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EVALUATION OF UNIVERSITY STUDENTS' PERCEPTION OF DISASTER RISK

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Abstract

Perception of risk is conceptually a cognitive phenomenon and is essentially thought of as a processing of information. Comprehension and processing of information are indicators of perception. In this study, it was carried out in a multicenter way to determine the disaster risk perceptions in the campus areas where university students often spend time. In this study, there is no statistically significant difference between the genders in terms of the scale's subdimensions of exposure, anxiety, effect and uncontrollable ($p>0.05$). In the study, there is no statistically significant difference between university regions in terms of exposure, uncontrollable and anxiety levels, which are the sub-dimensions of the scale ($p>0.05$). There is a statistically significant difference between university regions in terms of effect levels ($p<0.05$). The level of influence of those studying at the university in the Marmara region is significantly lower than the level of influence of those studying at the university in the Eastern Anatolia region. In conclusion, action plans should be prepared to create a disaster culture in campus environments. Campus disaster plans should be created with student participation. Projects related to increasing campus disaster resilience should be supported and these projects should be encouraged. Disaster trainings should be organized and these trainings should be supported with exercises. Disaster education orientations should be organized for new students and all personnel.

Keywords: Disaster Risk Management, Campus Disaster Risk, University Students, Risk

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Üniversite Öğrencilerinin Afet Risk Algısının Değerlendirilmesi

Öz

Risk algısı, kavramsal olarak bilişsel bir olgudur ve esasen bir bilginin işlenmesi olarak düşünülmektedir. Bilginin kavranması ve işlenmesi ise algılamanın bir göstergesidir. Gerçekleştirilen bu çalışma, üniversite öğrencilerinin sıkça zaman geçirdiği kampüs alanlarındaki afet risk algılarının tespit edilmesi amacıyla çok merkezli olarak yapılmıştır. Yapılan bu çalışmada; ölçek alt boyutları olan maruziyet, anksiyete, etki ve yönetilemezlik düzeyleri açısından cinsiyetler arasında istatistiksel olarak anlamlı bir farklılık bulunmamaktadır ($p>0,05$). Çalışmada; ölçek alt boyutların olan maruziyet, yönetilemezlik ve anksiyete düzeyleri açısından üniversite bölgeleri arasında istatistiksel olarak anlamlı bir farklılık bulunmamaktadır ($p>0,05$). Etki düzeyleri açısından üniversite bölgeleri arasında istatistiksel olarak anlamlı bir farklılık bulunmaktadır ($p<0,05$). Marmara bölgesinde üniversite okuyanların etki düzeyleri, Doğu Anadolu bölgesinde üniversite okuyanların etki düzeylerine göre anlamlı derecede düşüktür. Sonuç olarak; kampüs ortamlarında afet kültürünün oluşturulmasına yönelik eylem planları hazırlanmalıdır. Öğrenci katılımlı kampüs afet planları oluşturulmalıdır. Kampüs afet dirençliliğinin artırılmasına ilişkin projelere destek verilmeli ve bu projeler teşvik edilmelidir. Afet eğitimleri düzenlenmeli ve bu eğitimler tatbikatlar ile desteklenmelidir. Eğitim-Öğretime yeni başlayan öğrenciler ile tüm personellere yönelik afet eğitim oryantasyonları düzenlemelidir.

Anahtar Kelimeler: Afet Risk Yönetimi, Kampüs Afet Riski, Üniversite Öğrencileri, Risk

Introduction

Perception of risk is conceptually a cognitive phenomenon and is essentially thought of as a processing of information. The comprehension and processing of information is an indicator of perception (Sjöberg, 1996). Disaster risk, on the other hand, is considered a complex phenomenon as it expresses an event that has not yet occurred. Therefore, disaster risk can be associated with probability. It can be said that various evaluations have been made regarding the concept of disaster risk in the literature. However, it is traditionally considered that disaster risk can be associated

with the vulnerability levels of the elements exposed to an event, rather than the presence of an event (Pazzi et al., 2020). The Sendai Framework for Disaster Risk Reduction speaks of a human-centered and comprehensive approach to disaster risk reduction. It is stated that all stakeholders, including vulnerable groups, should be involved in reducing disaster risks (United Nations, 2015). In short, it can be emphasized that comprehensive, human-centered, accessible and applicable disaster risk reduction plans should be established. Community, community awareness and resilience are commonly used terms in disaster management systems and disaster policies (UNISDR, 2009).

It can be stated that it is difficult for disaster risk management efforts that do not prioritize community participation to reach the desired targets. Because social life, experiences and cultural approaches are criteria that cannot be excluded from the disaster management system (Van Niekerk et al., 2018). Disaster risk reduction and disaster risk management is a systematic approach created to reduce the negative effects of various disasters, especially those caused by climate change, on the environment (Etinay et al., 2018). It has been stated that the concept of Disaster Risk Management has changed over time. In the globalizing world, determining, knowing and understanding the change of the factors that make up the components of the concept of Disaster Risk Management may be important in terms of revealing new scientific and evidence-based approaches in the future. It was observed that the Disaster Risk Management approach was initially created as response-oriented, and later it was built on a risk reduction strategy (Rajabi et al., 2022). Therefore, it can be evaluated that risk reduction studies are prioritized rather than crisis management as in the integrated disaster management model. Incorrect understanding or misinterpretation of the concept of Disaster Risk Reduction will cause the disaster management system to function imperfectly. In this case, it will be difficult to reach the desired goals (Lavell & Maskrey, 2014). It can be said that following and applying the developing technologies in disaster risk management will contribute

positively to disaster management policies. The use of innovative technologies can have an important role in building a disaster-resilient society (Li et al., 2018).

New technologies can help create applicable risk management policies for many disasters such as earthquakes, floods, and fires (Henstra et al., 2019). Worldwide floods, storms, tsunamis, earthquakes, etc. Millions of people are affected every year due to disasters. Therefore, the use of new technologies in the face of this global problem will contribute to the reduction of disaster risks. For example, by creating flood models, places that may be exposed to flooding can be identified and necessary precautions can be taken (Alfieri et al., 2017; Berghuijs et al., 2017; United Nations Office for Disaster Risk Reduction (UNDRR), n.d.; Vitousek et al., 2017). In short, it can be evaluated that innovative technologies will be a potential solution method for detecting disaster risks and reducing possible damages (Parker, 2019; Tan et al., 2020). Literature studies show that the use of innovative technologies and people's disaster experiences affect mitigation, preparedness, response and recovery activities in terms of disaster management and risk perception. It has been emphasized that community awareness and preparedness efforts are important in reducing disaster damage and achieving planned targets (Gohram Khan et al., 2017). Students and educators play an important role in preparing for disasters and reducing disaster risk. Therefore, it can be assumed that the studies on students, who constitute a young and dynamic part of society, will be an important guide for the measures to be taken in the future (Chen & Adefila, 2020; United Nations, 2015). In this study, a multi-centre study was carried out in order to determine the disaster risk perceptions in the campus areas where university students often spend time. In this context, answers to the following questions were sought;

Does the perception of disaster risk change according to the education period of university students, age, gender and marital status?

Does the perception of disaster risk change according to the type of department/program the university students are enrolled in, the level of education and the region where the university is located?

1. Method

In this part of the study, the model of the research, data collection tools, the universe and sample, ethical dimension, data collection process and data analysis are included.

1.1. The Universe of The Research

The universe of the research consisted of students enrolled in universities in Turkey in the 2021-2022 academic year. Sample selection was not made, and it was aimed to reach the quorum for the study with the convenience sampling method. Individuals aged 18 and over, registered at any university and studying formally, were invited to the study voluntarily. There is no conflict of interest between the participants and the researcher that will affect the study.

1.2. Model of the Research

The research was planned in descriptive and cross-sectional types. Since the study aims to determine the disaster risk perceptions of university students, the general survey model was taken as a basis. In general scanning models, it is aimed to reveal the existing situations by examining the whole or a certain part of the universe (Creswell, 2012; Karasar, 2022).

1.3. Data Collection Tool

"University Students Disaster Risk Perception Scale" developed by Mızrak & Aslan (2020) was used to determine the disaster risk perceptions of the participants. The data collection tool consists of two parts, including socio-demographic information (10 items) and items related to the "University Students Disaster Risk Perception Scale" (19 items). In the socio-demographic part; There are eight questions that provide information such as grade, age, marital status, registered university, registered department, education level, grade level and education type. The disaster risk perception scale consists of 19 items and four sub-dimensions: exposure, effect, anxiety and Uncontrollable. A five-point scale ranging from strongly disagree to completely agree was adopted in the scale (Mızrak & Aslan, 2020).

1.4. Analysis of Data

The data obtained in this study were analyzed with the licensed SPSS 25 package program. The skewness and kurtosis coefficients were used while investigating the normal distribution of the variables, and according to Tabachnik & Fidell (2013), if the skewness and kurtosis values are between-1.50 and +1.50, it is a normal distribution. While examining the differences between the groups, t and ANOVA tests were used because the variables came from the normal distribution. In case of a difference in the ANOVA test, the differences were calculated with the Tukey test, considering the assumption of homogeneity of variances.

While interpreting the results, 0.05 was used as the significance level; it was stated that there is a significant difference in the case of $p<0.05$, and there is no significant difference in the case of $p>0.05$. The frequency distribution table of the disaster risk scale levels is given above. According to this, between 1-5 values of exposure sub-dimension levels, 3.05±0.76 average, between 1-5 values of anxiety levels, 2.11±0.81 average, between 1-5 values of effect levels, 3.08±0.86 average, It is seen that Uncontrollable levels range between 1-5 values with an average of 2.55±0.84, and disaster risk scale total levels between 1-5 values with an average of 2.73±0.66. The skewness- kurtosis coefficients were used for the normality of the sub-dimension and total dimension scores of the disaster risk scale. According to Tabachnik & Fidell (2013), if the skewness and kurtosis values are between-1.50 and +1.50, it is accepted that there is a normal distribution. Accordingly, it is seen that parametric tests will be applied in comparison, relationship and difference tests where disaster risk scale levels come from normal distribution.

The internal consistency coefficient Cronbach's Alpha test statistic was used for the reliability of the disaster risk scale. Confidence coefficient $0.00 \leq \alpha < 0.40$ (not reliable); $0.40 \leq \alpha < 0.60$ (with low confidence); $0.60 \leq \alpha < 0.80$ (highly reliable) and $0.80 \leq \alpha < 1.00$ (highly reliable) (Kalaycı, 2010). According to this, the internal consistency coefficient of exposure levels is high at 0.858, the internal consistency coefficient of anxiety levels is high at 0.880, the internal consistency coefficient of

effect levels is high at 0.880, the internal consistency coefficient of uncontrollable levels is quite high with 0.777 and internal consistency coefficient of total disaster risk scale levels is very high with 0.926. is seen (Table 1).

Table 1: Frequency, Normality and Reliability Table of Scale Levels

	Mean	Min.	Max.	SD	Skewness	Kurtosis	Cronbach's Alpha
Exposure	3.05	1.00	5.00	0.76	-0.412	0.336	0.858
Anxiety	2.11	1.00	5.00	0.81	0.745	0.809	0.880
Effect	3.08	1.00	5.00	0.86	-0.205	0.045	0.880
Uncontrollable	2.55	1.00	5.00	0.84	0.191	0.273	0.777
Disaster Risk Perception Total	2.73	1.00	5.00	0.66	-0.170	1.092	0.926

The construct validity of the scales used in the study was first evaluated with explanatory factor analysis. Kaiser-Meyer-Olkin (KMO) sampling adequacy and Barlett sphericity test were applied to test the suitability of the data set for factor analysis in the disaster risk perception scale of university students. The KMO value was found to be 0.974 above the acceptable limit of 0.70, and the Barlett sphericity test was also found to be suitable for factor analysis since it was above 0.50 and was significant a 0.05 significance level. The KMO coefficient found shows that the data are suitable for the analysis. Since there was no item under the factor, no statement was removed from the analysis. 4 factors with eigenvalues of 1 and above were obtained. The total explained variance was 67.72%. This value is quite high. It is above 60%, which is considered the best lower limit for social sciences. Therefore, the construct validity of the model is ensured. The factors were named as “Exposure”, “Anxiety”, “Effect” and “Uncontrollable”, respectively. Table 2 shows the factor analysis results of the university students' risk perception scale. Findings from exploratory factor analysis show that the model provides construct validity.

Table 2: Factor Analysis

Factor Name	Item No	Factor Load	Factor Explanation (%)
Exposure	1	0.836	18.99
	2	0.790	
	3	0.855	
	4	0.817	
	5	0.903	
	6	0.819	
	7	0.915	
Anxiety	8	0.898	18.49
	9	0.855	
	14	0.901	
	19	0.905	
Effect	10	0.881	18.41
	11	0.878	
	12	0.906	
	13	0.880	
Uncontrollable	15	0.864	11.82
	16	0.766	
	17	0.791	
	18	0.781	
		Total	67.72
KMO Validity			0.974
Barlett's Test		chi-square	16828
		p	0.001

1.5. Ethical Dimension

Before starting the study, approval was obtained from the "Trabzon University, Social and Human Sciences Scientific Research and Publication Ethics Committee" (Approval Number: E-81614018-000-654). For the scale used in the study, permission was obtained from the responsible author via e-mail. Consent of the participants that they participated voluntarily before the study was obtained. Participants were told that the information would be kept confidential in accordance with ethical rules and they could leave the study whenever they wanted.

1.6. Data Collection

Data were collected at specific time intervals from January 2021 to December 2022. The questionnaire form prepared by the researcher online (Google Forms) was delivered to the participants via social media (WhatsApp). The questionnaire form consists of two parts. In the first part, the purpose of the study, obtaining consent, voluntary participation and sociodemographic information are included. In the second part, there are 19 questions to measure the perception of disaster risk. The data were collected by convenience sampling method. It is accepted that it is sufficient to reach a minimum of 385 participants (95% confidence interval and 5% margin of error) in studies whose universe is known. Therefore, in the study, it was accepted that reaching 823 people was sufficient (Cohen et al., 2002).

1.7. Limitations of the Study

The collection of the data of the study online and the fact that the majority of the participants are associate degree students are considered limitations of the study.

2. Results

When the socio-demographic characteristics of the participants were examined, 67.07% of them were female, 32.93% were male, 98.30% were single, 1.70% were married, and 60.75% were from the University. In the Black Sea region, 11.30% is in the Marmara region, 7.90% is in the Central Anatolian region, 15.80% is in the Aegean region and 4.25% is in the East Anatolian region, 21.14% is the property. protection and security, 61.48% in medical services and techniques, 2.19% in health care services, 12.76% in therapy and rehabilitation, 2.43% in public relations and promotion, 93.07% of them are associate degree graduates, 6.93% of them have bachelor's degrees, 50.67% of them are 1st grade, 42.89% of them are 2nd grade, 2.19% of them are 3rd grade and it is seen that 4.25% of them studied in 4th grade, 87% of them studied in 1st education, 13% of them studied in 2nd education, and their age values ranged between 18-45 with an average of 20.63±2.82 (Table 3).

Table 3: Frequency Distribution Table of Socio-Demographic Characteristics

		n	%
Gender	Female	552	67.07
	Male	271	32.93
Marital status	Single	809	98.30
	Married	14	1.70
University	Black Sea Region	500	60.75
	Marmara Region	93	11.30
	Central Anatolia Region	65	7.90
	Aegean Region	130	15.80
	Eastern Anatolia	35	4.25
Department	Property Protection and Security	174	21.14
	Medical Services and Techniques	506	61.48
	Health Care Services	18	2.19
	Therapy and Rehabilitation	105	12.76
	Public Relations and Promotion	20	2.43
Education level	Associate Degree	766	93.07
	Graduate	57	6.93
Grade	1st Grade	417	50.67
	2nd Grade	353	42.89
	3rd Grade	18	2.19
	4th Grade	35	4.25
Education Type	Formal education	716	87.00
	Second education	107	13.00
		Min.-Max.	Mean±SD
Age		18-45	20.63±2.82

There is no statistically significant difference between the genders in terms of exposure levels ($p>0.05$). There is no statistically significant difference between the genders in terms of anxiety levels ($p>0.05$). There was no statistically significant difference between the genders in terms of effect levels ($p>0.05$). There was no statistically significant difference between the genders in terms of Uncontrollable levels ($p>0.05$). There was no statistically significant difference between the genders in terms of disaster risk scale levels ($p>0.05$) (Table 4).

Table 4: Comparison of Scale Levels with Gender

		Gender		t test	
		Mean	SD	t	p
Exposure	Female	3.08	0.75	1.298	0.195
	Male	3.00	0.80		
Anxiety	Female	2.11	0.79	0.1	0.92
	Male	2.11	0.86		
Effect	Female	3.09	0.84	0.731	0.465
	Male	3.05	0.90		
Uncontrollable	Female	2.55	0.82	-0.112	0.911
	Male	2.55	0.88		
Disaster Risk Perception Total	Female	2.74	0.65	0.733	0.464
	Male	2.71	0.69		

There is no statistically significant difference between marital status in terms of exposure levels ($p>0.05$). There is a statistically significant difference between marital status in terms of anxiety levels ($p<0.05$). Anxiety levels of those who are married are significantly higher. There is no statistically significant difference between marital status in terms of effect levels ($p>0.05$). There is no statistically significant difference between marital status in terms of Uncontrollable levels ($p>0.05$). There is a statistically significant difference between marital status in terms of disaster risk scale levels ($p<0.05$). Disaster risk scale levels of those who are married are significantly higher (Table 5).

Table 5: Marital Status Comparison of Scale Levels

		Marital Status		t test	
		Mean	SD	t	p
Exposure	Single	3.05	0.76	-1.328	0.185
	Married	3.32	0.74		
Anxiety	Single	2.10	0.80	-2.212	0.027*
	Married	2.59	1.05		
Effect	Single	3.07	0.86	-1.284	0.2
	Married	3.37	0.70		

Uncontrollable	Single	2.54	0.84	-1.818	0.07
	Married	2.95	0.89		
Disaster Risk Perception Total	Single	2.73	0.66	-2.001	0.046*
	Married	3.08	0.74		

**p<0.05*

There is no statistically significant variation in exposure levels between university regions (p>0.05). There is no statistically significant variation in anxiety levels between university regions (p>0.05). There is a statistically significant difference between university regions in terms of effect levels (p<0.05). The level of influence of those studying at universities in the Marmara region is significantly lower than the level of influence of those studying at University in the Eastern Anatolia region. There is no statistically significant difference between university regions in terms of Uncontrollable levels (p>0.05). There is no statistically significant difference between university regions in terms of disaster risk scale levels (p>0.05) (Table 6).

Table 6: University Region Comparison of Scale Levels

		University		ANOVA		
		Mean	SD	F	p	Difference **
Exposure	Black Sea Region	3.02	0.77			
	Marmara Region	2.93	0.71			
	Central Anatolia Region	3.15	0.74	2.223	0.065	-
	Aegean Region	3.14	0.81			
	Eastern Anatolia	3.29	0.58			
Anxiety	Black Sea Region	2.07	0.78			
	Marmara Region	2.25	0.85			
	Central Anatolia Region	2.12	0.90	1.742	0.139	-
	Aegean Region	2.10	0.86			
	Eastern Anatolia	2.35	0.66			
Effect	Black Sea Region	3.11	0.87	3.132	0.014*	2<5
	Marmara Region	2.87	0.82			

Uncontrollable	Central Anatolia Region	3.20	0.90	0.824	0.51	-
	Aegean Region	2.98	0.83			
	Eastern Anatolia	3.33	0.65			
	Black Sea Region	2.53	0.83			
	Marmara Region	2.53	0.88			
Disaster Risk Perception Total	Central Anatolia Region	2.72	0.99	1.459	0.213	-
	Aegean Region	2.51	0.80			
	Eastern Anatolia	2.61	0.74			
	Black Sea Region	2.72	0.66			
	Marmara Region	2.67	0.68			
	Central Anatolia Region	2.83	0.70			
	Aegean Region	2.72	0.69			
	Eastern Anatolia	2.94	0.46			

**p<0.05; **Tukey Test*

There is no statistically significant difference between departments in terms of exposure levels (p>0.05). There is no statistically significant difference between departments in terms of anxiety levels (p>0.05). There is no statistically significant difference between departments in terms of effect levels (p>0.05). There is a statistically significant difference between departments in terms of Uncontrollable levels (p<0.05). Uncontrollable levels of those studying in property protection and security departments are significantly lower than those studying in Therapy and Rehabilitation and Public Relations and Publicity departments. There is no statistically significant difference between departments in terms of disaster risk scale levels (p>0.05) (Table 7).

Table 7: Department Comparison of Scale Levels

		Department		ANOVA		
		Mean	SD	F	p	Difference**
Exposure	Property Protection and Security	3.03	0.72	0.964	0.426	-
	Medical Services and Techniques	3.08	0.76			

Anxiety	Health Care Services	3.00	0.78	1.377	0.24	-
	Therapy and Rehabilitation	2.93	0.85			
	Public Relations and Promotion	3.18	0.74			
	Property Protection and Security	2.12	0.72			
	Medical Services and Techniques	2.08	0.83			
Effect	Health Care Services	2.30	0.72	1.314	0.263	-
	Therapy and Rehabilitation	2.16	0.86			
	Public Relations and Promotion	2.44	0.89			
	Property Protection and Security	3.06	0.80			
	Medical Services and Techniques	3.05	0.87			
Uncontrollable	Health Care Services	3.32	0.74	6.305	0.001*	1<4 1<5
	Therapy and Rehabilitation	3.18	0.91			
	Public Relations and Promotion	3.31	0.83			
	Property Protection and Security	2.36	0.74			
	Medical Services and Techniques	2.55	0.85			
Disaster Risk Perception Total	Health Care Services	2.39	0.73	1.107	0.352	-
	Therapy and Rehabilitation	2.78	0.90			
	Public Relations and Promotion	3.03	0.70			
	Property Protection and Security	2.69	0.57			
	Medical Services and Techniques	2.72	0.67			
	Health Care Services	2.80	0.63			
	Therapy and Rehabilitation	2.77	0.75			
	Public Relations and Promotion	2.99	0.66			

**p<0.05; **Tukey Test*

There is no statistically significant difference between education levels in terms of exposure levels (p>0.05). There is a statistically significant difference between education levels in terms of anxiety levels (p<0.05). Anxiety levels of undergraduates are significantly higher. There is a statistically significant difference

between education levels in terms of effect levels ($p<0.05$). The effect levels of those with a bachelor's degree are significantly higher. There is a statistically significant difference between education levels in terms of Uncontrollable levels ($p<0.05$). Uncontrollable levels of those with undergraduate degrees are significantly higher. There is a statistically significant difference between education levels in terms of disaster risk scale levels ($p<0.05$). Disaster risk scale levels of those with undergraduate degrees are significantly higher (Table 8).

Table 8: Comparison of Scale Levels with Education Levels

		Education level		t test	
		Mean	SD	t	p
Exposure	Associate Degree	3.05	0.76	-0.121	0.903
	Graduate	3.06	0.86		
Anxiety	Associate Degree	2.09	0.79	-2.551	0.011*
	Graduate	2.38	0.99		
Effect	Associate Degree	3.06	0.85	-2.32	0.021*
	Graduate	3.33	0.92		
Uncontrollable	Associate Degree	2.51	0.82	-5.383	0.001*
	Graduate	3.12	0.89		
Disaster Risk Perception Total	Associate Degree	2.72	0.65	-2.727	0.007*
	Graduate	2.96	0.79		

**p<0.05*

There is no statistically significant difference between grade levels in terms of exposure levels ($p>0.05$). There is a statistically significant difference between grade levels in terms of anxiety levels ($p<0.05$). The anxiety levels of the students studying in the 2nd grade are significantly lower than the anxiety levels of the students studying in the 4th grade. There was no statistically significant difference between grade levels in terms of effect levels ($p>0.05$). There is a statistically significant difference between grade levels in terms of Uncontrollable levels ($p<0.05$). The Uncontrollable levels of the 2nd-grade students are significantly lower than the 4th-

grade students' Uncontrollable levels. There was no statistically significant difference between grade levels in terms of disaster risk scale levels (p>0.05) (Table 9).

Table 9: Comparison of Scale Levels to Grade Level

		Grade		ANOVA		
		Mean	SD	F	p	Difference**
Exposure	1st Grade	3.05	0.73	0.118	0.949	-
	2nd Grade	3.06	0.78			
	3rd Grade	2.99	0.80			
	4th Grade	3.00	0.94			
Anxiety	1st Grade	2.15	0.81	3.044	0.028*	2<4
	2nd Grade	2.03	0.78			
	3rd Grade	2.26	0.86			
	4th Grade	2.38	1.03			
Effect	1st Grade	3.04	0.83	1.72	0.161	-
	2nd Grade	3.10	0.87			
	3rd Grade	3.24	0.89			
	4th Grade	3.34	1.02			
Uncontrollable	1st Grade	2.47	0.81	9.142	0.001*	2<4
	2nd Grade	2.56	0.84			
	3rd Grade	3.00	0.81			
	4th Grade	3.14	1.04			
Disaster Risk Perception Total	1st Grade	2.72	0.65	1.574	0.194	-
	2nd Grade	2.72	0.65			
	3rd Grade	2.87	0.69			
	4th Grade	2.95	0.91			

**p<0.05; **Tukey Test*

There is no statistically significant difference between education types in terms of exposure levels (p>0.05). There is no statistically significant difference between education types in terms of anxiety levels (p>0.05). There is no statistically significant difference between education types in terms of effect levels (p>0.05). There is a statistically significant difference between education types in terms of

uncontrollable levels ($p<0.05$). The uncontrollable levels of those studying in the 1st education are significantly lower than the uncontrollable levels of those studying in the 2nd education. There was no statistically significant difference between education types in terms of disaster risk scale levels ($p>0.05$) (Table 10).

Table 10: Comparison of Scale Levels by Education Type

		Education Type		t test	
		Mean	SD	t	p
Exposure	Formal Education	3.03	0.76	-1.726	0.085
	Second Education	3.17	0.78		
Anxiety	Formal Education	2.11	0.80	0.107	0.915
	Second Education	2.10	0.87		
Effect	Formal Education	3.06	0.86	-1.729	0.084
	Second Education	3.21	0.86		
Uncontrollable	Formal Education	2.53	0.84	-1.983	0.048*
	Second Education	2.70	0.85		
Disaster Risk Perception Total	Formal Education	2.72	0.66	-1.584	0.114
	Second Education	2.83	0.68		

**p<0.05*

3. Discussion

In this part of the study, the discussion and results of the findings on the determination of the disaster risk perceptions of university students are included.

In this study, exposure with scale sub-dimensions. There is no statistically significant difference between the genders in terms of anxiety, effect and Uncontrollable levels ($p>0.05$). There is no statistically significant difference between the genders in terms of disaster risk scale levels ($p>0.05$). In a study conducted in the United States, it has been stated that the level of perception of environmental risks, especially epidemics, is higher in female students than in male students (Song, 2014). In a study on risk assessment, it has been stated that women (Slovic, 1999) are more anxious than men in the face of situations that threaten human health and safety (Slovic, 1999). In a study on flood disasters considering the behavioral characteristics of men. It has been emphasized that male individuals may

be more negligent than females at the point of preparing for a possible disaster (Andráško et al., 2020). Therefore, it can be evaluated that this situation may change the risk perception of men compared to women. In a study conducted in California, it has been stated that women have higher disaster risk perceptions than men. It has been stated that women see natural disasters as higher risk (Turner et al., 1986). In a study on risk perception, it has been mentioned that the risk perceptions of women and men are different in disaster events and that the gender factor is an important variable in risk perception (Gustafsod, 1998). In the study conducted in Bangladesh, it is stated that women have a higher risk perception than men (Mallick et al., 2022). In another study, it is stated that gender and age factors affect the perception of disaster risk. In the same study, it was mentioned that women have a higher risk perception (Mills et al., 2016). In the literature studies, it has been seen that the gender factor is an important variable in terms of risk perception. It has been emphasized that women have higher risk perceptions than men. However, in our study, it was found that the perception of on-campus disaster risk was not statistically significant in terms of gender. In this context, it has been evaluated that the data of our study and the data of the literature differ.

In this study, there was no statistically significant difference between exposure levels and education levels, which are sub-dimensions of the scale ($p>0.05$). However, there is a statistically significant difference between education levels in terms of anxiety levels ($p<0.05$). Anxiety levels of undergraduates are significantly higher. There is a statistically significant difference between education levels in terms of effect levels ($p<0.05$). The effect levels of those with a bachelor's degree are significantly higher. There is a statistically significant difference between education levels in terms of Uncontrollable levels ($p<0.05$). Uncontrollable levels of those with undergraduate degrees are significantly higher. There is a statistically significant difference between education levels in terms of disaster risk scale levels ($p<0.05$). Disaster risk scale levels of those with undergraduate degrees are significantly higher. In our study, there was no statistically significant difference

between exposure and effect levels, which are sub-dimensions of the scale, and grade levels ($p>0.05$). However, there is a statistically significant difference between anxiety and Uncontrollable and grade levels ($p<0.05$). It was determined that the anxiety and Uncontrollable levels of the 2nd-grade students were significantly lower than the 4th grade students. In a study conducted in the Netherlands; It has been stated that there is evidence that people with higher education have lower flood risk perceptions (Botzen et al., 2009). In a study evaluating the risk perception of the public, it has been mentioned that there is an inverse relationship between the education level of individuals and their risk perception. In other words, it has been pointed out that people with a high level of education have a low perception of risk (Slovic, 1997). In the study conducted in Southern Slovakia, the relationship between risk perception and education level is included (Jakubcová et al., 2016). In a study conducted on university students, students received training for disasters. It has been stated that risk perceptions are higher than students who do not receive disaster education (Aksa et al., 2020). In another study, age, gender, frequency of events and income status of individuals. It has been emphasized that situations such as education level and receiving training for disasters affect the perception of disaster risk (Wachinger et al., 2013). In the study conducted in Florida, gender and age in shaping the natural disaster risk perception. education and socio-demographics, etc. It was emphasized that these factors are important (Peacock et al., 2005). In our study, in terms of sub-dimensions of the scale, it was determined that there was a significant difference between anxiety, effect and Uncontrollable and education levels. It was observed that there was a significant difference between the disaster risk perception of the students and their education level. It can be said that as the education level of the students increases, the levels of anxiety, influence and Uncontrollable increase. In the literature, it has been observed that the risk perception of people who receive training for disasters is high. However, it can be considered that some studies indicate the opposite of this situation. In this context, it can be said that the data of our study and the literature data have common aspects.

In this study, exposure to scale sub-dimensions. There was no statistically significant difference between university regions in terms of Uncontrollable and anxiety levels ($p>0.05$). There is a statistically significant difference between university regions in terms of effect levels ($p<0.05$). Influence levels of university students in Marmara region. It is significantly lower than the level of influence of those studying at the University in the Eastern Anatolia region. There is no statistically significant difference between university regions in terms of disaster risk scale levels ($p>0.05$). In the study conducted in Pakistan, it was stated that age, gender and economic status were effective in reducing disaster damage (Ahmad & Afzal, 2020). In a study on risk perception, it has been mentioned that spatial situations are important for risk perception (Wachinger et al., 2013). In a study on flood risk, it has been emphasized that the flood events that are experienced pose a serious threat to the public and that the threat/risk perception of the people changes depending on the settlement (Brilly & Polic, 2005). In another study, it has been mentioned that factors such as changes in vegetation, improper land use and environmental degradation increase disaster risk (Gao & Sang, 2017). It can be said that the changes in and around the campus increase the risk of disaster. In this context, it can be evaluated that the increasing disaster risk in and around the campus is more likely to be noticed by the people living on the campus. In our study, students studying at universities in the Eastern Anatolia region. It has been determined that the effect levels of the scale sub-dimensions are lower than the students studying at the universities in the Marmara region. The position of these data affects the disaster risk in the literature. It can be evaluated that the results such as education level and awareness level, albeit at a limited level, are similar.

Conclusion

In this part of the study, suggestions are given in light of the mists obtained. Action plans should be prepared to create a disaster culture in campus environments. Student-participated campus disaster plans should be established. Projects related to

increasing campus disaster resilience should be supported and these projects should be encouraged. Disaster trainings should be organized and these trainings should be supported with exercises. Disaster education orientations should be organized for new students and all personnel. Anxiety levels of undergraduates are significantly higher. It can be thought that awareness increases as the level of education increases. Therefore, it is thought that giving disaster education formally is important in terms of community resilience. It has been observed that the region of residence influences the perception of disaster risk. In this context, it is thought that it is important to prepare disaster risk maps for the region.

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