Sakarya University Journal of Education

ISSN : 2146-7455
Publisher : Sakarya University

Vol. 14, No. 2, 268-287, 2024
DOI: https://doi.org/10.19126/suje.1336176

Research Article

Disaster Preparedness: Beliefs of Physical Education Teacher Education Majors

Zeynep Filiz Dinç[1]
Leyla Saraç[1*]

[1] Çukurova University, Adana, Türkiye, zdinc@cu.edu.tr, lylsrc@gmail.com

*Corresponding author

Received: 01.08.2023
Accepted: 12.02.2024
Available Online: 30.08.2024

Abstract: This study examined the differences in disaster preparedness beliefs among physical education teacher candidates based on gender and grade level. A total of one hundred and forty-nine physical education teacher candidates, 61 male and 88 female took part in the study. The General Disaster Preparedness Belief Scale, which encompasses six sub-dimensions (Self-efficacy, Cues to Action, Perceived Susceptibility, Perceived Barriers, Perceived Benefits, and Perceived Severity) was used to collect data. An independent samples t-test was used to analyze normally distributed data to determine whether physical education teacher candidates' beliefs on general disaster preparedness sub-dimensions differed by gender, and a one-way analysis of variance (ANOVA) was used to determine whether they differed by grade level (1st, 2nd, 3rd, and 4th). The results indicated significant variations between genders in almost all aspects of general disaster preparedness beliefs, with female physical education teacher candidates scoring higher in Self-efficacy, Cues to Action, Perceived Susceptibility, Perceived Barriers, Perceived Severity, and general disaster preparedness. However, Perceived Benefits scores were similar across genders. No notable differences were found in the general disaster preparedness beliefs and sub-dimension scores of physical education teacher candidates based on the grade level of the candidates. The findings indicate that, except for Perceived Benefits, physical education teacher candidates' general disaster preparedness beliefs and beliefs regarding sub-dimensions differed by gender but not by grade level studied, which may indicate that gender is related to disaster preparedness beliefs. The study underscores the importance of addressing gender disparities in disaster preparedness beliefs to ensure equitable societal preparedness efforts. Efforts should focus on enhancing disaster preparedness beliefs among all individuals, irrespective of gender, to foster a more resilient and prepared community.

Keywords: Disaster Preparedness Belief, Teacher Candidate, Physical Education

1. Introduction

A disaster, whether natural, man-made, or a combination, is a sudden, widespread, and often severe event or occurrence that disrupts the normal functioning of a community or society and causes significant damage, destruction, and loss (Caldera & Wirasinghe, 2022; Wisner & Adams, 2002; World Health Organization [WHO], 2002). Earthquakes, volcanoes, hurricanes, floods, and fires are natural disasters, while wars, pollution, nuclear explosions, fires, exposure to hazardous substances, explosions, and transport accidents are man-made disasters (Zibulewsky, 2001). Disasters, whether they are man-made or natural, can have profound effects on individuals and communities across various dimensions. From the immediate physical harm caused by the event itself to the long-term consequences on mental health, infrastructure, and economic stability, the impact can be devastating (Lichterman, 2000).

Disasters, which are unpredictable and often uncertain in location and timing, are common worldwide (Assar, 1971; Lindell, 2013; Sawada, 2007). For example, the Emergency Event Database reports 387 natural disasters and hazards worldwide in 2022, resulting in 30,704 deaths and affecting 185 million people (Center for Research on the Epidemiology of Disasters, 2023). Türkiye is another disaster-prone region of the world, with 905 reported natural disasters in 2020 alone, according to national data (Ministry of Interior Disaster and Emergency Management Presidency [AFAD], 2021).

The severity and impact of a disaster are influenced by its size, duration, location, population density, and level of preparedness, among other factors (Naghii, 2005). Effective disaster management requires preparedness, response, and mitigation to reduce disaster risk and impact (Moe et al., 2007). While it is impossible to completely prevent disasters from occurring, steps such as developing response strategies by assessing disaster-related risks, evacuating people from disaster-prone areas before disaster strikes, developing early warning systems for impending disasters, informing people about what to do before,

Cite as (APA 7): Dinç, Z.F., & Saraç, L. (2024). Disaster preparedness: Beliefs of physical education teacher education majors. *Sakarya University Journal of Education,* 14(2), 268-287. https://doi.org/10.19126/suje.1336176

This is an open access paper distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial 4.0 International License.

during, and after a disaster, developing durable infrastructure systems for construction, preventing settlement in disaster-prone areas through appropriate zoning, taking measures to protect the environment that help prevent disasters, training well-equipped personnel to respond to disasters, establishing communication networks between all institutions and organizations in society for cooperation and coordinated response, and continuously monitoring and evaluating disaster preparedness can help minimize the adverse effects of disasters (McEntire, 2015; Paton et al., 2000; Steigenberger, 2016). Since a disaster is simply defined as any event that exceeds the capacity of affected individuals or communities to relieve their suffering or meet their needs without outside help (Lindell & Prater, 2003), disaster preparedness at the national and personal level is essential to minimizing the risks of such events in disaster-prone regions such as Türkiye.

Disaster preparedness is an ongoing process of assessment, planning, and training to prepare a coordinated response. It involves anticipating, preventing, and responding to disasters to reduce their adverse effects (Keeney, 2004). Disaster preparedness is primarily about improving the ability to respond effectively to emergencies, mitigate damage, and protect lives and property. Through the implementation of these strategies, people, communities, and organizations can improve their ability to respond to and recover from disasters, minimize the loss of life and property, and promote resilience in the face of adversity (United Nations Development Program, 2016). Research highlights the importance of personal disaster preparedness in reducing the negative impact of disasters and the need for responsible and empowered bodies to prepare for and respond to disasters (Levac et al., 2012). Research on disaster preparedness suggests that individuals and families are likely to be "on their own" in the first 72 hours following a disaster, that the regular flow of products and services is disrupted, and that emergency services are unable to meet all the demands. This has led to an emphasis on self-sufficiency at the community, family, and individual levels, which is critical to filling the gaps in what agencies are supposed to do in the first three days following a regional disaster (Kohn et al., 2012; Russell et al., 1995). Despite these important insights, both national and international studies of personal disaster preparedness have shown that it is not sufficient (Cretikos et al., 2008; Çelik & Gündoğdu, 2022; Kapucu, 2008; Loke et al., 2012; Şahin et al., 2018).

Given the multifaceted nature of preparing for and coping with disasters, many factors influence disaster preparedness. The literature has identified several factors as barriers to disaster preparedness, including a lack of prior disaster experience, a lack of disaster awareness and knowledge of protection, trait anxiety, an external locus of control, being a female, low socioeconomic status, weak social ties, and a lack of community involvement (Mishra & Mazumdar, 2015). According to Kohn et al. (2012), who conducted a thorough literature review of individuals' disaster preparedness behaviors, numerous factors influence disaster preparedness behaviors, including demographic characteristics such as gender, age, education, and race; whether the person has experienced a disaster or not; the number of dependents at home; trust in authorities; level of risk awareness; preparedness responsibility; and threat construction in cognition. Another component that was found to influence individuals' disaster preparedness activities was "beliefs" about disasters, which were found to include hazard beliefs, preparedness beliefs, and personal beliefs. Beliefs about disaster preparedness were those that were closely related to "risk perceptions," people's perceptions of what it means to be prepared and how effective it is, and individuals' personal beliefs about how disasters affect them and how to deal with them (Becker et al., 2013). In the process of scale development, Inal, Altintas, and Dogan (2018) examined disaster preparedness beliefs in Turkish culture. The researchers found that disaster preparedness consists of people's views of their ability to cope with a disaster, their perception of vulnerability to experiencing a disaster, their perception of the severity of a disaster, their perception of the benefits of being prepared for a disaster, their perception of barriers to being prepared and their perception of action cues for being prepared for a disaster.

Disaster preparedness beliefs of different samples have been investigated in several studies. One of the national studies examined healthcare students' disaster preparedness beliefs and found that students' overall disaster preparedness beliefs were above average, with females scoring higher than males. It was also found that students who had been trained in disaster preparedness believed that they were better prepared to deal with a disaster than those who had not received such training (Ertuğrul & Ünal, 2020). Another study investigating the disaster preparedness beliefs of academic and administrative staff in universities found that those with higher monthly incomes, higher professional status, and more experience with disasters and emergency or disaster training had higher levels of beliefs (Inal et al., 2019). An extensive study was conducted on the disaster preparedness beliefs of teachers in the field of education with the participation of 19,723 teachers across Türkiye and it was found that the level of disaster preparedness beliefs did not differ based on the gender of the teachers; the level of disaster preparedness beliefs increased with increasing age; the level of disaster preparedness beliefs of teachers who received disaster training was higher than that of those who did not; and the level of disaster preparedness beliefs of teachers did not differ based on the geographical region where the teachers worked (Dasci-Sonmez & Gokmenoglu, 2023). In another study, Altıntaş Çolak (2023) examined the disaster preparedness beliefs of primary school teachers and found that teachers' general disaster preparedness beliefs were above the average and reported that female teachers' disaster preparedness beliefs were higher than those of male teachers. Disaster preparedness beliefs of nurse educators were investigated in another study conducted in the field of education and the study results showed that the level of disaster preparedness beliefs among nurse educators was above the average and similar between the sexes (Arkan Üner & Erkin, 2023). The strong belief in disaster preparedness was also found in a study conducted with the participation of emergency and disaster management students studying to become experts in this area (Demirbilek & Gökkaya, 2022). The gender variable was reconsidered in this study because, according to the literature reviewed, it is not clear whether individuals' disaster preparedness beliefs differ based on gender. In addition, the fact that almost no studies have been conducted on the study variable of grade level concerning disaster preparedness beliefs influenced the decision to include this variable in this study.

Türkiye is a country with a long history of frequent disasters of various kinds. The most recent was on 6 February 2023, when 50,783 people died in the 7.7 and 7.6 magnitude earthquakes centered on Kahramanmaraş (Ministry of Interior, 2023). Earthquake awareness has increased across Türkiye among people from all walks of life since these earthquakes. In addition, research on disasters and the factors associated with them has become increasingly important. By identifying the earthquake preparedness beliefs of physical education teacher candidates who are part of society, this study is likely to contribute to the relevant literature. In addition, although the provinces where the participants in this study live were not declared disaster areas, they were neighbors of the earthquake-affected regions; they felt the 7.7 and 7.6 magnitudes of earthquakes strongly; and they lived in provinces where many earthquake survivors migrated after the quake and witnessed the experiences of earthquake migrants. Regarding these characteristics, this study will contribute to the relevant literature by comparing similar findings with those that include disaster preparedness beliefs of those who have experienced earthquakes. Disaster preparedness is also of vital importance for all key stakeholders, whether they are directly involved or not when a disaster occurs. Since the first step in disaster preparation is to believe in preparing for a disaster, it is important to examine disaster preparedness beliefs among university students, which are likely to play a primary role in responding to and recovering from a major disaster. It is critical that teachers, and in this study specifically physical education teacher candidates, are examined for their beliefs about earthquake preparedness since they will serve as role models for students and society. Moreover, schools are living environments where students, teachers, and administrators spend most of their time away from their homes (Shah et al., 2020). As schoolchildren are vulnerable to natural disasters, they need the protection of those who care for them (family,

teachers, school administrators, etc.). For this reason, to respond effectively and on time, and to minimize the damage to students and society, school preparedness for natural disasters is crucial (Dasci-Sonmez & Gokmenoglu, 2023). In this study, it was deemed necessary to examine teacher candidates' disaster preparedness beliefs, which will influence their disaster preparedness behaviors, because disaster preparedness must involve all stakeholders in the school, and teacher candidates are one of these stakeholders (Bhebhe et al., 2019). Examining disaster preparedness beliefs is crucial as teacher candidates will be actively contributing to society's fight against potential adverse effects of disasters, so it is important to examine their beliefs about disaster preparedness. Given that teacher candidates will be role models of disaster preparedness for students and society when they become teachers, it is suggested that examining their beliefs about disaster preparedness during the process of becoming a teacher candidate will enable precautions to be taken against possible negative outcomes (Kawasaki et al., 2022). To conclude, it can be said that beliefs about disaster preparedness are an important issue for physical education teacher candidates, as for all individuals in society, as they have a direct impact on disaster preparedness behaviors. Furthermore, an important component of an effective learning environment is the safety of those involved within the school (students, teachers, administrators, staff, etc.) and those involved outside the school (families, community, etc.). Physical educators, like all educators, have responsibility for the welfare of their students during school activities, including in the event of emergencies, and for keeping students safe and prepared for emergencies outside of school. Although not directly related to disasters, physical education teachers, like all other subject teachers, attend courses (Health Knowledge and First Aid, Classroom Management) in teacher training programs to acquire the knowledge and skills to deal with emergencies and unexpected events appropriately (Council of Higher Education [CoHE], 2018). The use of the knowledge and skills acquired in these courses in emergencies is linked to teachers' and teacher candidates' beliefs about disaster preparedness. Furthermore, in first aid-related courses (e.g. first aid and traffic culture) in schools (Ministry of National Education [MoNE], 2018), physical education teachers can promote a sense of responsibility and resilience in students by demonstrating leadership in preparedness, particularly by supporting the provision of information on how to prevent situations requiring emergency help. Based on this research, it will be possible to take several steps to help change negative beliefs into positive ones. With the information from this study, it will also be possible to develop earthquake preparedness plans for the educational sector as well.

Based on these contributions, this study sought to determine whether physical education teacher candidates hold different beliefs about disaster preparedness depending on their gender and grade level. The research questions of this study are as follows:

a. What is the difference in disaster preparedness beliefs of female and male physical education teacher candidates?

b. What is the difference in disaster preparedness beliefs of 1st, 2nd, 3rd, and 4th-grade physical education teacher candidates?

2. Method

2.1. Research design

In the current study, a cross-sectional descriptive survey was conducted using quantitative research techniques. It also used a research model known as correlational research, which examines the relationship between variables in various groups or conditions. Correlational research examines whether there is a relationship between two or more variables and how this relationship varies between groups (Fraenkel et al., 2012).

2.2. Participants

The participants in this study were undergraduate students in the Department of Physical Education and Sport who were selected using a convenient sampling method. Of the 149 participants, 59.1% were female and 40.9% were male; 23.5% were in the first grade, 23.5% were in the second grade, 25.5% were in the third grade, and 27.5% were in the fourth grade (Table 1). The mean age of the participants was 21.79 (*SD* = 2.30) years, 21.86 (*SD*= 2.37) years for the women, and 21.67 (*SD*= 2.22) years for the men. 44% of participants resided in the provinces that were declared as disaster zones (Hatay, Osmaniye, Gaziantep, Adana, Diyarbakır, Şanlıurfa, Kayseri, Mardin, Niğde, Batman) after the Kahramanmaraş Earthquakes on 6 February 2023, while 52% of participants resided in Mersin. Additionally, during the Kahramanmaraş earthquakes, 46% of the participants were in the cities in the disaster zone (Kahramanmaraş, Hatay, Osmaniye, Gaziantep, Adana, Diyarbakır, Şanlıurfa, Kayseri, Mardin, Niğde, Batman) and 50% of the participants were in Mersin, which is on the border of the disaster zone city of Adana. The remaining 4% of the participants lived outside the affected provinces and were in these provinces at the time of the earthquake.

Table 1

Demographic Characteristics of Study Participants

Demographics		n	%
Gender	Female	88	59.1
	Male	61	40.9
Grade	1st grade	35	23.5
	2nd grade	35	23.5
	3rd grade	38	25.5
	4th grade	41	27.5

2.3. Data collection instruments

2.3.1. Demographic information form

The researchers developed the demographic information form that was used in this study, which included questions about the gender of the participants, their age, and their grade level. The participants also provided information about their hometown and about where they had been during the earthquakes in Kahramanmaraş.

2.3.2. General disaster preparedness belief scale

In this study, participants' beliefs about disaster preparedness were examined using a General Disaster Preparedness Belief Scale (Inal et al., 2018). The scale has a total of 31 items and 6 subscales named Self-efficacy (8 items), Cues to Action (5 items), Perceived Susceptibility (6 items), Perceived Barriers (6 items), Perceived Benefits (3 items), and Perceived Severity (3 items). The scores for each item range from 1 (strongly disagree) to 5 (strongly agree) on a 5-point Likert scale. The total scale and sub-dimension scores are derived by summing the scores of each item and dividing by the number of items. While the possible scores range from 1 to 5, a high score indicates that the individual has a strong belief in the preparedness for earthquakes. The Cronbach's alpha reliability coefficients were calculated to be between .74 and .90 for the sub-dimensions and .90 for the total scale. In this study, the alpha reliability coefficients ranged from .64 to .77 for the subscales and .81 for the overall scale.

2.4. Data collection procedures

Before the start of the research, approval was obtained from the Ethics Committee of Sports Science (05/06/2023-029) and official permission was obtained from the institution where the data would be collected. Due to the decision of the Council of Higher Education [CoHE] (2023) to allow distance learning due to the Kahramanmaraş earthquakes, the data collection procedures were conducted

remotely. Following this, the data collection instruments were transferred to an application that would allow for the digital collection of data. A link from the digital data collection instruments was sent to students' digital contact addresses (e-mail, message, chat, etc.) with information about the study and a statement that participation was voluntary. It took the participants an average of 5 minutes to complete the data collection tools.

2.5. Data analysis

To ensure that the assumption of normality of the distribution was not violated, a preliminary analysis was performed before data analysis. The results of the normality test were that all the data had a normal distribution. The skewness (Self-efficacy= .294, Cues to Action= -.072, Perceived Susceptibility= -.657, Perceived Barriers= .041, Perceived Benefits= -.977, and Perceived Severity= -.452; Overall scale= -.017) and kurtosis values (Self-efficacy= .058, Cues to Action= -.178, Perceived Susceptibility= .519, Perceived Barriers= -.365, Perceived Benefits= .567, and Perceived Severity= -.313; Overall scale= -.049) were between +1 and −1, which is an indication that the distribution of the data could be considered normal. As suggested by Mertler and Reinhart (2017), skewness and kurtosis values lying between -1 and +1 were used as an acceptable range for normality. Due to the normal distribution of research data, an independent samples *t*-test was used to determine whether participants' disaster preparedness beliefs differed by gender, and a one-way analysis of variance (ANOVA) with post hoc analysis using Scheffe's test was used to determine whether participants' earthquake preparedness beliefs differed by grade level. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 20.0.

3. Results

The research analyzed the scores of the physical education teacher candidates that were derived from the General Disaster Preparedness Belief Scale and presented the means and standard deviations in Table 2.

Table 2

Results of Participants' Beliefs in Subdimensions of General Disaster Preparedness

Scale Sub-Dimensions	*n*	$\bar{x}$	*SD*
Self-efficacy	149	3.38	0.36
Cues to Action	149	3.64	0.58
Perceived Susceptibility	149	3.81	0.45
Perceived Barriers	149	3.63	0.63
Perceived Benefits	149	4.15	0.75
Perceived Severity	149	3.86	0.80
Overall Scale	149	3.68	0.37

As shown in Table 2, the sub-dimensions and total scale scores of physical education teacher candidates' general disaster preparedness beliefs were higher than the mean scores.

An independent samples *t*-test was used to determine whether there were gender differences in the beliefs of the physical education teacher candidates on the sub-dimensions and the total scores derived from the General Disaster Preparedness Belief Scale. The analysis of the results is presented in Table 3.

Table 3

Results of t-test Comparing Participants' Beliefs on Sub-dimensions of General Disaster Preparedness by Gender

Scale Sub-Dimensions	Gender	*n*	$\bar{x}$	*SD*	*t*
Self-efficacy	Female	88	3.44	0.36	2.83*
	Male	61	3.28	0.33	
Cues to Action	Female	88	3.75	0.51	2.72*
	Male	61	3.49	0.64	
Perceived Susceptibility	Female	88	3.89	0.39	2.53**
	Male	61	3.70	0.50	
Perceived Barriers	Female	88	3.74	0.62	2.52**
	Male	61	3.48	0.61	
Perceived Benefits	Female	88	4.21	0.68	1.31
	Male	61	4.05	0.83	
Perceived Severity	Female	88	4.01	0.80	2.77*
	Male	61	3.65	0.76	
Overall Scale	Female	88	3.77	0.37	3.79*
	Male	61	3.54	0.34	

*p<.01
**p<.05

The results of the independent samples *t*-test showed that the Self-efficacy [$t(147)= 2.83$, $p= .005$], Cues to Action [$t(147)= 2.72$, $p= .007$], Perceived Susceptibility [$t(147)= 2.53$, $p= .013$], Perceived Barriers [$t(147)= 2.52$, $p= .13$], Perceived Severity [$t(147)= 2.77$, $p= .006$] and total scale scores [$t(147)= 3.79$, $p= .001$] of female and male physical education teacher candidates were statistically different. One of the other sub-dimensions of the scale, Perceived Benefits, showed no gender differences in the scores of the physical education teacher candidates [$t(147)= 1.31$, $p= .192$] (Table 3). According to these findings, it was observed that Self-efficacy ($\bar{x}_{female}= 3.44$, $SD_{female}= .36$; $\bar{x}_{male}= 3.28$, $SD_{male}= .33$), Cues to Action ($\bar{x}_{female}= 3.75$, $SD_{female}= .51$; $\bar{x}_{male}= 3.49$, $SD_{male}= .64$), Perceived Susceptibility ($\bar{x}_{female}= 3.89$, $SD_{female}= .39$; $\bar{x}_{male}= 3.70$, $SD_{male}= .50$), Perceived Barriers ($\bar{x}_{female}= 3.74$, $SD_{female}= .62$; $\bar{x}_{male}= 3.48$, $SD_{male}= .61$), Perceived Severity ($\bar{x}_{female}= 4.01$, $SD_{female}= .80$; $\bar{x}_{male}= 3.65$, $SD_{male}= .76$) and totall scale scores ($\bar{x}_{female}= 3.77$, $SD_{female}= .37$; $\bar{x}_{male}= 3.54$, $SD_{male}= .34$) of female physical education teacher candidates were higher than those of males. The scores of the male and female candidates on the Perceived Benefits sub-dimension of the scale were similar ($\bar{x}_{female}= 4.21$, $SD_{female}= .68$; $\bar{x}_{male}= 4.05$, $SD_{male}= .83$).

A one-way ANOVA followed by a Scheffe post hoc analysis was used to determine whether the sub-dimensions of general disaster preparedness beliefs and the overall scores of the male and female physical education teacher candidates differed by grade level (1st, 2nd, 3rd, and 4th grade). The results of the analysis are presented in Table 4.

Table 4

Results of the ANOVA Comparing Participants' Beliefs on Sub-dimensions of General Disaster Preparedness by Grade Level

		n	$\bar{x}$	*SD*	*F*
Self-efficacy	1st Grade	35	3.30	0.39	0.83
	2nd Grade	35	3.38	0.36	
	3rd Grade	38	3.38	0.32	
	4th Grade	41	3.43	0.36	
	Total	149	3.38	0.36	
Cues to Action	1st Grade	35	3.52	0.53	1.21
	2nd Grade	35	3.69	0.67	
	3rd Grade	38	3.59	0.51	
	4th Grade	41	3.76	0.58	
	Total	149	3.64	0.58	
Perceived Susceptibility	1st Grade	35	3.92	0.38	2.70*
	2nd Grade	35	3.66	0.62	
	3rd Grade	38	3.76	0.48	
	4th Grade	41	3.89	0.37	
	Total	149	3.81	0.45	
Perceived Barriers	1st Grade	35	3.65	0.60	2.00
	2nd Grade	35	3.43	0.68	
	3rd Grade	38	3.64	0.55	
	4th Grade	41	3.78	0.66	
	Total	149	3.63	0.63	
Perceived Benefits	1st Grade	35	4.32	0.68	3.20*
	2nd Grade	35	3.89	0.95	
	3rd Grade	38	4.04	0.69	
	4th Grade	41	4.32	0.59	
	Total	149	4.15	0.75	
Perceived Severity	1st Grade	35	3.96	0.82	1.64
	2nd Grade	35	3.66	0.81	
	3rd Grade	38	3.79	0.85	
	4th Grade	41	4.02	0.70	
	Total	149	3.86	0.80	
Overall Scale	1st Grade	35	3.69	0.32	2.12
	2nd Grade	35	3.59	0.45	
	3rd Grade	38	3.64	0.34	
	4th Grade	41	3.78	0.35	
	Total	149	3.68	0.37	

*p< .05

According to the results of the one-way ANOVA, there was no statistically significant difference in the scores for Self-efficacy [F(3, 148)= .83, p= .482], Cues to Action [F(3, 148)= 1.21, p= .308], Perceived Barriers [F(3, 148)= 2.00, p= .116]. There was a significant difference in the Perceived Severity [F(3, 148)= 1.64, p= .184], and total scale scores [F(3, 148)= 2.12, p= .100] of physical education teacher candidates based on the grade level, but there was a significant difference in the Perceived Susceptibility [F(3, 148)= 2.70, p= .048] and Perceived Benefits scores [F(3, 148)= 3.20, p= .025]. As a result of the Scheffe post hoc analysis carried out to determine the difference between the scores of the students studying in which grade, it was found that the scores for Perceived Susceptibility and Perceived Benefits did not differ by grade level studied, p> .05.

4. Discussion

The results of this study, designed to examine whether the general disaster preparedness beliefs of physical education teacher candidates differed by gender and grade level, showed that the levels of Self-efficacy, Cues to Action, Perceived Susceptibility, Perceived Barriers, Perceived Severity, and general disaster preparedness beliefs were higher among female physical education teacher candidates than among males.

One of the components of general disaster preparedness beliefs is self-efficacy, which is the belief that one can cope with a crisis or disaster on one's own. Female physical education teacher candidates had stronger self-efficacy beliefs about preparing for disasters than male candidates, and self-efficacy beliefs about disaster preparedness did not change by grade level studied, according to the results of this study. Research suggests that traditional gender roles contribute to the lack of self-efficacy of women in preparing for disasters (Scanlon, 1997). In the event of a disaster, women do a better job than men preparing their families and communities for disasters by doing work that is attributed to gender inequality rather than physical strength, such as making homes habitable again, serving food in shelters, and caring for their children and the elderly in shelters and temporary homes (Ashraf & Azad, 2015; Fothergill, 1996; Fujii & Kanbara, 2019; Okay & İlkkaracan, 2018; WHO, 2002). Given that keeping the family together and meeting its basic needs in the event of a disaster is a major responsibility and burden, women's efficacy beliefs about disaster preparedness may have been higher than those of men, reflecting these factors (Cvetković et al., 2018). Türkiye is a country where traditional gender roles are reflected in society and where women have to fight for acceptance in many areas that are dominated by men (Sakallı-Uğurlu et al., 2018). Based on these conditions, female participants in this study may have expressed their self-efficacy beliefs more dominantly than male participants. In addition, the participants in this study are physical education teacher candidates and participants are qualified, skilled, and able to take part in physical education and sports activities. Although not directly asked, the candidates had at some point in their lives experienced physical education and sports-related activities. With a special physical talent test, they entered the Department of Physical Education and Sports. Their physical capacity and competence can be predicted from these athletic life events in their lives. Furthermore, these physical attributes, which provide opportunities for individuals to develop their skills through physical activity and sports, positively influenced study participants' disaster preparedness self-efficacy beliefs, as research has shown that self-efficacy is an individual's belief in their ability to perform tasks or achieve goals (Bandura, 1997). Women who are active in physical education and sports are faced with societal constraints and expectations that may make it difficult for them to be accepted in sports based on established traditional gender roles. An additional reason for the greater self-efficacy of women in this study compared to men may be their success in navigating the complicated social acceptance process of becoming a physical education teacher, balancing societal expectations, and overcoming sexist attitudes and practices in society. In addition to these findings, some other studies have found that men tend to have higher self-efficacy for coping with disasters compared to women. In one of these studies, Cuesta et al. (2022) found that men's self-efficacy for disasters such as extreme weather, fire, earthquakes, and terrorist attacks was higher than that of women when they examined the levels of disaster preparedness of the citizens in Spain, France, Poland, Sweden, and Italy, all European Union member states. Although the researchers found that women had lower levels of self-efficacy than men, they attributed this to women having a more realistic assessment of their abilities. Another study examining the general disaster preparedness beliefs among Turkish teachers found that male teachers had higher self-efficacy beliefs for disaster preparedness than female teachers (Tın et al., 2021). Dasci-Sonmez and Gokmenoglu (2023) found that the self-efficacy beliefs of female and male teachers for earthquake preparedness were higher than the average and were similar when assessing the level of earthquake preparedness of teachers in the Turkish sample. Contrary to these findings, studies show that men have higher self-efficacy beliefs for disaster preparedness

compared to women. Newnham et al. (2017) examined perceptions of disaster preparedness self-efficacy of participants in a sample of Hong Kong and found that the self-efficacy beliefs of male participants were higher than those of females. Cvetković et al. (2018) conducted another study on disaster preparedness self-confidence and found that men's perceptions of disaster preparedness self-confidence were higher than those of women. While the demographic characteristics of the participants (such as age, education level, knowledge level, training, and disaster experience) can be used to assess the differences between the findings of these studies, it should also be noted that the relationship between self-efficacy belief about disaster preparedness and gender variables is not clear.

One of the other sub-dimensions of general disaster preparedness is the concept of cues to action, which refers to occasions, people, or things that prompt people to change their behavior concerning disaster preparedness (Haraoka et al., 2012; Inal et al., 2018). Cues to action concerning disaster preparedness can include a variety of things that encourage people to participate in preparedness activities, including receiving warnings, seeing others take action, or becoming aware of their vulnerability to disasters (Champion & Skinner, 2008; Rosenstock, 2000). In this study, female physical education teacher candidates reported higher levels of beliefs in action cues than male counterparts and beliefs in action cues related to disaster preparedness did not differ by their grade level studied. These results demonstrated that social cues and messages emphasizing collective action and the protection of others are essential in encouraging women's participation in disaster preparedness activities. In other words, if women receive warnings or see others taking precautions, they are more likely to perceive the threat as serious and to act on it accordingly. Furthermore, cues highlighting potential impacts on vulnerable populations, such as children or older adults, can significantly influence women's disaster preparedness (Fothergill, 1996; 1998). Research suggests that gender is an important factor in the relationship between gender and cues to action (Fothergill, 1998; Fothergill, 2003). According to related literature, men and women do not hear, believe, or personalize disaster warnings in the same way. Women are more likely than men to receive risk messages and respond with protective behaviors such as evacuation because of their social networks. Because of their social networks and roles, women are more likely than men to receive warnings from their peers, such as friends, neighbors, and family members (Enarson, 2000). However, males are more skeptical about the recommendations of their peers. Women are more likely than men to believe in disaster warnings and more likely to take emergency messages seriously. Women are also more likely than men to interpret, accept, and personalize warnings as legitimate. In the majority of the disaster situations, women are more likely than men to respond to warnings and alerts (Enarson et al., 2007; Fothergill & Peek, 2004; Tierney, 2007). In an educational setting, researchers examined the general disaster preparedness beliefs of teachers across Türkiye, and the results showed no difference between men and women in the cues to action sub-domain, and the score obtained was high (Dasci-Sonmez & Gokmenoglu, 2023).

Perceived susceptibility, which examines an individual's perception of the risk of experiencing a disaster or emergency, is another sub-dimension of general the disaster preparedness belief. Research on this issue shows that the perceived amount of risk has an impact on the level of individual disaster preparedness. People need to first feel that there is a risk for them to prepare, and if they feel that the risk is low, they will not think that they should do any preparation (Becker et al., 2013). According to the current study, gender has an impact on risk perception, and female physical education teacher candidates perceived disaster risk to be higher than male candidates. However, teacher candidates' perceptions of their susceptibility to disaster preparedness did not differ by grade level studied. Related literature on gender norms, with implications for disaster preparedness and safety, suggests that they may encourage greater "risk-taking" by men and "risk avoidance" by women. As a result, women's perceived risks were significantly higher than those of men (Enarson, 2006). Consistent with previous findings, female physical education teacher candidates in this study showed higher levels of perceived susceptibility than males. The likelihood of women perceiving a disaster or hazard as serious or

dangerous is higher than that of men, particularly when their family is at risk (Flynn et al., 1994). One of the studies carried out in this area examined the level of disaster preparedness among EU citizens and found that women's perceptions of the negative effects of disasters were higher than men's (Cuesta et al., 2022). The majority of the physical education teacher candidates participating in this study were either residents of Mersin, a province adjacent to those declared disaster zones following the 7.7 and 7.6 magnitude Kahramanmaraş earthquakes of 6 February, and experienced the adverse physical and psychological effects of the earthquake, or residents of the declared disaster zones, also experienced the earthquake in these zones, contributing to a higher level of perceived disaster risk. The literature on the subject has shown that people who have experienced and been affected by an earthquake have an increased perception of the risk of the disaster, and they have a higher perception of fear and life-threatening risk, depending on their perception of the possibility of the earthquake recurring (Espina & Teng-Calleja, 2015; Kung & Chen, 2012). Regarding gender, studies have found that women are more fearful and have more perceptions of life-threatening situations than men who have experienced an earthquake before (Ho et al., 2008; Kung & Chen, 2012). Tang and Feng (2018), examined the views of earthquake survivors on disaster preparedness in a sample from Taiwan and found that women had more behavioral intentions for disaster preparedness than men because they were more sensitive to risk, tended to perceive risk more than men, were more concerned about the safety of the environment in which they lived, and felt that they were at risk from earthquakes. After the Kahramanmaraş earthquakes, which caused more than 58,000 deaths in Türkiye alone, women's perception of the risk of earthquakes was higher than that of men. This is likely due to the higher risk perception of women and their recent exposure to earthquakes.

As a further sub-dimension of earthquake preparedness beliefs, Perceived Barriers include obstacles that are likely to hinder the person's perceived preparedness for earthquakes. The barriers perceived by physical education teacher candidates participating in this study differed by gender, but not by grade level studied, and the barriers perceived by females were more significant than those perceived by males. In a study that assessed the level of preparedness for earthquakes among people who had already been through an earthquake, participants' perceptions of barriers did not vary by gender (Arslanoğlu et al., 2023). Financial considerations, a lack of knowledge and skills, a lack of time, physical barriers, and a lack of importance were identified as barriers to disaster preparedness by participants in a study in the Philippines (Bollettino et al., 2018). Women face challenges in accessing knowledge and resources preparing for, responding to, and coping with disasters, including early warning, shelter, and bank accounts for protection and income (Erman et al., 2021). Cox (2022), investigating barriers to disaster preparedness among university students in the United States, found that time constraints were cited as a barrier to disaster preparedness by more than half of the students surveyed. According to the results of the Canadian sample, the main barriers perceived by university students to prepare for disasters are short-term shelter in the area where they currently live, cost, lack of experience, and the belief that the property will never be used (Tanner & Doberstein, 2015). Barriers to preparedness for unforeseen emergencies, including disasters, were explored in the American sample, and confusion about preparing for an unknown situation, not having the financial ability to cover the cost of the materials needed for preparation, not believing it is necessary to be prepared where they live, not knowing where to begin the preparation, and finding it difficult to work with the family on preparation were all identified as barriers that prevent participants from preparing for an emergency (Kruger et al., 2020). A study of Hong Kong disaster preparedness reported that barriers to better disaster preparedness included a lack of knowledge of where to access information, a belief that Hong Kong is relatively safe from disaster and that education to support this belief is unnecessary, and a lack of time for disaster preparedness (Lam et al., 2017). Tanner and Doberstein (2015) examined the disaster preparedness of university students in a Canadian sample and found that nearly half of the students, regardless of gender, grade level, or previous disaster experience, reported that there were barriers that prevented them from preparing for

disasters: living in a residential area for a short period, not being able to afford the cost of preparation, and believing that the preparedness materials will never be used again. In addition, research has shown that women's lower status in society and households, and the restrictions placed on women's freedom by traditional gender roles, prevent them from playing an active role in earthquake preparedness (Fothergill, 1996; Plan International, 2021; Petraroli & Baars, 2022). This evidence, together with data from the literature, suggests that men and women face different barriers to preparing for disasters. The nature of these barriers varies according to the characteristics of the sample being analyzed. According to the findings of this study, the unequal distribution of power and economic opportunities reflected in the traditional gender roles of Turkish culture is the reason why women's perceived barriers to disaster preparedness beliefs are higher than men's (The Global Facility for Disaster Reduction and Recovery, 2018).

Concerning another sub-dimension of disaster preparedness beliefs, the Perceived Benefits beliefs of physical education teacher candidates did not differ according to the gender of the physical education teacher candidates' gender or according to the grade level they studied. Disaster preparedness was perceived to be of greater benefit to physical education teacher candidates than average. Studies have shown that people's belief in the benefits of disaster preparedness and their belief in the possibility of disasters are among the factors that significantly influence their preparedness for disasters. In other words, the higher one believes in the likelihood of experiencing a disaster, the higher one believes in the benefits and likelihood of preparing for disaster (Motoyoshi, 2006). After the experience of the 7.7 and 7.6 magnitude earthquakes in Kahramanmaraş, physical education teacher candidates, regardless of gender or grade level, are expected to have positive perceptions of the benefits of disaster preparedness. These findings are supported by national and international research. Dasci-Sonmez and Gokmenoglu (2023), investigating the general beliefs of teachers in Türkiye regarding disaster preparedness, found that the perceived benefits of the participating teachers, regardless of gender, were higher than the national average.

Another sub-dimension of disaster preparedness included in the research was Perceived Severity, and it was found that the perceived severity scores of female physical education teacher candidates were higher than those of male teacher candidates, but there was no difference between the perceived severity scores of the teacher candidates based on the grade level studied. In addition to women having a higher perceived severity score, both men and women had a higher-than-average perceived severity score. Perceived Severity is a subjective assessment of the severity of the impact and potential consequences of a disaster. This theory suggests that people are more likely to take action to prevent (or reduce the severity of) the negative effects of a disaster if they perceive those effects to be severe. The perceived severity scores of the physical education teacher candidates in this study were more significant than the norm, as they had recently experienced the severe Kahramanmaraş 7.7 and 7.6 magnitudes earthquakes, which killed more than 50,000 people. Espina and Teng-Calleja (2015), in one of the studies on this topic, reported that the severity of the disaster experienced is an important factor in preparing for earthquakes. In the Turkish sample, the results of Dasci-Sonmez and Gokmenoglu (2023), who examined teachers' earthquake preparedness, showed no difference in perceived severity between male and female teachers, while the perceived severity level was moderate. The fact that the participants in this study had recently experienced the devastating Kahramanmaraş earthquakes on 6 February may explain the difference between the mean score perceived severity score obtained in the results of the study conducted by Dasci-Sonmez and Gokmenoglu (2023) and the mean score obtained in this study.

The findings regarding the general level of disaster preparedness beliefs of the physical education teacher candidates participating in the study showed that the level of beliefs of female teacher candidates was higher than that of the male teacher candidates. Meanwhile, the beliefs of the female and male teacher candidates about disaster preparedness did not vary by grade level. Furthermore, the

general disaster preparedness belief levels were found to be higher than average for both genders. Some of the studies conducted on this subject have found differences in disaster preparedness beliefs according to gender, while others have found no difference. One of the studies that found no difference between men and women in their disaster preparedness beliefs was carried out on a sample of university staff (Inal, Altintas, & Dogan, 2019). A further study, which found no difference between the general disaster preparedness levels of women and men, was carried out with the participation of teachers (Dasci-Sonmez & Gokmenoglu, 2023). However, Ertuğrul and Ünal (2020), examining the disaster preparedness beliefs of university students studying health, found that female students had a higher disaster preparedness beliefs level than male students. Yiğit et al. (2020), examining the disaster preparedness beliefs of medical and engineering students, found a gender difference in the disaster preparedness beliefs of the students participating in their research, with women having higher disaster preparedness beliefs than men. Similarly, international studies have found no gender difference in disaster preparedness beliefs. In the Philippine sample, perceived levels of disaster preparedness beliefs were similar for women and men (Bollettino et al., 2020). Cuesta et al. (2022) also found similar attitudes toward disaster preparedness between genders. Though studies on how gender affects preparedness behavior are scarce, Fothergill (1996) notes that some evidence suggests that women tend to be better than men at making their families and communities more disaster-resistant.

The latest natural disasters have highlighted the importance of disaster preparedness in all segments of society. The study suggests that raising awareness through direct or interdisciplinary courses is crucial, although disaster preparedness is not a top priority in the curriculum of higher education institutions (Coveleski, 2014; Dikmenli & Yakar, 2019; Matunhay, 2022). The research suggests that there is no significant difference in disaster preparedness beliefs among teacher candidates based on their grade level studied, emphasizing that the teacher training program lacks any information about disaster preparedness (Ozkazanc & Duman-Yuksel, 2015; Tekin & Dikmenli, 2021).

5. Limitations

The findings of the study have to be considered in light of some important limitations. One limitation was the selection bias of the sample regarding the population, as the majority of the participants lived or were, at the time of the study, in an earthquake zone or county where the serious negative effects of the quake are strongly felt. The small sample size and restriction to one university represent two of the study's limitations. Another limitation is that the convenience sample of participants is not necessarily representative of the wider community of potential physical education teachers. The sample for this study consisted of students intending to pursue a career in physical education teaching, and therefore, the findings of this study may only apply to university students with this status. Although this study provides valuable insights into the relationship between disaster preparedness beliefs, gender, and grade level studied, it does not consider the impact of other possible influencing variables. This study relies on the use of questionnaires for data collection, and errors or misunderstandings could affect the validity of the data collected. The study did not consider the effect of individual characteristics on disaster preparedness, such as prior knowledge, training, or motivation.

6. Conclusions

In conclusion, the physical education teacher candidates participating in this study were above average in their disaster preparedness beliefs, both in the sub-dimensions and the overall scale. Regarding general disaster preparedness beliefs and the sub-dimensions of Self-efficacy, Cues to Action, Perceived Susceptibility, Perceived Barriers, and Perceived Severity, it was found that females had stronger beliefs than males and there was no difference between the two sexes regarding Perceived Benefits beliefs. When physical education teacher candidates were examined in the grade level they are studying, it was found that the general disaster preparedness beliefs, Self-efficacy, Cues to Action, Perceived

Susceptibility, Perceived Barriers, Perceived Benefits, and Perceived Severity beliefs did not differ according to the grade level.

7. Recommendations

Future research should utilize larger samples to confirm the disaster preparedness beliefs of physical education teacher candidates. Additionally, future research ought to include a more extensive and diverse sample of university students from various backgrounds to allow for a more thorough assessment of disaster preparedness beliefs across the student population. Incorporating the other data collection methods, such as interviews, focus groups, and observations, could provide qualitative insights into the reasons for different disaster preparedness beliefs. Moreover, future research should investigate the relationships between students' demographic characteristics (e.g., age, faculty, department, and areas of residence) and disaster preparedness beliefs to determine if notable differences exist based on these criteria. Furthermore, the effectiveness of specific programs in increasing disaster preparedness beliefs should be explored in future studies. Given that the majority of participants in this study had experienced the effects of an earthquake, future research could address an important gap in the literature by comparing the earthquake preparedness beliefs of individuals with and without earthquake experience.

The results of this research have unveiled significant findings regarding the expression of beliefs about earthquake preparedness. For governments and policymakers in teacher education, the gender difference in the sub-dimensions of disaster preparation beliefs revealed by the research is noteworthy. To minimize gender differences in disaster preparedness beliefs, policymakers should take the necessary measures at both social and educational levels. Furthermore, to foster positive disaster preparedness beliefs to the fullest extent possible, relevant training, public service announcements, seminars, and general education should be made accessible to all segments of society. Additionally, the results of this study suggest that the knowledge and positive beliefs of teacher candidates towards disaster preparedness should be enhanced through materials provided directly or indirectly in teacher education programs.

References

Altıntaş Çolak, B. (2023). *Ankara ili Altındağ ilçesinde İlköğretim okullarında görev yapan öğretmenlerin afete bireysel hazırlık düzeylerinin Genel Afete Hazırlık İnanç Ölçeği ile değerlendirilmesi [Evaluation of individual disaster preparedness levels of teachers working in primary schools in Altındağ district of Ankara province using the General Disaster Preparedness Belief Scale.]* (Thesis number: 794678)[Master Thesis, Hacettepe University]. Turkish Council of Higher Education Thesis Center.

Arkan Üner, G., & Erkin, Ö. (2023). The assessment of nursing educators' disaster preparedness beliefs/Hemşirelik eğitimcilerinin afete hazırlık inançlarının değerlendirilmesi. *Forbes Journal of Medicine, 4*(2), 179-190. https://doi.org/10.4274/forbes.galenos.2023.02259

Arslanoğlu, A., Erdoğan, M., Düdükcü, Y., & Keçeli, S. (2023). Individual preparedness for emergency disasters based on the Health Belief Model and factors affecting these. *Journal of Disaster and Risk, 6*(2), 367-390. https://doi.org/10.35341/afet.1134823

Ashraf, M. A., & Azad, M. A. K. (2015). Gender issues in disaster: Understanding the relationships of vulnerability, preparedness and capacity. *Environment and Ecology Research, 3*(5), 136-142. https://doi.org/10.13189/eer.2015.030504

Assar, M. (1971). *Guide to Sanitation in Natural Disasters*. WHO: Geneva, Switzerland. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/41031/10678_eng.pdf

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Becker, J. S., Paton, D., Johnston, D. M., & Ronan, K. R. (2013). Salient beliefs about earthquake hazards and household preparedness. *Risk Analysis, 33*(9), 1710-1727. https://doi.org/10.1111/risa.12014

Bhebhe, S., Runhare, T., & Monobe, R. J. (2019). Strategic approaches for developing a culture of safety management in schools: Indications from literature studies. *Jàmbá: Journal of Disaster Risk Studies, 11*(2), 1-6. https://doi.org/10.4102/jamba.v11i2.694

Bollettino, V., Alcayna, T., Enriquez, K., & Vinck, P. (2018). *Perceptions of disaster resilience and preparedness in the Philippines.* Harvard University: Cambridge, MA, USA. Retrieved from https://philnews.ph/wp-content/uploads/2019/07/prc-phillippine-report-final_0.pdf

Bollettino, V., Alcayna-Stevens, T., Sharma, M., Dy, P., Pham, P., & Vinck, P. (2020). Public perception of climate change and disaster preparedness: Evidence from the Philippines. *Climate Risk Management, 30*, 100250. https://doi.org/10.1016/j.crm.2020.100250

Caldera, H. J., & Wirasinghe, S. C. (2022). A universal severity classification for natural disasters. *Natural Hazards, 111*(2), 1533-1573. https://doi.org/10.1007/s11069-021-05106-9

Center for Research on the Epidemiology of Disasters (2023). *2022 Disasters in Numbers.* Brussels, Belgium. Retrieved from https://cred.be/sites/default/files/2022_EMDAT_report.pdf

Champion, V. L., & Skinner, C. S. (2008). The health belief model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 45-65). Jossey-Bass.

Council of Higher Education [CoHE]. (2018). *Yeni Öğretmen Yetiştirme Lisans Programları: Beden Eğitimi ve Spor Öğretmenliği Lisans Programı [New Teacher Training Undergraduate Programs: Physical Education and Sports Teaching Undergraduate Program].* Retrieved from https://www.yok.gov.tr/Documents/Kurumsal/egitim_ogretim_dairesi/Yeni-Ogretmen-Yetistirme-Lisans-Programlari/Beden_Egitimi_ve_Spor_Ogretmenligi_Lisans_Programi.pdf

Cox, A. (2022). *The assessment of emergency preparedness among university students* (Publication No: 1236) [Master's thesis, Minnesota State University]. Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. Retrieved from https://cornerstone.lib.mnsu.edu/etds/1236/

Coveleski, J. (2014). *A study of students' perceptions of natural disaster plans and emergency preparedness at a higher education institution* (Publication No. 3681707) [Doctoral dissertation, Florida State University]. ProQuest Dissertations Publishing.

Cretikos, M., Eastwood, K., Dalton, C., Merritt, T., Tuyl, F., Winn, L., & Durrheim, D. (2008). Household disaster preparedness and information sources: Rapid cluster survey after a storm in New South Wales, Australia. *BMC Public Health, 8*(1), 1-9. https://doi.org/10.1186/1471-2458-8-195

Cuesta, A., Alvear, D., Carnevale, A., & Amon, F. (2022). Gender and public perception of disasters: A multiple hazards exploratory study of EU citizens. *Safety, 8*(3), 59. https://doi.org/10.3390/safety8030059

Cvetković, V. M., Roder, G., Öcal, A., Tarolli, P., & Dragićević, S. (2018). The role of gender in preparedness and response behaviors towards flood risk in Serbia. *International Journal of Environmental Research and Public Health, 15*(12), 2761. https://doi.org/10.3390/ijerph15122761

Çelik, A. A., & Gündoğdu, K. (2022). Teachers' opinions on disaster preparedness levels and disaster education practices in primary schools. *Journal of Ağrı İbrahim Çeçen University Social Sciences Institute, 8*(1), 76-111. https://doi.org/10.31463/aicusbed.1057401

Dasci-Sonmez, E., & Gokmenoglu, T. (2023). Understanding the teachers' disaster preparedness beliefs. *International Journal of Disaster Risk Reduction, 85*, 103511. https://doi.org/10.1016/j.ijdrr.2022.103511

Demirbilek, Ö., & Gökkaya, E. (2022). Acil yardım ve afet yönetimi öğrencilerinde afetlere hazırlık durumları ile psikolojik sağlamlık durumlarının ilişkisinin incelenmesi [Examining the relationship between disaster preparedness and psychological resilience among emergency aid and disaster management students.]. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 11*(2), 617-624. https://doi.org/10.37989/gumussagbil.1001225

Dikmenli, Y., & Yakar, H. (2019). Öğretmen adaylarının afet bilinci algı düzeylerinin incelenmesi. *Van Yüzüncü Yıl Üniversitesi Eğitim Fakültesi Dergisi*, *16*(1), 386-416. Retrieved from https://dergipark.org.tr/en/pub/yyuefd/issue/50700/660832

Enarson, E. (2000). We will make meaning out of this: Women's cultural responses to the Red River Valley flood. *International Journal of Mass Emergencies & Disasters, 18*(1), 39-62. https://doi.org/10.1177/028072700001800103

Enarson, E. (2006). Women and girls last? Averting the second post-Katrina disaster. In *Understanding Katrina: Perspectives from the social sciences.* Brooklyn: Social Science Research Council.

Enarson, E., Fothergill, A., Peek, L. (2007). Gender and disaster: Foundations and directions. In: *Handbook of Disaster Research. Handbooks of Sociology and Social Research.* Springer, New York, NY. https://doi.org/10.1007/978-0-387-32353-4_8

Erman, A., De Vries Robbe, S. A., Fabian Thies, S., Kabir, K., & Maruo, M. (2021, March 1). *Gender dimensions of disaster risk and resilience: Existing evidence.* World Bank. Retrieved from https://reliefweb.int/attachments/b81579fb-e0a5-3da4-a27f-2da6932d4569/Gender-Dimensions-of-Disaster-Risk-and-Resilience-Existing-Evidence.pdf

Ertuğrul, B., & Ünal, S. D. (2020). Determination of general disaster preparedness beliefs of students studying at a foundation university health services vocational school. *Journal of Disaster and Risk, 3*(1), 31-45. https://doi.org/10.35341/afet.653911

Espina, E., & Teng-Calleja, M. (2015). A social cognitive approach to disaster preparedness. *Philippine Journal of Psychology, 48*(2), 161-174. https://doi.org/10.1108/09653560310480686

Flynn, J., Slovic, P., & Mertz, C. K. (1994). Gender, race, and perception of environmental health risks. *Risk analysis, 14*(6), 1101-1108. https://doi.org/10.1111/j.1539-6924.1994.tb00082.x

Fothergill, A. (1996). Gender, risk, and disaster. *International Journal of Mass Emergencies & Disasters, 14*(1), 33-56. https://doi.org/10.1177/028072709601400103

Fothergill, A. (1998). The neglect of gender in disaster work: An overview of the literature. In E. Enarson & B. H. Morrow (Eds.), *The gendered terrain of disaster: Through women's eyes* (pp. 63-84). Praeger Publishers, Westport, CT.

Fothergill, A. (2003). The stigma of charity: Gender, class, and disaster assistance. *The Sociological Quarterly, 44*(4), 659-680. https://doi.org/10.1111/j.1533-8525.2003.tb00530.x

Fothergill, A., & Peek, L. A. (2004). Poverty and disasters in the United States: A review of recent sociological findings. *Natural Hazards, 32*, 89-110. https://doi.org/10.1023/B:NHAZ.0000026792.76181.d9

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* New York: McGraw-Hill.

Fujii, M., & Kanbara, S. (2019) Analysis of gender differences in disaster preparedness for Nankai Trough Earthquake. *Health Science Journal, 13*(2), 644. https://doi.org/10.21767/1791-809X.1000644

Haraoka, T., Ojima, T., Murata, C., & Hayasaka, S. (2012). Factors influencing collaborative activities between non-professional disaster volunteers and victims of earthquake disasters. *PLoS ONE, 7*(10), e47203. https://doi.org/10.1371/journal.pone.0047203

Higher Education Council [CoHE]. (2023, February 11). *Basın Duyurusu.* Retrieved from https://www.yok.gov.tr/HaberBelgeleri/BasinDuyurusu/2023/basin-duyurusu-universitelerde-uzaktan-egitime-gecis.pdf

Ho, M. C., Shaw, D., Lin, S., & Chiu, Y. C. (2008). How do disaster characteristics influence risk perception? *Risk Analysis: An International Journal, 28*(3), 635-643. https://doi.org/10.1111/j.1539-6924.2008.01040.x

Inal, E., Altintas, K. H., & Dogan, N. (2018). The development of a general disaster preparedness belief scale using the health belief model as a theoretical framework. *International Journal of Assessment Tools in Education, 5*(1), 146-158. https://doi.org/10.21449/ijate.366825

Inal, E., Altıntaş, K. H., & Doğan, N. (2019). General disaster preparedness beliefs and related sociodemographic characteristics: The example of Yalova University, Türkiye. *Turkish Journal of Public Health, 17*(1), 1-15. https://doi.org/10.20518/tjph.381667

Kapucu, N. (2008). Culture of preparedness: Household disaster preparedness. *Disaster Prevention and Management: An International Journal, 17*(4), 526-535. https://doi.org/10.1108/09653560810901773

Kawasaki, H., Yamasaki, S., Kurokawa, M., Tamura, H., & Sonai, K. (2022). Relationship between teachers' awareness of disaster prevention and concerns about disaster preparedness. *Sustainability, 14*(13), 8211. https://doi.org/10.3390/su14138211

Keeney, G. B. (2004). Disaster preparedness: What do we do now? *Journal of Midwifery & Women's Health, 49*(4), 2-6. https://doi.org/10.1016/j.jmwh.2004.05.003

Kohn, S., Eaton, J. L., Feroz, S., Bainbridge, A. A., Hoolachan, J., & Barnett, D. J. (2012). Personal disaster preparedness: An integrative review of the literature. *Disaster Medicine And Public Health Preparedness, 6*(3), 217-231. https://doi.org/10.1001/dmp.2012.47

Kruger, J., Chen, B., Heitfeld, S., Witbart, L., Bruce, C., & Pitts, D. L. (2020). Attitudes, motivators, and barriers to emergency preparedness using the 2016 Styles Survey. *Health Promotion Practice, 21*(3), 448-456. https://doi.org/10.1177/1524839918794940

Kung, Y. W., & Chen, S. H. (2012). Perception of earthquake risk in Taiwan: Effects of gender and past earthquake experience. *Risk Analysis: An International Journal, 32*(9), 1535-1546. https://doi.org/10.1111/j.1539-6924.2011.01760.x

Lam, R. P. K., Leung, L. P., Balsari, S., Hsiao, K. H., Newnham, E., Patrick, K., ... & Leaning, J. (2017). Urban disaster preparedness of Hong Kong residents: A territory-wide survey. *International Journal of Disaster Risk Reduction, 23,* 62-69. https://doi.org/10.1016/j.ijdrr.2017.04.008

Levac, J., Toal-Sullivan, D., & OSullivan, T. L. (2012). Household emergency preparedness: A literature review. *Journal of Community Health, 37*, 725-733. https://doi.org/10.1007/s10900-011-9488-x

Lichterman, J. D. (2000). A "community as resource" strategy for disaster response. *Public Health Reports, 115*(2-3), 262-265. https://doi.org/10.1093/phr/115.2.262

Lindell, M. K. (2013). Disaster studies. *Current Sociology, 61*(5-6), 797-825. https://doi.org/10.1177/0011392113484456

Lindell, M. K., & Prater, C. S. (2003). Assessing community impacts of natural disasters. *Natural Hazards Review, 4*(4), 176-185. https://doi.org/10.1061/(ASCE)1527-6988(2003)4:4(176)

Loke, A. Y., Lai, C. K., & Fung, O. W. M. (2012). At-home disaster preparedness of elderly people in Hong Kong. *Geriatrics & Gerontology International, 12*(3), 524-531. https://doi.org/10.1111/j.1447-0594.2011.00778.x

Matunhay, L. M. (2022). Disaster preparedness and sensitivity level among higher education institution students. *International Journal of Disaster Management, 5*(2), 75-92. https://doi.org/10.24815/ijdm.v5i2.27150

McEntire, D. A. (2015). *Disaster response and recovery: Strategies and tactics for resilience.* Hoboken, NJ: John Wiley & Sons.

Mertler, C. A., & Reinhart, R. V. (2017). *Practical application and interpretation*. New York, NY: Routledge.

Ministry of Interior. (2023, April 22). *Bakanımız Sn. Soylu: 11 bölgede 57 bin enkazın 50 bini bitti [Our Minister Mr. Soylu: 50 thousand of 57 thousand debris in 11 regions are finished].* Retrieved from https://www.icisleri.gov.tr/bakanimiz-sn-soylu-11-bolgede-57-bin-enkazin-50-bini-bitti

Ministry of Interior Disaster and Emergency Management Presidency. (2021, June 29). *AFAD 2020 yılı doğa kaynaklı olay istatistikleri [AFAD 2020 natural disaster statistics].* Retrieved from https://www.afad.gov.tr/kurumlar/afad.gov.tr/e_Kutuphane/Istatistikler/2020yilidogakaynakliolayistatistikleri.pdf

Ministry of National Education [MoNE]. (2018). *Ortaöğretim Sağlık Bilgisi ve Trafik Kültürü Dersi Öğretim Programı [Secondary School Health Information and Traffic Culture Course Curriculum].* Milli Eğitim Bakanlığı. Retrieved from https://mufredat.meb.gov.tr/Dosyalar/2018122105710864-SA%C4%9ELIK%20B%C4%B0LG%C4%B0S%C4%B0%20VE%20TRAF%C4%B0K%20K%C3%9CLT%C3%9CR%C3%9C%20D%C3%96P%20pdf.pdf

Mishra, S., & Mazumdar, S. (2015). Psychology of disaster preparedness. *Ecopsychology, 7*(4), 211-223. https://doi.org/10.1089/eco.2015.0006

Moe, T. L., Gehbauer, F., Senitz, S., & Mueller, M. (2007). Balanced score card for natural disaster management projects. *Disaster Prevention and Management: An International Journal, 16*(5), 785-806. https://doi.org/10.1108/09653560710837073

Motoyoshi, T. (2006). Public perception of flood risk and community-based disaster preparedness. In S. Ikeda, T. Fukuzono, & T. Sato (Eds.), *A better integrated management of disaster risks: Toward resilient society to emerging disaster risks in mega-cities* (pp. 121-134). TERRAPUB and NIED.

Naghii, M. R. (2005). Public health impact and medical consequences of earthquakes. *Revista Panamericana de Salud Pública, 18*, 216-221. https://doi.org/10.1590/s1020-49892005000800013

Newnham, E. A., Balsari, S., Lam, R. P. K., Kashyap, S., Pham, P., Chan, E. Y. Y., Patrick, K., & Leaning, J. (2017). Self-efficacy and barriers to disaster evacuation in Hong Kong. *International Journal of Public Health, 62*, 1051-1058. https://doi.org/10.1007/s00038-017-1036-8

Okay, N., & Ilkkaracan, I. (2018). Gender sensitive disaster risk management. *Journal of Resilience, 2*(1), 1-12. https://doi.org/10.32569/resilience.431075

Ozkazanc, S., & Duman Yuksel, U. (2015). Evaluation of disaster awareness and sensitivity level of higher education students. *Procedia-Social and Behavioral Sciences, 197*, 745-753. https://doi.org/10.1016/j.sbspro.2015.07.168

Paton, D., Smith, L., & Violanti, J. (2000). Disaster response: Risk, vulnerability and resilience. *Disaster Prevention and Management: An International Journal, 9*(3), 173-180. https://doi.org/10.1108/09653560010335068

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

Plan International. (2021). Study on women and girls' participation in community disaster risk management in Bangladesh. Retrieved from https://plan-international.org/uploads/sites/57/2022/06/Research-Findings-Bangladesh-Elements-of-Replicable-models-to-increase-inclusion-of-vulnerable-groups.pdf

Rosenstock, I. M. (2000). *Health Belief Model*. In A. E. Kazdin (Ed.), *Encyclopedia of psychology* (Vol. 4, pp. 78-80). Oxford University Press.

Russell, L. A., Goltz, J. D., & Bourque, L. B. (1995). Preparedness and hazard mitigation actions before and after two earthquakes. *Environment and Behavior, 27*(6), 744-770. https://doi.org/10.1177/0013916595276002

Sakallı-Uğurlu, N., Türkoğlu, B., & Kuzlak, A. (2018). Gender stereotypes in contemporary Türkiye: What are the pictures of women and men. *Nesne Psikoloji Dergisi, 6*(13), 309-336. https://doi.org/10.7816/nesne-06-13-04

Sawada, Y. (2007). The impact of natural and manmade disasters on household welfare. *Agricultural Economics, 37*, 59-73. https://doi.org/10.1111/j.1574-0862.2007.00235.x

Scanlon, J. (1997). Human behaviour in disaster: The relevance of gender. *The Australian Journal of Emergency Management, 11*(4), 2-7. https://search.informit.org/doi/10.3316/informit.401390874057310

Shah, A. A., Gong, Z., Pal, I., Sun, R., Ullah, W., & Wani, G. F. (2020). Disaster risk management insight on school emergency preparedness–a case study of Khyber Pakhtunkhwa, Pakistan. *International Journal of Disaster Risk Reduction, 51*, 101805. https://doi.org/10.1016/j.ijdrr.2020.101805

Steigenberger, N. (2016). Organizing for the big one: A review of case studies and a research agenda for multi-agency disaster response. *Journal of Contingencies and Crisis Management, 24*(2), 60-72. https://doi.org/10.1111/1468-5973.12106

Şahin, Y., Lamba, M., & Öztop, S. (2018). Determination of disaster awareness and preparedness level of university students. *Medeniyet Araştırmaları Dergisi, 3*(6), 149-159. Retrieved from https://dergipark.org.tr/tr/pub/mad/issue/35962/505303

Tang, J. S., & Feng, J. Y. (2018). Residents' disaster preparedness after the Meinong Taiwan earthquake: A test of protection motivation theory. *International Journal of Environmental Research and Public Health, 15*(7), 1434. https://doi.org/10.3390/ijerph15071434

Tanner, A., & Doberstein, B. (2015). Emergency preparedness amongst university students. *International Journal of Disaster Risk Reduction, 13*, 409-413. https://doi.org/10.1016/j.ijdrr.2015.08.007

Tekin, Ö., & Dikmenli, Y. (2021). Sınıf öğretmeni adaylarının afet bilinci algısı ve deprem bilgi düzeylerinin incelenmesi [Examining the disaster awareness perception and earthquake knowledge levels of classroom teacher candidates.]. *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 7*(1), 258-271. https://doi.org/10.31592/aeusbed.811043

The Global Facility for Disaster Reduction and Recovery. (2018, August). *Disaster recovery guidance series: Gender equality and women's empowerment in disaster recovery.* Retrieved from https://reliefweb.int/attachments/04663931-d1dc-3aad-9129-2d59f5558c3f/DRGS_gender_equality_WEB.pdf

Tierney, K. J. (2007). From the margins to the mainstream? Disaster research at the crossroads. *Annual Review of Sociology, 33*, 503-525. https://doi.org/10.1146/annurev.soc.33.040406.131743

Tın, Ö., Kaya, A., & Güzen, S. A. (2021). Are the teachers prepared for the expected big earthquake? *Ahi Evran Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 7*(3), 1066-1085. https://doi.org/10.31592/aeusbed.907635

United Nations Development Program. (2016, May 2). *Issue Brief: Disaster preparedness*. Retrieved from http://www.undp.org/sites/g/files/zskgke326/files/publications/Issue%20BriefpreparednessJuly242013.pdf

Wisner, B., Adams, J. & World Health Organization [WHO] (2002). *Environmental health in emergencies and disasters: A practical guide*. Edited by B. Wisner, J. Adams. World Health Organization. Retrieved from https://apps.who.int/iris/handle/10665/42561

World Health Organization. (2002, July). *Gender and health in disasters. Geneva: World Health Organization.* Retrieved from https://apps.who.int/iris/bitstream/handle/10665/68886/a85575.pdf;jsessionid=A05DB0EB2C54BF7C3672583252070B76?sequence=1

Yiğit, E., Boz, G., Gökçe, & Özer, A. (2020). Knowledge, attitudes and behaviours about disasters at Inonu University of medical and engineering students. *Sakarya Medical Journal, 10*(4), 580-586. https://doi.org/10.31832/smj.696069

Zibulewsky, J. (2001). Defining disaster: The emergency department perspective. *Proceedings (Baylor University. Medical Center), 14*(2), 144-149. https://doi.org/10.1080/08998280.2001.11927751

Article Information Form

Authors Notes: The authors would like to express their sincere thanks to the editor and the anonymous reviewers for their helpful comments and suggestions.

Authors Contributions: All authors contributed equally to the writing of this paper. All authors read and approved the final manuscript.

Conflict of Interest Disclosure: No potential conflict of interest was declared by the author.

Copyright Statement: Author owns the copyright of their work published in the journal and their work is published under the CC BY-NC 4.0 license.

Supporting/Supporting Organizations: No grants were received from any public, private or non-profit organizations for this research.

Ethical Approval and Participant Consent: It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited from are stated in the bibliography. Ethics committee permission was received from Mersin University Sports Sciences Ethics Committee with the decision dated 05.06.2023 and numbered 029.

Plagiarism Statement: This article has been scanned by iThenticate.