of the scale items are not normally distributed, different correlation matrices (e.g., polychoric or tetrachoric correlation) should be used in the factor analyses instead of the classical Pearson-correlation matrix (Aletras et al., 2010; Benazzi, 2008; Stewart, 2021). Also, if the variables are not normally distributed in correlation analyses, alternative correlation analysis techniques should be applied instead of the Pearson correlation analysis. Descriptive statistics such as skewness and kurtosis give an idea about normality. The fact that both skewness and kurtosis statistics are zero indicates that the data are normally distributed. However, skewness and kurtosis statistics often have non-zero values. Therefore, acceptable ranges have been set for these statistics. However, no consensus exists among authors as to what these ranges should be (Demir, 2022). For example, some sources have suggested a range of ±2 (e.g., Gravetter et al., 2021), while others have suggested a range of ±1.5 (e.g., Tabachnick & Fidell, 2013) or ±1 (e.g., Howel, 2007).

1 FACTOR is an open-source program available at http://psico.fcep.urv.es/utilitats/factor/index.html

The second stage of the analysis applies an explanatory factor analysis (EFA) and reliability analysis to complete the Turkish adaptation of the scales and to determine the psychometric adequacy of the scales. EFA is one of the basic types of analysis applied to determine the construct validity of a scale. This study conducts the EFA by following a three-step process. In the first step, four single-factor scales (ST, SNs, SE, and OEs scales) are evaluated together under a single structure. In the second phase of the analysis, exploratory factor analysis (EFA) and reliability analysis were conducted to complete the Turkish adaptation of the scales and to assess their psychometric properties. EFA, a method used to determine the construct validity of a scale, was applied separately for three different measurement models (theoretical constructs) in this study. The first construct examined was the social-cognitive framework. The subdimensions of this framework include ST (social), SNs (environmental), SE (personal-cognitive), and OEs (personal-cognitive), which were evaluated together under a single construct due to their interrelatedness. Various social theories, such as social-cognitive theory, the planned behavior model, social identity theory, and peer influence theory, also suggest significant interrelations among social-cognitive factors. Bandura's (1999) Social Cognitive Theory asserts that personal, behavioral, and environmental factors are interconnected and mutually influential, a concept known as reciprocal determinism. This theory highlights how cognitive processes (like self-efficacy and outcome expectations) interact with social and environmental contexts to shape behavior. Similarly, Ajzen's (1991) model of planned behavior indicates that the intention to perform a behavior is influenced by attitudes towards the behavior, subjective norms (social pressures), and perceived behavioral control (self-efficacy), illustrating the interplay between individual cognition and social context. Social identity theory (Tajfel et al., 1979) explores how social factors influence cognitive aspects of identity and behavior through processes like self-categorization and social comparison. Additionally, studies such as Ryan (2000) have shown how peers (social and environmental factors) affect an individual's cognitive processes and behavior. The second and third theoretical constructs are risk perception (RP) and preparedness behavior (PB), respectively. For these two three-dimensional scales, factor analysis was conducted separately during the second and third steps of EFA.

The EFA uses the determinant (D) of correlation matrices, measures of sampling adequacy (MSA) correlations, Kaiser-Meier-Olkin (KMO) statistics, and Bartlett's test of sphericity to assess observation adequacy. In order to talk about sampling adequacy, values must be , , and and the null hypothesis in Bartlett's test (H_0 = *correlation matrix is identical to unit matrix*) must be rejected ($p < 0.05$; Bektaş, 2017; Burns et al., 2023; Ekşi et al., 2021). Due to the items from the scales other than the PB scale being continuous variables and the observations of the items meeting the normality condition (Borsboom et al., 2003), factor estimation was performed using the principal component analysis (PCA) method. Principal Component Analysis (PCA) is a commonly employed dimension reduction technique in Exploratory Factor Analysis (EFA) research. PCA aims to succinctly reconstruct the covariance or correlation matrix of the given dataset by identifying patterns that highlight the similarities between variables. It operates on the premise that components (or factors) are linear combinations of the observed variables and seeks an orthogonal basis that maximizes the variance of these projections across the entire dataset. This deterministic solution is achieved through eigen decomposition or singular-value decomposition of the covariance or correlation matrix (Johnson et al., 2020). Also, due to a latent structure with more than one factor being expected in the data analysis, the factor rotation technique was applied. This study has preferred oblique rotation (Dominguez et al., 2023) because the factors were allowed to be correlated with each other. Factor estimation for the PB Scale was performed using the unweighted least square (ULS) technique (Li et al., 2016), which is an appropriate factor estimation method for categorical and non-normally distributed variables. Again, due to the PB Scale being expected to have a structure with more than one factor, factor rotation was applied, with this study preferring the Promin rotation technique to do this.

In order to determine the appropriate number of factors, Kaiser's rule was followed, the eigenvalues for the variables were taken into account, and the appropriate number of factors was finalized with the percentage of total variance explained (TVE). The general principle in EFA is to have an appropriate number of factors meet the conditions of Eigenvalue > 1 and TVE > 0.60 (Bektaş, 2017; Du Bois et al., 2023). Factor loadings are the correlation coefficients between the dimensions/factors of the construct and the scale items. The lower limit for acceptable factor loadings is controversial in the literature. In social sciences, the condition of loading ≥ 0.40 (40%) is the most commonly adopted view (e.g., Sackey et al., 2023; Türkdoğan-Görgün et al., 2023). However, depending on the number of dimensions expected for the construct and the size of the sample, a lower limit of at least a 30% factor loading is considered accepted (Bektaş, 2017; Pichardo et al., 2023). Meanwhile, if an item is cross-loaded onto two or more factors, the difference between the factor loadings of the item is expected to be at least 10% (Büyüköztürk, 2007). However, according to some

authors (Du Bois et al., 2023), if an item cross-loads at 30% or higher on more than one factor, this item should be considered strongly related to more than one factor and should be removed from the relevant scale. Another condition of psychometric adequacy is that the scales should be sufficiently reliable. This study has checked the reliability levels of the scales using Cronbach's alpha, which is the most preferred in practice. Cronbach's alpha evaluates the internal consistency among the items in the measurement tool. In general, an alpha coefficient of 0.70 and above[2] is considered sufficient for reliability, and as alpha approaches 1, the internal consistency and reliability levels of the scale increase (Burns et al., 2023; Ekşi et al., 2021).

The third and final stage of the analysis applies correlation analyses to determine the correlational relationships that the social cognitive factors and demographic variables have with PB Due to the social cognitive factors and PB being continuous variables[3] and being normally distributed, the study examines the relationships between the variables using the Pearson correlation analysis. The correlational relationships between the demographic and other variables have been analyzed using the Spearman correlation analysis.

Results

Descriptive Analysis

Participants' Demographic Characteristics. The study sample consists of a total of 496 participants (see Supplementary Materials, Table A). Of the respondents, 55.6% are female (n = 276), and 44.4% are male (n = 220). The respondents are mainly young or middle-aged (n = 473; 97.4%). A very small percentage of respondents are over middle age (n = 13; 2.6%). About two thirds of the respondents have an associate's or bachelor's degree (n = 336; 67.7%). The respondents with relatively lower levels of education (high school or below) account for about one fifth of the total respondents (n = 112; 22.5%). Very few respondents have a high monthly household income (n = 46; 9.3%). In general, participants have low (n = 193; 38.9%) or moderate (n = 205; 41.3%) income levels. Approximately 10% of the respondents (n = 46) reported having a household monthly income level below the hunger threshold. Although the household income level of most of the participants is not high, more than half of them are homeowners (n = 276; 55.6%). A significant proportion of the participants (n = 350; 70.6%) have experienced moderate or high intensity earthquakes before. On the other hand, most of the participants (n = 361; 72.8%) believe that the effects of earthquakes are not a fate for humanity. However, a significant number of respondents still consider the effects of earthquakes as fate. Disabled and elderly people in need of care are among the vulnerable groups when facing an earthquake disaster. Approximately 12% of the respondents (n = 59) live with elderly or disabled individuals in need of care in their households.

Descriptive Statistics of the Items. Table 2 shows the spread of values, such as mean, median, *SD*, and skewness and kurtosis, for the responses to the 51 statements. When analyzing the median values for the Likert scale responses, the participants' responses are concentrated in the partially agree (= 3) option in terms of social trust (ST), subjective norms (SNs), and self-efficacy (SE). Participants' responses regarding risk perception (RP) show heterogeneity at the statement level. While some responses were concentrated at the partially agree level, some responses were concentrated on the agree (= 4) level. The participants' responses to outcome expectations (OEs) were generally concentrated at the agree level (= 4). These results indicate that the participants do not have a positive assessment in terms of ST, SNs, and SE, but they have assessed that the measures to be taken before and after the earthquake have positive effects. In terms of what should be perceived as a risk, options exist that the participants are sure about and others that they are not sure about.

The average scores for the ST statements vary between 2.9-3.24 out of 5. Although the participants feel secure to a certain extent, their average level of social trust in their environment is weak. The means regarding the SNs statements range between 3.04-3.31. According to this finding, the media is relatively more influential over participants' decisions than their family, relatives, and social circles (traditional or social). The means for the SE statements vary between

2 For categorical variables, alternative statistics such as standardized Cronbach's alpha or McDonald's omega should be preferred.

3 During the correlation analyses, the sums and scale averages of the PB items were taken into consideration and transformed from a categorical variable form to a continuous variable form.

2.88-3.41. The participants' self-efficacy in the face of disaster or adversity is not generally strong, but at least they have an idea of what to do. The means for the OEs statements vary between 3.51-4.07. The participants believe that some precautions to be taken before and after the earthquake would be useful. In particular, they think that stabilizing the furniture and objects in the house before an earthquake would be very useful. The means for the RP statements vary between 2.92-4.05. The participants agree that the earthquakes they have experienced or witnessed before and its effects are considered disasters. However, they are undecided about the risk of an earthquake[4] in the region where they live being very high. When collectively evaluating the averages for the other statements related to risk perception, the participants are seen to think that if an earthquake occurs, they will experience stress and fear and that they will be negatively affected by the earthquake in the long term.

Table 2

Item Descriptions

Code	Short description	*M*	Median	*SD*	Skewness	Kurtosis
Social Trust (ST)						
ST1	general trust	2.90	3	1.14	-0.02	-0.72
ST2	solidarity	3.09	3	1.16	-0.27	-0.69
ST3	confidence	3.24	3	1.26	-0.33	-0.86
Subjective Norms (SNs)						
SN1	family and relatives	3.04	3	1.22	-0.19	-0.92
SN2	social environment and groups	3.16	3	1.23	-0.35	-0.85
SN3	Media	3.31	3	1.18	-0.45	-0.60
Self-efficacy (SE)						
SE1	coping with	2.88	3	1.09	0.00	-0.56
SE2	what must be done	3.41	3,5	1.09	-0.49	-0.23
SE3	able to manage	3.28	3	1.12	-0.33	-0.,48
SE4	capability	3.31	3	1.10	-0.37	-0.35
SE5	readiness	3.13	3	1.18	-0.22	-0.77
SE6	individual circumstances	2.89	3	1.18	0.03	-0.82
SE7	feeling safe	2.99	3	1.24	-0.19	-0.96
Outcome Expectations (OEs)						
OE1	earthquake kit	3.99	4	1.13	-1.21	0.89
OE2	furniture and materials	4.07	4	1.17	-1.29	0.84
OE3	cooperation with the people	3.88	4	1.10	-1.14	0.90
OE4	saved money	3.82	4	1.19	-0.93	-0.02
OE5	call someone	3.51	4	1.22	-0.59	-0.55
OE6	family to come together	3.79	4	1.17	-0.91	0.03

4 Because the survey includes respondents from all regions of Türkiye, the sample also includes units from cities with low earthquake risk. This finding also gives a clue about the geographical heterogeneity of participation.

Risk Perception (RP)						
RP1	panic	3.33	3	1.16	-0.30	-0.68
RP2	confusion	3.21	3	1.17	-0.23	-0.70
RP3	worry	3.65	4	1.15	-0.70	-0.25
RP4	stress	3.54	4	1.17	-0.54	-0.54
RP5	fear	3.53	4	1.18	-0.54	-0.49
RP6	nervous	3.11	3	1.24	-0.06	-0.98
RP7	perception of catastrophe	4.05	4	1.17	-1.26	0.78
RP8	being alert	3.72	4	1.13	-0.76	-0.10
RP9	directly affected	3.62	4	1.17	-0.63	-0.39
RP10	aftershocks	3.63	4	1.11	-0.64	-0.19
RP11	long-term negative affects	4.04	4	1.15	-1.32	1.03
RP12	sensitivity	3.42	3	1.18	-0.35	-0.68
RP13	likelihood of being	3.26	3	1.36	-0.22	-1.20
RP14	risk area	2.92	3	1.44	0.13	-1.34
Preparedness Behavior (PB)						
PB1	smartphone with a portable charger	0.77	1	0.42	-1.30	-0.31
PB2	earthquake kit	0.31	0	0.46	0.83	-1.31
PB3	flashlight	0.67	1	0.47	-0.70	-1.51
PB4	adequate water	0.54	1	0.50	-0.18	-1.98
PB5	adequate food	0.50	0	0.50	0.01	**-2.01**
PB6	medical materials	0.65	1	0.48	-0.63	-1.61
PB7	special needs materials	0.28	0	0.45	0.97	-1.06
PB8	family emergency plan	0.40	0	0.49	0.40	-1.84
PB9	plan to come together	0.47	0	0.50	0.11	-2.00
PB10	basic earthquake knowledge	0.89	1	0.31	**-2.52**	**4.36**
PB11	earthquake insurance	0.59	1	0.49	-0.38	-1.86
PB12	training and drill	0.62	1	0.49	-0.51	-1.75
PB13	negotiation within the family	0.58	1	0.49	-0.34	-1.89
PB14	volunteer/team member	0.18	0	0.39	1.66	0.75
PB15	emergency meeting area	0.59	1	0.49	-0.39	-1.86
PB16	emergency exit	0.70	1	0.46	-0.86	-1.26
PB17	emergency call number	0.85	1	0.35	-2.00	2.00
PB18	ask to help	0.77	1	0.42	-1.26	-0.41

The participants responded "No" or "Yes" to 18 statements related to (individual) preparedness behavior (PB). When analyzing the median values for the responses to the 18 statements, the participants are seen to have frequently responded "Yes" (= 1) to 12 of the statements and "No" (= 0) to the remaining 6 statements. The means for the participants' PB responses range between 0.18 (18%) and 0.89 (89%) out of 1. In terms of the materials that should be kept for earthquake preparedness, most of the participants (77%) have a cell phone with a portable charger. In contrast, very few respondents (28%) keep essential items at home for household members with special needs (e.g., elderly or disabled people in need of care, children under 13 years of age). Most of the respondents (89%) think that they have basic earthquake knowledge. However, very few (18%) associated being a disaster volunteer or being part of an emergency response team with preparedness behavior. Most of the respondents (85%) know the emergency phone number, but relatively few (59%) know where the emergency assembly area nearest to their residence is located.

As can be seen from Table 2, the lowest skewness value for the observations of the 51 statements was 0 and highest was -2.52. Apart from the skewness value of the observation belonging to the statement PB10 (S = -2.52) from the PB scale, the skewness values for the observations of the remaining 50 statements fall within the recommended limits of 2. The lowest kurtosis value for the observations belonging to the 51 statements was -0.02 and the highest was +4.36. Apart from the kurtosis values for the observations belonging to the PB5 (K = -2.01) and PB10 (K = 4.56) statements from the PB scale, the kurtosis values for the observations belonging to the remaining 49 statements fall within the recommended limits of 2. When evaluating all the skewness and kurtosis values collectively, the observations can be said to have a distribution close to the normal distribution curve. Therefore, the principal component analysis (PCA), which requires the assumption of normality, was applied as a factor estimation method for the ST, SNs, SE, OEs, and RP scales in the EFA. However, due to the statements from the PB scale being categorical, dissimilar to the statements from these other scales, the unweighted least squares (ULS) technique has been preferred as the appropriate factor estimator for categorical variables.

Validation of the Scales' Psychometric Properties

First, preparations were made to conduct the factor analysis on the four unidimensional scales (ST, SNs, SE, and OEs Scales) under a common structure. Before proceeding to the factor analysis, the suitability of the data for factor analysis (sampling adequacy) should be checked. Sampling adequacy was analyzed with the determinant of the correlation matrix, MSA correlations, KMO statistics, and Barlett's test. As seen in Table 3, the determinant of the correlation matrix is very close to 0, MSA correlations range between 84%-96%, the KMO value was calculated as 0.922, and the null hypothesis of Barlett's test (χ^2 = 4,777.2; df = 153; p = 0.000) was rejected. These findings indicate the data to be suitable for factor analysis.

After confirming the suitability of the data for factor analysis, the EFA was conducted. Due to more than one dimension being expected for the construct, the oblique rotation and PCA factor estimation techniques were used together. According to the results from the first estimation, 19 items reveal a 4-factor structure in accordance with the expectations. When checking the association of the items with the factors, most of the items loaded on the factor to which they were related with high factor loadings. However, among the 19 items, the item coded as SE7 (feeling safe) from the SE Scale loaded on two different factors (self-efficacy and social trust) with similar factor loadings greater than 0.40 (see Supplementary Materials, Table B). This is most likely due to the fact that participants associated feeling safe with both self-efficacy and trusting relationships with the environment in which they live.

The item coded SE7, which had a cross-loading problem, was removed from the factor analysis, and factor estimation was performed again for the remaining 18 items. Table 3 shows the results from this last estimation. According to the results, four factors with eigenvalues greater than 1 were identified for the construct, which is as expected. The 18 items were distributed among the four factors as 6 on Factor 1, 6 on Factor 2, 3 on Factor 3, and 3 on Factor 4. Factor 1 is self-efficacy, and the factor loadings of the items vary between 0.599-0.862 and explain approximately 42% of the variance. Factor 2 is outcome expectations, and the factor loadings of the items vary between 0.650-0.831 and explain approximately 11% of the variance. Factor 3 is subjective norms, and the factor loadings of the items vary between 0.743-0.917 and explain 8.4% of the variance. Factor 4 is social trust, and the factor loadings of the items vary between 0.730-0.905 and explain 6.6% of the variance. The total explained variance of the 4-factor structure is approximately 68%, which is greater than the lower limit (> 0.60). The overall reliability of the structure with 18 statements is 91.6%, which is quite high. The sub-dimensions of the construct have moderate correlations ranging from 0.431-0.544, and their reliability levels vary between 81%-89% (see Table 6).

Table 3

Factor Analysis with Pearson Correlation (Social Trust, Subjective Norms, Self-Efficacy, and Outcome Expectations)

Item	1st	2nd	3rd	4th
SE5	0.862	-0.059	-0.022	-0.002
SE4	0.846	0.132	-0.033	-0.074
SE3	0.827	0.046	0.020	-0.047
SE1	0.794	-0.102	-0.037	0.147
SE2	0.770	0.078	0.054	0.004
SE6	0.599	-0.004	0.112	0.066
OE1	0.038	0.831	-0.020	-0.012
OE2	0.098	0.823	-0.015	-0.074
OE4	0.007	0.781	-0.015	-0.030
OE3	-0.036	0.780	0.045	0.136
OE6	-0.041	0.773	0.062	-0.010
OE5	-0.003	0.650	0.003	0.093
SN2	0.022	-0.029	0.917	-0.012
SN1	0.030	-0.045	0.915	-0.034
SN3	-0.027	0.114	0.743	0.068
ST1	-0.002	-0.070	0.007	0.905
ST2	-0.004	0.088	0.029	0.806
ST3	0.103	0.084	0.000	0.730
Eigenvalue	7.498	2.003	1.512	1.192
Var. Exp. (%)	41.656	11.296	8.400	6.620

Diagnostic Tests			
Determinant	5,623E-005	**Total Eigenvalue**	12.235
MSA	0.844 - 0.964	**Total Variance Exp.** (%)	67.972
KMO	0.922	**Number of items**	18
Barlett-test	= 4,777.2; *df* = 153; *p* = 0.000	**Reliability (α)**	0.916

Note. Factors were extracted by principal component analysis (PCA) with Oblique rotation (and Kaiser normalization) to Pearson correlations.

In the second step of the EFA, factor estimation was performed for the three-dimensional risk perception (RP) scale. When examining the findings regarding sampling adequacy (see Table 4), the determinant of the correlation matrix is equal to 0; MSA correlations range between 75%-97%; KMO equals 0.925, and the null hypothesis of Barlett's test (χ^2 = 4443.7; *df* = 78; *p* = 0.000) is rejected. The findings indicate the sampling adequacy to have been met and the data to be suitable for factor analysis. Due to the RP Scale having more than one dimension, the oblique rotation and PCA factor estimation techniques were used together. According to the results of the first estimation, 14 items revealed three different factors, which is in accordance with the expectations. When checking the items' associations with the factors, most of the items are seen to be loaded with high factor loadings on the factor to which they are related. Among the 14 items, however,

two items coded RP9 (being directly affected by earthquake) and RP12 (being sensitive to tremors) were found to not be associated with risk perception toward the consequences of an earthquake, as expected (see Supplementary Materials, Table C). While RP9 was associated with the factor it was related to with a factor loading of 0.248, it loaded on the factor of psychological effects of an earthquake with a value of 0.597. The reason for this is most likely that the participants considered the phrase "direct impact" in the statement as a psychological effect. The RP12 item cross-loaded on all three factors with close and low factor loadings. This is most likely due to participants' inability to differentiate susceptibility to possible concussions in terms of psychology, consequence, and probability. The status of the two items was evaluated by the authors, and the decision was made to remove the item coded RP12 from the scale due to low cross- loading. The decision was also made to leave the item coded RP9 on the scale, as associating it with psychological impact is considered logical.

Table 4

Factor Analysis with Pearson Correlation (Risk Perception)

Item	1st	2nd	3rd
RP1	0.941	-0.051	-0.059
RP2	0.885	-0.024	-0.051
RP5	0.882	-0.022	0.052
RP4	0.845	-0.011	0.065
RP3	0.807	-0.074	0.156
RP6	0.709	0.174	-0.081
RP9	**0.596**	0.083	**0.251**
RP14	0.015	0.942	-0.057
RP13	-0.023	0.889	0.116
RP7	-0.086	-0.063	0.959
RP11	0.054	0.002	0.821
RP8	0.120	0.065	0.713
RP10	0.110	0.167	0.623
Eigenvalue	7.132	1.361	1.123
Var. Exp. (%)	54.861	10.473	8.636

Diagnostic Tests			
Determinant	0.000	**Total Eigenvalue**	9.616
MSA	0.752 - 0.970	**Total Variance Exp.** (%)	73.969
KMO	0.929	**Number of items**	13
Barlett-test	= 4,443.7; *df* = 78; *p* = 0.000	**Reliability (α)**	0.925

Note. Factors were extracted by principal component analysis (PCA) with Oblique rotation (and Kaiser normalization) to Pearson correlations.

Factor estimation was performed again for the remaining 13 items. Table 4 shows the results of the final estimation. According to the findings, three factors with eigenvalues greater than 1 were identified for the construct, as expected. Of the 13 items, seven were distributed to Factor 1, two to Factor 2, and four to Factor 3. Factor 1 is earthquake psychological perception. The factor loadings of the items range between 0.596-0.941 and explain approximately 55% of the variance. Factor 2 is earthquake occurrence probability perception. The factor loadings of the two items are 0.889 and 0.942 and explain approximately 10.5% of the variance. Factor 3 is *earthquake result perception*. The factor loadings of

the four items vary between 0.623-0.959 and explain approximately 8.6% of the variance. The total variance explained by the three-factor structure is approximately 74%, which is greater than the lower limit (> 0.60). The overall reliability of the 13-statement structure is 92.5%. The sub-dimensions of risk perception have moderate correlations ranging from 0.41-0.69, and their reliability levels vary between 84.5%-93% (see Table 6).

The third step of the EFA performs factor estimation using polychoric correlations for the three-dimensional Preparedness Behavior (PB) Scale, which has a different variable structure from the other scales. When examining the findings regarding sampling adequacy (see Table 5), the determinant of the correlation matrix is very close to 0, the KMO value equals 0.763, and the null hypothesis of Barlett's test (χ^2 = 5,620.2; *df* = 153; *p* = 0.000) is rejected. The findings indicate the sampling adequacy to have been met and the data to be suitable for factor analysis. Due to the RP Scale having more than one dimension, the Promin rotation and ULS factor estimation techniques were used together. According to the results from the first estimation, the 18 items reveal three different factors, which is in accordance with expectations. However, when checking the factor loadings of the items, the factor loadings of the items coded PB11 (home earthquake insurance) and PB14 (disaster volunteer or emergency response team member) and related to behavioral preparedness were determined to be below the acceptable lower limit (0.30; see Table D under Supplementary Materials). This is most likely due to the fact that the participants could not adequately associate both measures with individual preparedness for earthquakes.

Table 5

Factor Analysis with Polychoric Correlation (Preparedness Behavior)

Item	1st	2nd	3rd
PB1	0.611	-0.297	0.202
PB2	0.561	0.286	-0.007
PB3	0.597	-0.142	0.243
PB4	0.926	-0.232	-0.031
PB5	0.826	-0.127	0.049
PB6	0.635	0.166	-0.001
PB7	0.533	0.218	-0.277
PB8	0.221	0.814	-0.046
PB9	-0.019	0.943	-0.030
PB10	-0.047	0.603	0.196
PB12	-0.079	0.671	0.010
PB13	0.028	0.755	0.071
PB15	0.004	0.151	0.485
PB16	0.028	0.264	0.532
PB17	0.062	-0.170	0.796
PB18	0.024	0.233	0.577
Eigenvalue	6.896	2.023	1.302
Var. Exp. (%)	43.100	12.645	8.141
Diagnostic Tests			
Determinant	0.00001196	**Total Eigenvalue**	10.221
KMO	0.763	**Total Variance Exp.** (%)	63.886
Barlett-test	= 5,620.2; *df* = 153; *p* = 0.000	**Number of items**	16
		Reliability (α)	90.86

Note. Factors were extracted by applying the unweighted least squares (ULS) with varimax rotation (and Kaiser normalization) to the polychoric correlations. Cronbach's alpha is the standardized alpha value. Alternatively, McDonald's ordinal ω = 0.91.

Factor estimation was performed again for the remaining 16 items. Table 5 shows the results from the last estimation. According to the findings, three factors with eigenvalues greater than 1 were identified for the construct, as expected. Of the 16 items, seven distributed into Factor 1, five into Factor 2, and four into Factor 3. Factor 1 is material preparedness. The factor loadings of the items range between 0.533-0.611 and explain approximately 43% of the variance. Factor 2 is behavioral preparedness. The factor loadings of these items vary between 0.6030-0.943 and explain approximately 13% of the variance. Factor 3 is awareness preparedness. The factor loadings of these items vary between 0.485-0.716 and explain approximately 8% of the variance. The total variance explained by the three-factor structure is approximately 64%, which is above the lower limit (> 0.60). The overall reliability of the 16-statement structure is approximately 91%. The sub-dimensions of preparedness behavior have moderate internal correlations ranging from 0.38-0.62 and reliability levels varying between 80%-83% (see Table 6).

Correlational Analysis

Table 6 shows the correlation coefficients between the scales and subdimensions, the descriptive statistics for the scales and subdimensions, and the reliability levels of the scale dimensions. Due to the skewness and kurtosis values related to normal distribution being within the expected range of 2, the scale and subdimension observations as a whole can be said to approach normal distribution. According to this result, the bivariate correlations between variables can be examined using the Pearson correlation analysis.

Table 6

The Scales' Pearson Correlations, Descriptives, and Reliabilities

Scales	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ST **(1)**	1									
SNs **(2)**	0.438**	1								
SE **(3)**	0.544**	0.431**	1							
OEs **(4)**	0.443**	0.466**	0.490**	1						
RP_psychological **(5)**	0.225**	0.356**	0.075*	0.586**	1					
RP_result **(6)**	0.353**	0.415**	0.386**	0.800**	0.690**	1				
RP_probability **(7)**	0.142**	0.168**	0.133**	0.303**	0.419**	0.410**	1			
PB_material **(8)**	0.101*	0.017	0.193**	-0.018	0.113**	-0.033	0.031	1		
PB_behavioral **(9)**	0.087*	0.032	0.244**	0.025	0.111**	0.038	0.029	0.455**	1	
PB_awareness **(10)**	0.190**	0.106**	0.317**	0.169**	-0.045	0.092*	0.018	0.378**	0.621**	1
RP_mean	0.233**	0.409**	0.139**	0.636**	0.961**	0.834**	0.648**	-0.088	-0.092	-0.038
PB_total	0.167**	0.045	0.314**	0.081**	0.125**	0.034	0.038	0.847**	0.858**	0.823**
Descriptives and Reliability										
Mean	3.07	3.17	3.15	3.84	3.43	3.86	3.09	3.72	2.97	2.91
Variance	1.02	1.11	0.82	0.84	0.99	0.90	1.69	4.16	2.42	1.42
Skewness	-0.24	-0.46	-0.30	-1.40	-0.42	-1.31	-0.03	-0.08	-0.13	-0.80
Kurtosis	-0.47	-0.49	-0.11	1.95	-0.33	1.56	-1.19	-0.93	-1.13	-0.48
Cronbach's Alpha (McDonald's Omega)	0.809	0.843	0.891	0.879	0.932	0.850	0.845	0.854 (0.856)	0.842 (0.856)	0.794 (0.797)

Note. ** $p < .001$; * $p < 0.05$. Coefficients are Pearson correlations.

In general, the means for the social cognitive factors of individual earthquake preparedness behavior are not very high and vary between 3.07-3.84 on a scale of 1-5. The lowest mean belongs to social trust (M = 3.07), while the highest mean belongs to outcome expectations (M = 3.84). Among the sub-dimensions of risk perception, which is one of the cognitive factors of preparedness, the participants perceived the probability of an earthquake (M = 3.09) as a lower risk compared to the other factors. According to the participants' evaluations, the highest risk perception is related to the consequences of an earthquake (M = 3.86). The participants' overall level of individual preparedness is far from the desired level (M = 9.6; 60%). For the 496 participants, the average level is 3.72/7 (53.1%) for material preparedness, 2.97/5 (59.4%) for behavioral preparedness, and 2.91/4 (72.7%) for awareness preparedness. According to these results, the participants are most prepared for an earthquake in terms of awareness.

According to the results from the correlation analyses and contrary to expectations, no strong evidence was found for correlations between individual earthquake preparedness behavior and social cognitive factors. Among these factors, social trust, self-efficacy, outcome expectations, and risk perception toward the psychological effects of earthquake have positive and statistically significant correlations with earthquake preparedness behavior. However, the correlation coefficients are quite weak. Both the sub-dimensions of preparedness behavior and the total score (PB_total) have correlation values with social cognitive factors ranging from 0.018-0.317. The highest correlation was between mindfulness behavior and self-efficacy (r = .317, $p < 0.01$), with mindfulness behavior increasing somewhat as the participants' self-efficacy levels increased. Similarly, the PB_total and self-efficacy (r = .314, $p < 0.01$) also have a relatively higher correlational relationship.

Meanwhile, at a 1% level of statistical significance, the participants' earthquake risk perception generally has significant relationships with other social cognitive factors. According to the results, as the participants' social trust (r_{min} = 0.14; r_{max} = 0.35), subjective norms (r_{min} = 0.16; r_{max} = 0.35), self-efficacy (r_{min} = 0.07; r_{max} = 0.38), and outcome expectations (r_{min} = 0.30; r_{max} = 0.80) increase, their earthquake risk perception also increases. Compared to the other dimensions of risk perception, risk perception toward the consequences of an earthquake has a higher correlation with social cognitive factors (r_{min} =0.35; r_{max} = 0.80; $p < 0.01$). In particular, as the participants' positive expectations from the results of an earthquake measures increase, their risk perception toward the psychological effects (r = 0.586, $p < 0.01$) and consequences (r = 0.80, $p < 0.01$) of an earthquake also increases significantly. This result also supports the high correlation (r = 0.69, $p < 0.01$) found between risk perception toward the possible consequences and psychological effects of an earthquake. According to the results, however, the relationships between earthquake risk perception and preparedness behavior generally have very low correlations, or the relationships are not statistically significant, with only risk perception toward the psychological effects of an earthquake having a statistically significant positive correlations with material (r = .113, $p < 0.01$) and behavioral (r = .111, $p < 0.01$) preparedness and risk perception toward the consequences of an earthquake having statistically significant positive correlations with awareness behavior (r = .092, $p < 0.05$).

All correlational relationships between the participants' sociodemographic characteristics and research variables are presented in the Supplementary Materials section (see Table E). The current section only presents the results for the relationships among participants' preparedness behavior, risk perception, and demographic characteristics. According to the results, no statistically insignificant or weakly significant relationships generally occur for either the PB_total and its sub-dimensions (i.e., material, behavioral and awareness) with the eight demographic characteristics. Among these eight demographic characteristics, only the relationships between household monthly income level (r = 0.10; $p < 0.05$) and earthquake experience (r = 0.08, $p < 0.05$) and preparedness behavior are statistically significant. Income level is associated with the material and awareness dimensions of preparedness, while earthquake experience is associated with behavioral preparedness. Interestingly, the sociodemographic characteristics are mostly associated with risk perception, with statistically significant relationships occurring for participants' gender (r = -0.29, $p < 0.01$), age (r = -0.17, $p < 0.01$), education level (r = -0.15, $p < 0.01$), and earthquake experience (r = 0.11, $p < 0.01$) with earthquake risk perception. The risk perceptions of women, low-income earners, young people, and those with earthquake experience are higher than those for the other groups. Meanwhile, women and young people have relatively higher risk perceptions in terms of all dimensions (i.e., psychological effects, consequences and probability of an earthquake). In general, the correlations are weak, though the correlation between gender and psychological effects of an earthquake (r = 0.30, $p < 0.01$) is relatively higher than the others. Those with higher income levels perceive the psychological effects and likelihood of an earthquake to be relatively riskier, while those with earthquake experience perceive the consequences and

likelihood of an earthquake to be riskier. In addition, as one's belief in fatalism increases, the level of perceiving the negative consequences of an earthquake (r = -0.08, $p < 0.05$) as a risk decreases, albeit weakly. Participants who have elderly or disabled people in need of care in their household perceive the possibility of an earthquake (r = -0.07, $p <$ 0.05) as relatively riskier.

Discussion

This study has had two main aims. The first aim has been to adapt the scales on individual earthquake preparedness behavior and the social cognitive factors that are accepted to be related to this preparedness into Turkish and then to evaluate the psychometric adequacy of the Turkish versions of the scales. The second aim of the study has been to identify the correlational relationships among the social cognitive factors, demographic characteristics, and earthquake preparedness behavior. To achieve these aims, a cross-sectional survey-based research design was applied. Firstly, the face and content validity of the scales were evaluated and checked by language and field experts prior to the data collection phase. Afterwards, a total of 496 participants from different provinces of Türkiye were included in the sample, with data being collected by applying the online survey technique. The Turkish adaptation and psychometric adequacy of the scales were examined using exploratory factor and reliability analyses. Correlation analyses were then used to determine the relationships between the scales' scores and sociodemographic characteristics.

The results from the factor analysis regarding the construct validity revealed three of the six scales (i.e., Social Trust, Subjective Norms, and Outcome Expectation Scales) to be valid in their original Turkish form, while the remaining three scales (i.e., Self-Efficacy, Risk Perception, and Preparedness Behavior Scales) to have construct validity regarding their Turkish forms after making very minor modifications (see Appendix 1, Table 7). The reliability levels of the ST, SNs, and OEs scales are high and range between 80.9%-87.9%. Regarding the SE Scale, which originally had seven items, the statement "I feel safe" was evaluated by the participants as being related to both self-efficacy and social trust. Upon removing the statement[5] from the scale, the construct of the Turkish form of the Self-Efficacy Scale with the remaining six items was determined to be valid. The reliability level of the 6-item SE Scale is high (89.1% reliability). Regarding the 14-item Risk Perception Scale, two statements were different from the original form. The statement "I am sensitive to tremors," which is related to risk perception toward the consequences of an earthquake, was evaluated as a "psychological" situation by the participants. Also, the statement "If an earthquake occurs, I will be directly affected by it," which is related to risk perception toward consequences, was associated with all the risk dimensions to a certain extent by the participants. Keeping the first statement under the dimension with which it was associated was found to be reasonable and was thus remained on the Turkish version of the scale, while the second statement was removed. The Turkish version of the Risk Perception Scale was determined to be valid in its three-dimensional 13-item structure. The reliability level of the Turkish form of the scale is 92.5%, which is quite high. Regarding the 18-item Preparedness Behavior Scale, two statements differed from the original form. The participants did not associate having "home earthquake insurance" or being a "disaster volunteer or emergency team member" with behavioral preparedness. These two statements were removed from the Turkish form of the scale, and the remaining Turkish form with 16 statements was determined to be identical to the original three-dimensional form, verifying the scale's construct validity. The reliability level of the Turkish form of the scale is quite high at 90.9%.

The social cognitive integrity of the participants is not very high. Among the social cognitive factors, the highest mean occurred for outcome expectations (M = 3.84). The scores for the other social cognitive factors were only at the level of three out of five. Accordingly, the participants have weak social capital; family, environment, and media are not very impactful on their individual earthquake preparedness, and they have problems coping with and managing challenges. Although the participants' perception of earthquake risk was not very high, they especially consider the consequences (M = 3.86) and psychological effects (M = 3.43) of an earthquake as risks. These results provide evidence that the participants perceive earthquakes as a risk in physical and psychological terms, but still tend to think in a results-oriented way. Meanwhile, the participants' individual preparedness for earthquakes was not very high (M = 9.6; 60%). In particular, their material and behavioral preparedness was quite low at around 50%, while the highest preparedness was related to awareness (around 73%). This result supports the conclusion that the participants tend to eval-

5 Due to the related item also being loaded on the original dimension with a high factor loading, we recommend keeping the item in the scale in future studies and checking the results of the applied factor analysis applied.

uate earthquakes, earthquake risks, and individual measures to be taken in a results-oriented manner. The correlational findings among the social cognitive factors, preparedness behavior, and risk perception also contribute to this conclusion. According to the results from the correlation analyses, social cognitive factors do not have a strong correlation with preparedness behavior. Only social trust, self-efficacy, outcome expectations, and psychological risk perception were found to be significantly (but weakly) correlated with preparedness behavior. Among these, the relationship between self-efficacy and mindfulness ($r = .317$; $p < 0.01$) being relatively high is noteworthy. Therefore, social cognitive factors are not related to preparedness behavior in terms of action, but they are related to mindfulness behavior, which is a mental evaluation. In parallel, the social cognitive factors generally showed significant relationships with earthquake risk perception. In particular, the relatively strong correlations between outcome expectancies and self-efficacy support the above-mentioned evaluations.

The relationships between respondents' demographic characteristics and preparedness behavior are generally neither significant nor highly correlated. However, more significant relationships were found between risk perception and sociodemographic characteristics. According to the results, women, youths, people with low income, and those with earthquake experience in particular are social groups that are relatively more sensitive to earthquake risk, with women and young people being especially more sensitive to the possible psychological effects and consequences of earthquakes than other social strata. However, even when these participants' risk perceptions increase, this situation did not manifest itself in preparedness behavior.

When evaluating the results as a whole, the participants are found to generally think that an earthquake will have a negative impact on their psychology and to associate this with the extent of the consequences of the earthquake. Increases in outcome expectations and self-efficacy particularly increased their risk perception. However, when this perception is not sufficiently transformed into action, the results-oriented thinking practice does not transform into collective rationality. According to these results, the individual earthquake preparedness behavior of the participants obviously did not go beyond mental preparedness and could not be adequately transformed into practice.

The results from this study's correlation analyses cannot be generalized to the Turkish population but can still give an idea. The problem of generalizability stems from some of the study's limitations. The first limitation of the study is related to the sampling technique. This study formed its sample by applying the convenience sampling technique. Convenience sampling is considered appropriate and adequate for scale adaptations but may be weak in terms of representing the main population Secondly, the sample consists mainly of young people and women. Therefore, this distribution also creates a problem regarding representativeness. This study included participants from every region of Türkiye in the sample. As the literature points out, however, earthquakes and individual preparedness for earthquakes can be specific to both earthquake characteristics and location. Therefore, the results may differ in earthquake-prone and non-earthquake-prone provinces. Another limitation of the study is that the relationships were analyzed only through correlation analyses. Correlation analyses can give an idea about the relationships but do not provide information about any complete cause-and-effect relationship. Future studies can overcome these limitations and reexamine the relationships with a different design. In this respect, some of our suggestions for future studies are as follows: (1) Relationships can be examined in two different regions with high and low earthquake risk and then whether the results differ or not can be examined, (2) the relationships between social cognitive factors and preparedness behavior can be examined using regression analyses by considering them within the framework of a model, and (3) the relationships of sociodemographic factors with both social cognitive factors and earthquake risk perception and preparedness behavior can be revealed in more detail through analyses such as t-test and ANOVA.

Authors' contribution

Author Contributions: Conception/Design of study: M.H.T.; Data Acquisition: M.H.T., A.B. M.G.; Data Analysis/Interpretation: M.H.T.; Drafting Manuscript: M.H.T., A.B. M.G.; Critical Revision of Manuscript: M.H.T., A.B. M.G.; Final Approval and Accountability: M.H.T., A.B. M.G.

Peer-review

Externally peer-reviewed

Funding

This research received no external funding.

Disclosure statement

The authors report no conflict of interest.

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APENDIX 1

Turkish Versions of Social-Cognitive, Risk Perception and Preparedness Behaviour Scales

Sosyal Güven *(Alpha =,809)*
SG1. Mahallemde yaşayan insanlara genelde güvenirim
SG2. Mahallemdeki insanlar birbirlerine yardım etmeye isteklidir
SG3. Yaşadığım mahallede kendimi evimdeymişim gibi hissediyorum
Öznel Normlar *(Alpha =,843)*
ÖN1. Akrabalarım ve arkadaşlarım depreme hazırlık yapma kararlarımı etkiler
ÖN2. Yakın çevrem ve katıldığım gruplar depreme hazırlık yapma kararlarımı etkiler
ÖN3. Medya (sosyal medya, TV, gazeteler vs) depreme hazırlık yapma kararlarımı etkiler
Öz-yeterlilik *(Alpha =,891)*
ÖY1. Eğer deprem olursa onunla başa çıkabileceğime inanıyorum
ÖY2. Zor bir durumda kaldığımda ne yapmam gerektiğini biliyorum
ÖY3. Karşılaştığım her olayı veya her problemi idare edebilirim
ÖY4. Kabiliyetlerim sayesinde beklenmedik olaylarla nasıl başa çıkacağımı biliyorum
ÖY5. Ne olursa olsun, olacak olanla başa çıkmaya hazırım
ÖY6. Olacak bir deprem ile baş etmek büyük ölçüde bana bağlı bir şeydir
Kendimi güvende hissediyorum **(Dropped)**
Sonuç Beklentileri *(Alpha =,879)*
SB1. Deprem çantasına sahip olmak deprem olduğunda bana yardımcı olabilir
SB2. Evimizdeki mobilyaları ve eşyaları emniyet altına almak deprem esnasında evimizi daha güvenli yapabilir
SB3. Deprem olduğunda bölge insanımızla hep beraber çalışmak ailemin işlerini kolay hale getirebilir
SB4. Kenara nakit para ayırmak deprem sonrasında ailem için iyi olabilir
SB5. Bulunduğum bölgenin dışındaki bir kişiyi aramak deprem sonrasında bana yardımcı olabilir
SB6. Deprem olduktan sonra bir araya gelebileceğimiz aileyi şimdiden planlamak faydalı olabilir
Risk Algısı *(Alpha =,925)*

Aşağıdaki ifadelere katılma düzeyinizi lütfen belirtiniz.

Boyut1. Depremin Psikolojik Etkileri *(Alpha =,932)*

RA_DPE1. Deprem esnasında paniğe kapılırım

RA_DPE2. Deprem esnasında kafam karışır

RA_DPE3. Deprem esnasında endişelenirim

RA_DPE4. Deprem esnasında strese girerim

RA_DPE5. Deprem esnasında korkuya kapılırım

RA_DPE6. Deprem konusu geçince gerginleşirim

RA_DPE7. Deprem olursa bundan direkt etkilenirim. **(originally related with "RA_DS")**

Boyut2. Depremin Sonuçları *(Alpha =,850)*

RA_DS1. Daha önce olmuş depremler tam bir felaketti.

RA_DS2. Depremden sonra hep tetikte olurum.

RA_DS3. Deprem olduktan sonra artçılarını hissederim

RA_DS4. Beklenmeyen bir deprem olursa uzun dönemde olumsuz etkileri olur

Sarsıntılara karşı hassasımdır. **(Dropped)**

Boyut3. Depremin Olma İhtimali *(Alpha =,845)*

RA_DOİ1. Yaşadığım yerde yakında şiddeti bir depremin olma ihtimali yüksektir

RA_DOİ2. Deprem riski yüksek bir bölgede yaşıyorum

Hazırlıklılık Davranışı *(Alpha =,909)*

Aşağıdakilerden herhangi biri evinizde veya aileniz için mevcut mu?

Boyut1. Malzeme *(Alpha =,854)*

HD_M1. Taşınabilir şarj cihazı olan bir akıllı telefon

HD_M2. Deprem çantası

HD_M3. El feneri

HD_M4. Ailedeki her bireyin en az 3 günlük ihtiyacını karşılayacak su

HD_M5. Ailedeki her bireyin en az 3 günlük ihtiyacını karşılayacak bozulmaz gıda malzemesi

HD_M6. Aile fertlerinin ihtiyacı olan sağlık (ilaç, medikal vs) malzemeleri

HD_M7. Ailedeki 13 yaş altı çocuk, yaşlı ya da engellilerin özel gereksinimi olan malzemeler

Aşağıdakilerden herhangi biri siz ya da aileniz için mevcut mu?

Boyut2. Davranışsal *(Alpha =,842)*

HD_D1. Aile acil durum planı

HD_D2. Deprem esnasında aile üyelerinin nasıl bir araya geleceğine dair plan

HD_D3. Depremle ilgili temel bilgilere dikkat ederim

HD_D4. Deprem eğitimi veya tatbikatlarına katıldım

HD_D5. Deprem esnasında nasıl davranılacağına dair aile içi görüşmeler yaparım

Konut deprem sigortası **(Dropped)**
Afet gönüllüsüyüm / Acil durum ekip üyesiyim **(Dropped)**

Boyut3. Farkındalık *(Alpha =,794)*

HD_F1. En yakın toplanma alanının nerede olduğunu biliyorum

HD_F2. Deprem olduğunda acil çıkışı ve güvenli bir şekilde nasıl tahliye olabileceğimi biliyorum

HD_F3. Acil durum telefon numarasını biliyorum

HD_F4. Arkadaş ve yakın çevremden nasıl yardım isteyebileceğimi biliyorum

APPENDIX 2

Supplementary Materials

Table A

Demographic Characteristics of Participants

Demographics (Unit)	N	%
Gender		
Female	276	55.6
Male	220	44.4
Age		
<30	284	57.3
31-50	189	40.1
>50	13	2.6
Education		
Secondary school and lower	30	6.0
High school	82	16.5
University	336	67.7
Master / doctorate	48	9.7
Monthly income		
< 10.000 TL	46	9.3
10.001 TL – 25.000 TL	193	38.9
25.001 TL – 50.000 TL	205	41.3
> 50.000 TL	52	10.5
Homeowner		
Homeowner	276	55.6
Other	220	44.4
Earthquake experience		
No	146	29.4
Yes	350	70.6
Fatalist		
No	361	72.8
Yes / No idea	135	27.2
People with disability at home		
No	450	88.1
Yes	59	11.9
Total	**496**	**100**

Table B

Initial Factor Estimation of Unidimensional SE, OE, SN, and ST Scales

	Component			
	1	2	3	4
SE5	,855	-,050	-,013	-,003
SE4	,841	,138	-,029	-,071
SE3	,818	,058	,032	-,058
SE1	,783	-,089	-,019	,134
SE2	,762	,089	,067	-,006
SE6	,591	,013	,139	,029
SE7	**,446**	-,028	-,063	**,433**
OE1	,038	,832	-,023	-,011
OE2	,103	,819	-,028	-,057
OE3	-,038	,783	,043	,139
OE4	,008	,782	-,018	-,031
OE6	-,039	,773	,057	-,008
OE5	-,007	,658	,017	,068
SN2	,031	-,028	,911	-,006
SN1	,040	-,045	,908	-,026
SN3	-,021	,114	,734	,083
ST1	-,027	-,048	,040	,883
ST2	-,025	,107	,056	,790
ST3	,084	,099	,018	,728

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Table C

Initial Factor Estimation of the Three-dimensional Risk Perception (RP) Scale

	Component		
	1	2	3
RP1	,946	-,058	-,065
RP2	,889	-,029	-,057
RP5	,886	-,032	,044
RP4	,849	-,015	,061
RP3	,812	-,079	,152
RP6	,708	,180	-,082
RP9	**,597**	,080	**,248**
RP12	**,398**	**,224**	**,288**
RP14	,007	,944	-,069
RP13	-,031	,890	,104
RP7	-,087	-,074	,958
RP11	,054	-,010	,818
RP8	,117	,067	,716
RP10	,104	,175	,627

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Table D

Initial Factor Estimation of the Three-Dimensional Preparedness Behaviour (PB) Scale

ROTATED LOADING MATRIX

Variable	F 1	F 2	F 3
V 1	0.179	-0.289	0.618
V 2	-0.004	0.284	0.565
V 3	0.224	-0.146	0.606
V 4	-0.055	-0.236	0.944
V 5	0.025	-0.130	0.837
V 6	-0.026	0.167	0.634
V 7	-0.268	0.222	0.535
V 8	-0.038	0.815	0.205
V 9	-0.018	0.960	-0.048
V 10	0.210	0.587	-0.068
V 11	0.231	0.236	0.069
V 12	-0.042	0.742	-0.103
V 13	0.077	0.749	0.014
V 14	0.243	0.208	0.192
V 15	0.503	0.153	-0.018
V 16	0.534	0.262	0.015
V 17	0.785	-0.163	0.054
V 18	0.565	0.235	0.015

Extraction Method: Unweighted Least Square.

Rotation Method: Promin.

Table E

Spearman Correlations between Variables and Demographics

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Gender (1)	1,000	,102*	,005	,199**	-,054	-,011	,083*	-,015	-,012	-,026	,121**	-,097*	-,304**	-,147**	-,152**	,030	-,067	-,013	-,290**	-,017
Age (2)	,102*	1,000	-,045	,167**	,024	,059	-,064	-,006	-,007	-,085*	,019	-,082*	-,120**	-,079*	-,233**	-,033	,003	-,048	-,171**	-,038
Education (3)	,005	-,045	1,000	,262**	,016	,029	-,159**	-,020	,031	,050	-,064	,054	,040	,034	-,048	-,050	-,022	,028	,022	-,025
Income (4)	,199**	,167**	,262**	1,000	-,026	,033	-,092*	-,090*	,029	,049	,053	,016	-,117**	-,052	-,213**	,095*	,056	,093*	-,154**	,100*
Homeownership (5)	-,054	,024	,016	-,026	1,000	,087*	,065	,023	-,102*	,007	-,002	-,017	-,025	,019	,012	-,055	-,009	-,061	-,003	-,063
Earthquake_exp (6)	-,011	,059	,029	,033	,087*	1,000	-,013	-,009	,030	-,008	,088*	,022	,020	,109**	,234**	,029	,125**	,060	,111**	,083*
Fatalist (7)	,083*	-,064	-,159**	-,092*	,065	-,013	1,000	-,029	,054	-,036	,037	-,077*	-,062	-,080*	-,025	,042	,003	-,001	-,071	,022
Disability (8)	-,015	-,006	-,020	-,090*	,023	-,009	-,029	1,000	,049	,032	,023	,000	,032	,031	,074*	,010	,038	,065	,050	,035
ST_mean (9)	-,012	-,007	,031	,029	-,102*	,030	,054	,049	1,000	,383**	,462**	,319**	,159**	,218**	,133**	,106**	,087*	,188**	,180**	,152**
SN_mean (10)	-,026	-,085*	,050	,049	,007	-,008	-,036	,032	,383**	1,000	,348**	,359**	,300**	,308**	,162**	,001	,052	,111**	,320**	,055
SE_mean (11)	,121**	,019	-,064	,053	-,002	,088*	,037	,023	,462**	,348**	1,000	,313**	-,061	,177**	,099*	,206**	,285**	,331**	,010	,324**
OE_mean (12)	-,097*	-,082*	,054	,016	-,017	,022	-,077*	,000	,319**	,359**	,313**	1,000	,446**	,619**	,235**	-,001	,063	,158**	,513**	,082*
RP_psycho (13)	-,304**	-,120**	,040	-,117**	-,025	,020	-,062	,032	,159**	,300**	-,061	,446**	1,000	,605**	,405**	-,110**	-,125**	-,081*	,931**	-,132**
RP_result (14)	-,147**	-,079*	,034	-,052	,019	,109**	-,080*	,031	,218**	,308**	,177**	,619**	,605**	1,000	,373**	-,023	,058	,068	,761**	,034
RP_probability (15)	-,152**	-,233**	-,048	-,213**	,012	,234**	-,025	,074*	,133**	,162**	,099*	,235**	,405**	,373**	1,000	,034	,029	,017	,628**	,032
PB_material (16)	,030	-,033	-,050	,095*	-,055	,029	,042	,010	,106**	,001	,206**	-,001	-,110**	-,023	,034	1,000	,453**	,379**	-,073	,817**
PB_behavioral (17)	-,067	,003	-,022	,056	-,009	,125**	,003	,038	,087*	,052	,285**	,063	-,125**	,058	,029	,453**	1,000	,626**	-,059	,832**
PB_awareness (18)	-,013	-,048	,028	,093*	-,061	,060	-,001	,065	,188**	,111**	,331**	,158**	-,081*	,068	,017	,379**	,626**	1,000	-,041	,752**
RP_mean (19)	-,290**	-,171**	,022	-,154**	-,003	,111**	-,071	,050	,180**	,320**	,010	,513**	,931**	,761**	,628**	-,073	-,059	-,041	1,000	-,073
PB_total (20)	-,017	-,038	-,025	,100*	-,063	,083*	,022	,035	,152**	,055	,324**	,082*	-,132**	,034	,032	,817**	,832**	,752**	-,073	1,000

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).