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A Research on Vocational School Students within the Framework of Disaster Awareness and Disaster Preparedness Levels

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Abstract

Disaster awareness and preparedness play an important role in making people less affected by disasters. This study aimed to measure the levels of disaster awareness and preparedness on university students and to determine the effect of disaster awareness on preparedness and the overall relationship between them. The study sample consists of 418 students studying in different programs at Artvin Vocational School of Artvin Coruh University. In the study, the survey was form prepared by utilizing disaster preparedness and disaster awareness scales were applied via face-to-face interaction to the students by simple random sampling method. As a result, it was found that the variables of gender and disaster experience didn't on affect disaster awareness and preparedness. Variables such as disaster education, the program (Disaster-related; Others), and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) significantly affect disaster awareness and preparedness. It was also found that there is a positive relationship between disaster awareness and disaster preparedness and disaster awareness has a low-level significant effect on disaster preparedness.

Keywords: Disasters, Disaster Awareness, Disaster Preparedness, Disaster Education

1. INTRODUCTION

Disasters continue to have an impact on the globe in a variety of ways. The resilience of societies to disasters reduce the potential loss of life and property. One of the first steps in demonstrating resilience is to be knowledgeable about the threats that cause to disasters. Family, friends, educational institutions (school, university, etc.), social media, television, and authorized institutions' ongoing disaster training initiatives all help to raise awareness. A disaster-aware society is supposed to preparedness for potentially hazardous conditions that might lead to a disaster. Being prepared for disasters, both administratively and individually, can help to achieve more effective and efficient results in the response phase, hence minimizing potential losses. According to Davis et al. (2003), the public's preparation for disaster-causing dangers is mostly determined by their level of disaster awareness. The public's lack of disaster knowledge and awareness hinders their capacity to adequately prepare for disasters (Carter, 2008). The Hyogo Framework for Action (2005-2015) was crucial in holding all disaster management stakeholders and raising societal and institutional disaster awareness, as well as political commitments. Sendai Framework for Action (2015-2030) highlighted topics such as the establishment of community centers to raise awareness of the public, the effectiveness of the media in disseminating disaster risk and hazard knowledge, the awareness with regional and global campaigns related to

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disasters, increasing disaster awareness by educating target audiences. The importance of disaster preparedness was also emphasized in the Sendai Framework of Action (URL 3). Regarding disaster awareness and preparedness, Nifa et al. (2018) emphasized that the disaster awareness and preparedness levels of the young population should be increased to reduce the devastating effects of the disaster, and Gerdan (2014) emphasized that disaster awareness should be determined before providing disaster education in educational institutions. In this context, the present study aims to determine the levels of disaster awareness and disaster preparedness, which are important parameters for disaster management in the effective fight against disasters of university students studying in Artvin, and also to investigate the relationship between disaster awareness and disaster preparedness within the framework of the sample discussed and the effect of disaster awareness on disaster preparedness. The research will contribute to the literature as an original study within the framework of the sample and the results obtained.

Various studies have been conducted in the literature on disaster preparedness or disaster awareness (Koçak, 2004; Scolobig et al., 2012; Donahue et al., 2014; URL 1; ChungHee et al., 2015; Ozkazanc and Yuksel, 2015; Tanner and Doberstein, 2015; Bhat et al., 2017; Ağahan, 2018; Dökmeci and Merinç, 2018; Şahin et al., 2018; Tkachuck et al., 2018; Dikmenli and Yakar, 2019; Avcı et al., 2020; Cerulli et al., 2020; Ertuğrul and Ünal, 2020; Rogayan and Dollete, 2020; Oyanık and Cengiz, 2020; Suryaratri et al., 2020; Aras et al., 2021; Tekin and Dikmenli, 2021; Türksever, 2021; Demirci, 2021; Aslantaş and Tabuk, 2021; Dinçer and Kumru, 2021; Şahan and Dinç, 2021a; 2021b; Hasan et al., 2022; Bor, 2023). The hypotheses put forward for the purpose of the study are as follows:

H1. There is a significant difference between the groups in disaster preparedness scores according to demographic variables (gender; disaster-related programs/others; disaster education; disaster experience; individuals who have experienced disasters in their immediate environment family, relatives, friends, etc.).

H2. There is a significant difference between the groups in disaster awareness scores according to demographic variables (gender; disaster-related programs/others; disaster education; disaster experience; individuals who have experienced disasters in their immediate environment family, relatives, friends, etc.).

H3. There is a statistical relationship between disaster awareness and disaster preparedness.

H4. Disaster awareness has a statistical effect on disaster preparedness.

2. CONCEPTUAL FRAMEWORK

In terms of disaster management, disaster education, risk perception, awareness, and preparedness level of the society are important in terms of providing resilience against disasters. In this context, knowledge and awareness of the risks that may cause disasters, their reasons, and possible effects can be seen as an important factor in reducing disaster damages and vulnerability to disasters (Coppola, 2006; Clerveaux et al., 2010). Involving the public in this process and increasing their awareness through awareness and training programs to get effective results within the scope of mitigation activities aiming to minimize the risk of hazards that may lead to disasters have a key role in reducing disaster damage (Davis et al., 2003). Public awareness and education programs provide support to communities living in disaster-prone areas to communicate vulnerability to disaster risks and hazards to reduce disaster risks (Carter, 2008).

In order to prevent individuals from making erroneous assumptions about disaster hazards and potential hazards, the first stage in disaster management is to raise disaster awareness. Individual disaster awareness ought to mainly be composed of precise, accurate, reliable information of the risk elements, when and where the danger may be present, and the possible impact extent of this risk. For the information to reach its target, the disaster risk must be perceived correctly by society (Coppola, 2006). Disaster awareness is highlighted as a risk reduction strategy in disaster management studies. It is not easy to expect everyone in any society to be included in this process effectively due to various factors such as age, education level, socio-economic level, level of understanding, and internalization of disaster information in disaster awareness activities on disaster hazards and risks (Clerveaux et al., 2010). According to Teo et al. (2018), an individual's socioeconomic situation can affect their disaster awareness level, and in this context, it is critical to raise disaster awareness among individuals with low socioeconomic levels for disaster mitigation and preparedness stages to function effectively. Disaster preparedness includes various components to deal with potential disasters quickly and effectively. These are plans which are actionable at the government, community, and individual levels, resource management, personnel training, evacuation of the population when necessary, early warning systems, disaster education and awareness-raising activities, emergency communication, and drills (Carter, 2008). Disaster preparedness can be categorized as both administrative and individual. Disaster preparedness is an important factor, especially for coping with disasters more effectively. It is a prolonging and an ongoing process. People can help themselves, their families, and others around them in the event of a disaster by learning skills such as basic search and rescue strategies, first aid, and fire response procedures until rescue teams arrive to help. People need to be sufficiently informed of disasters to make these attempts (Coppola, 2006). The level of preparedness of individuals against disasters enables them to suffer less from disasters. Although states have obligations to ensure the safety of their citizens in disasters and many other issues, the responsibilities of individuals such as being prepared for disaster hazards must not be overlooked. One of the keys to being successful in disaster resilience in a society is to coordinate the preparation efforts of the citizens and the state to be prepared for the hazards that may lead to disasters (Donahue et al., 2014). Being individually prepared for disasters can be expressed as being able to meet the basic needs for at least 3 days, depending on the situation of not being able to get any outside help both mentally and physically (Beach, 2010). Disaster preparedness is not a one-time effort. Effective preparation is a dynamic process with continuity. It is more difficult to keep this continuity and dynamism alive in places where disaster hazards and risks are low than in places where risks and dangers are intense (Carter, 2008).

2.1. Artvin Province Characteristics and its Disaster

Artvin is located in the Eastern Black Sea Region of Türkiye. It has an area of 7.367 km^2 and borders Erzurum, Ardahan, Rize, and Georgia. The districts of Artvin are Ardanuç, Arhavi, Borçka, Hopa, Kemalpaşa, Murgul, Şavşat, Yusufeli, and Central District. Artvin is one of the cities most affected by natural disasters in Türkiye. In Artvin, the most common type of disaster in terms of incidents and loss of life is a landslide. Whereas the types and numbers of disasters that have occurred in the last 50 years were examined, 159 landslides, 136 fires, 30 floods, and 20 rockfalls occurred (URL 2).

3. MATERIALS AND METHODS

The sample of the study consists of 418 volunteer students studying at Artvin Çoruh University Artvin Vocational School in Türkiye, which was determined by a simple random sampling method.

The reasons for choosing Artvin Vocational School for the research are as follows: Firstly, Artvin has a high potential for natural disasters (such as landslides, rockfalls, and floods), and secondly, both disaster-related programs (such as Emergency and Disaster Management, Civil Defense and Firefighting) and non-disaster-related programs take place. After obtaining the ethics committee's approval, the survey used in the research was carried out face-to-face between 06.10.2022 and 13.10.2022 with a simple random sampling method. The survey form used in the research consisted of 3 parts. In the first part, 6 questions were prepared from demographic information by utilizing the study conducted in the literature (URL 1). In the second part, there were statements about disaster preparedness. For disaster preparedness, the disaster preparedness scale, which was developed by Şentuna and Çakı (2020), was prepared according to a 4-point Likert type from 13 items and 4 factors (Disaster Physical Protection, Disaster Planning, Disaster Help, Disaster Warning and Signals). The third part consisted of statements about Disaster Awareness. For the disaster awareness scale, Dikmenli et al. (2018), a survey consisting of 36 items and 4 factors (Disaster Education Awareness, Pre-Disaster Awareness, False Disaster Awareness, Post-Disaster Awareness) and a 5-point Likert scale was used. In the data analysis, AMOS, one of the Structural Equation Programmes, was used for CFA and SPSS 25 package program for other statistical studies. In the original version of the disaster preparedness scale, Cronbach's alpha coefficient was found to be 0.82. In this study, the alpha value was found to be 0.87. In the original version of the disaster awareness scale, Cronbach's alpha coefficient was found to be 0.87. In this study, the alpha value was found to be 0.95.

3.1. Analysis of Data

Because the disaster awareness items (12, 22, 23, 24, 25, 26, 27, 28, 29) had negative terms, reverse coding was initially done in the research. In order to determine, normality (see Table 1), the demographic statistics and reliability coefficients related to the surveys data used, KMO and Bartlett Test coefficients to determine the suitability of the data for factor analysis, and within the scope of testing the hypotheses, T-test, Correlation, and Regression analyses were analyzed in the SPSS 25 package program. Confirmatory factor analyses of the scales were made through AMOS, one of the Structural Equation Programs. The normality distributions of the scales related to the study are given in Table 1 and it is understood that they have a normal distribution (Mayers, 2013).

Table 1. Normality Test

	A	**DEA**	**P-DA**	**FDA**	**PDA**	**P**	**DPP**	**DP**	**DH**	**DWS**
Skewness	-0.97	-1.44	-1.50	-0.65	-0.84	0.00	0.14	0.22	-0.55	0.08
Kurtosis	0.90	1.74	2.24	-0.79	0.71	2.00	1.30	0.47	1.17	0.31

Note: *A=Awareness, DEA= Disaster Education Awareness, P-DA= Pre-Disaster Awareness, FDA= False Disaster Awareness, PDA= Post-Disaster Awareness.*
P= Preparedness, DPP= Disaster Physical Protection, DP= Disaster Planning, DH= Disaster Help, DWS= Disaster Warning and Signals.

Demographic statistics, confirmatory factor analysis, t-tests from parametric tests, and correlation and regression analyses related to the study were performed. Findings related to demographic statistics are given in Table 2.

After demographic statistics were made, KMO and Bartlett's tests, which are prerequisites for confirmatory factor analysis of the scales, were examined. KMO value of the preparedness scale: 0.89 Bartlett Test result was found to be significant as 0.000. KMO value for disaster awareness scale; after Bartlett Test was found to be significant as 0.96 and 0.000, confirmatory factor analysis of the scales was started in the structural equation AMOS program.

Table 2. Demographic Statistics

Variables		f	%
Gender	Female	183	43.8
	Male	235	56.2
Program	Disaster-related program	185	44.3
	Others	233	55.7
Disaster Education	Yes	228	54.5
	No	190	45.5
Disaster Experience	Yes	155	37.1
	No	263	62.9
Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends).	Yes	263	62.9
	No	155	37.1
Is there a disaster risk in the province where the education is received?	Yes	336	80.4
	No	82	19.6

3.2. Confirmatory Factor Analysis (CFA) Fit Indices

CFA fit indexes related to disaster preparedness and disaster awareness were evaluated based on the fit values used in Table 2 (Schermelleh-Engel et al., 2003). Table 3 contains the findings of the confirmatory factor analysis for the disaster preparedness scale and the disaster awareness scale.

Table 3. Disaster Preparedness and Disaster Awareness CFA Compliance Values

Variables		χ2 /df	RMSEA	GFI	CFI
Disaster Preparedness	**Compliance Value**	2,570	0.06	0.943	0.952
	Acceptable Fit	2<χ2 /df ≤ 3	0.05≤RMSEA ≤ .08	0.90≤GFI ≤ 0.95	0.95≤CFI ≤ 0.97
	Perfect Fit	0≤ χ2 /df ≤ 2	0≤RMSEA ≤ 0.05	0.95≤GFI ≤ 1.00	0.97≤CFI ≤ 1.00
Disaster Awareness	**Compliance Value**	2,811	0.06	0.81	0.93

4. RESULTS

After the scales had been validated, they conducted testing for both preparedness for disasters and awareness of disaster mean scores and dimensions. The minimum, maximum, mean, and standard deviation findings of disaster preparedness and disaster awareness scales are shown in Table 4.

The disaster preparedness and awareness mean and variables were determined to be in accordance with the normal distribution in terms of both the number of survey participants (N=418) and the Skewness and Kurtosis values. In this sense, the disaster awareness scale was evaluated using independent sample t-tests, one of the parametric tests, and the findings are shown in Table 5.

According to the findings, no statistically significant difference was found between the variables of gender (t=1.84; p>0.05) and disaster experience (t=0.51; p>0.05) in terms of disaster awareness. Variables that indicated statistically significant differences were the program

(Disaster-related; Others) (t=3.29; p<0.05), disaster education (t=4.17; p<0.05), and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) (t=2.38; p<0.05).

Table 4. Disaster Preparedness and Disaster Awareness Scales Descriptive Statistics

Variables	Minimum	Maximum	$\bar{X}$	SD
A	1.33	5.00	3.86	0.739
DEA	1.23	5.00	3.91	0.842
P-DA	1.00	5.00	4.02	0.934
FDA	1.00	5.00	3.71	1.206
PDA	1.00	5.00	3.73	0.889
P	1.00	4.00	2.49	0.477
DPP	1.00	4.00	2.36	0.542
DP	1.00	4.00	2.27	0.646
DH	1.00	4.00	2.97	0.612
DWS	1.00	4.00	2.40	0.649

Note: *A=Awareness, DEA= Disaster Education Awareness, P-DA= Pre-Disaster Awareness, FDA= False Disaster Awareness, PDA= Post-Disaster Awareness.*
P= Preparedness, DPP= Disaster Physical Protection, DP= Disaster Planning, DH= Disaster Help, DWS= Disaster Warning and Signals.

Table 5. Disaster Awareness Scale Independent Sample T-test Results

Variables		n	$\bar{X}$	SD	SE	t	p
Gender	Female	183	3.93	0.67	0.04	1.84	0.067
	Male	235	3.80	0.78	0.05		
Program	Disaster-related program	185	3.99	0.69	0.05	3.29	**0.001***
	Others	233	3.75	0.75	0.04		
Disaster Education	Yes	228	3.99	0.69	0.04	4.17	**0.000***
	No	190	3.69	0.76	0.05		
Disaster Experience	Yes	155	3.88	0.75	0.06	0.51	0.605
	No	263	3.84	0.73	0.04		
Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends)	Yes	263	3.92	0.70	0.04	2.38	**0.017***
	No	155	3.74	0.78	0.06		

***** *p<0.050*

Disaster awareness sub-dimensions were analyzed in terms of demographic variables with the independent sample t-test. No significant difference was found in terms of Disaster Education Awareness, gender, and disaster experience groups. Those who received education in disaster-related programs were found to be statistically significant and at a higher level ($\bar{X}$/ SD: 4.035/0.784; t=2.732; p<0.05). Those who received disaster education were found to be statistically higher ($\bar{X}$/ SD: 4.040/0.789; t=3.505; p<0.05). Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) were found to be statistically higher ($\bar{X}$/ SD: 3.978/0.803; t=2.149; p<0.05).

In the Pre-Disaster Awareness sub-dimension, no statistical differences were found in gender and disaster experience groups. Those who received education in disaster-related programs were found to be at a statistically significant and higher level ($\bar{X}$/SD: 4.152/0.830; t=2.456; p<0.05). Those who received disaster education were found to be statistically higher ($\bar{X}$/SD: 4.157/0.841; t=3.159; p<0.05). Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) were found to be statistically higher ($\bar{X}$/SD: 4.109/0.889; t=2.344; p<0.05).

In the False Disaster Awareness sub-dimension, no statistical differences were found in the groups with the program, disaster education, disaster experience, and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends). A statistically significant difference was found in terms of gender variable ($\bar{X}$/SD: 3.910/1.121; t=2.967; p<0.05). In the Post-Disaster Awareness sub-dimension, no statistical differences were found in the groups with gender, disaster experience, and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends). Those who received training in disaster-related programs were found to be at a statistically significant and higher level ($\bar{X}$/ SD: 3.982/0.805; t=5.202; p<0.05). Those who received disaster education were found to be statistically higher ($\bar{X}$/ SD: 3.957/0.796; t=5.626; p<0.05).

Since the data showed normal distribution, independent sample t-tests were applied for the disaster preparedness scale and the results are given in Table 6.

Table 6. Disaster Preparedness Independent Sample T-test Findings

Variables		**n**	**$\bar{X}$**	**SD**	**SE**	**t**	**p**
Gender	Female	183	2.49	0.41	0.03	0.25	0.801
	Male	235	2.48	0.52	0.03		
Program	Disaster-related program	185	2.57	0.50	0.03	3.36	**0.001***
	Others	233	2.42	0.44	0.02		
Disaster Education	Yes	228	2.55	0.48	0.03	3.05	**0.002***
	No	190	2.41	0.46	0.03		
Disaster Experience	Yes	155	2.52	0.46	0.03	0.97	0.331
	No	263	2.47	0.48	0.02		
Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends)	Yes	263	2.53	0.47	0.02	2.13	**0.033***
	No	155	2.42	0.48	0.03		

** p<0.050*

According to the 4-point Likert scale for the items in the Disaster Preparedness scale; Absolutely yes: 3.21-4.00, Yes: 2.41-3.20, No: 1.61-2.40, Absolutely not: 0.81-1.60 were evaluated (Şentuna & Çakı, 2020). When Table 6 is examined; In terms of disaster preparedness, no statistically significant difference was found for the variables of gender (t=0.25; p>0.05) and disaster experience (t=0.97; p>0.05). The program (Disaster-related; Others) (t=3.36; p<0.05), disaster education (t=3.05; p<0.05), and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) (t=2.13; p<0.05) statistical differences were found between them.

T-tests were applied to the sub-dimensions of disaster preparedness in terms of demographic variables. In terms of the Disaster Physical Protection sub-dimension, no statistical difference was found in terms of gender, disaster experience, and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) variables. Those who were trained in disaster-related programs were found to be statistically significant and at a higher level ($\bar{X}$/SD: 2.469/0.597; t=3.523; p<0.05). Those who received disaster education were found to be statistically higher ($\bar{X}$/SD: 2.444/0.568; t=3.523; p<0.05).

No statistical difference was found in terms of gender, program, and disaster education variables in terms of the Disaster Planning sub-dimension. Those who experienced a disaster were statistically higher ($\bar{X}$/SD: 2.365/0.657; t=2.108; p<0.05). Individuals who have experienced a

disaster in their immediate environment (such as family, relatives, and friends) were statistically higher ($\bar{X}$/SD: 2.343/0.664; t=2.671; p<0.05).

In terms of the Disaster Help sub-dimension, no statistical difference was found in terms of the variables of gender, disaster experience, and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends). Those who received training in disaster-related programs were found to be statistically significant and at a higher level ($\bar{X}$/SD: 3.075/0.584; t=2.944; p<0.05). Those who received disaster education were found to be statistically higher ($\bar{X}$/SD: 3.051/0.564; t=2.710; p<0.05).

In terms of the Disaster Warning and Signals sub-dimension, no statistical difference was determined in terms of gender, disaster education, disaster experience, and individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends). Those who received education in disaster-related programs were found to be at a statistically significant and higher level ($\bar{X}$/SD: 2.486/0.688; t=2.216; p<0.05).

In the study, correlation analysis was performed to test whether there is a relationship between disaster awareness and disaster preparedness. The result of the correlation analysis is given in Table 7.

Table 7. Results of Correlation Analysis Between Disaster Awareness and Preparedness

	Variables	$\bar{X}$	SD	1	2	3	4	5	6	7	8	9
1	**A**	3.8600	0.73915	1								
2	**DEA**	3.9104	0.84261	0.903**	1							
3	**P-DA**	4.0275	0.93429	0.893**	0.858**	1						
4	**FDA**	3.7165	1.20662	0.580**	0.276**	0.296**	1					
5	**PDA**	3.7389	0.88985	0.712**	0.642**	0.650**	0.088	1				
6	**P**	2.4925	0.47750	0.193**	0.202**	0.206**	-0.017	0.250**	1			
7	**DPP**	2.3632	0.54238	0.152**	0.168**	0.159**	-0.030	0.210**	0.908**	1		
8	**DP**	2.2791	0.64657	0.078	0.073	0.096	-0.016	0.115*	0.805**	0.680**	1	
9	**DH**	2.9777	0.61210	0.273**	0.283**	0.260**	0.038	0.299**	0.664**	0.460**	0.284**	1
10	**DWS**	2.4079	0.64912	0.105*	0.107*	0.142**	-0.046	0.160**	0.743**	0.584**	0.535**	0.376**

Note: *** p<0.01; * p<0.05. A=Awareness, DEA= Disaster Education Awareness, P-DA= Pre-Disaster Awareness, FDA= False Disaster Awareness, PDA= Post-Disaster Awareness.*
P= Preparedness, DPP= Disaster Physical Protection, DP= Disaster Planning, DH= Disaster Help, DWS= Disaster Warning and Signals.

When Table 7 is examined, it is seen that there are relations between disaster awareness and sub-factors and disaster preparedness and sub-factors. It is understood that the mean disaster awareness score is positively correlated (r=0.193, p<0.01) with the disaster preparedness mean score. When the relationships between the sub-factors of both variables are examined, it is seen that Disaster Education Awareness; Positive with the Disaster Physical Protection factor (r=0.168, p<0.01), positive with Disaster Help factor (r=0.283, p<0.01), positively with Disaster Warning and Signals factor (r=0.107, p<0.05) and was found not to be related to the Disaster Planning factor. Pre-Disaster Awareness factor; In the positive direction with the Disaster Physical Protection factor (r=0.159, p<0.01), in the positive direction with the Disaster Help factor (r=0.260, p<0.01), in the positive direction with the Disaster Warning and Signals factor (r=0.142, p<0.01) was found not to be related to the Disaster Planning factor. Post-disaster awareness factor; One of the sub-factors of disaster preparedness, it was positively determined by the Disaster Physical Protection factor (r=0.210, p<0.01), positively by the Disaster Planning factor (r=0.115, p<0.05), and positively by the Disaster Help factor (r=0.299, p<0.01), it was determined that they were positively correlated (r=0.160, p<0.01) with the Disaster Warning and Signals factor.

The effect of disaster preparedness on disaster awareness was studied using regression analysis. In Table 8, regression analysis is shown.

Table 8. Regression Analysis of the Prediction of the Effect of Disaster Awareness on Disaster Preparedness

Independent Variable	Dependent Variable	B	SE	β	t	P	R	R^2	F	p
Disaster Awareness	Disaster Preparedness	2.010	0.122	0.193	16.459	0.000	0.193	0.037	16.178	0.000*

** p<0.050*

On evaluating Table 8, it is clear that the regression model is significant since it was determined as $p<0.05$. In light of the results, it is seen that disaster awareness has a statistically significant positive below-level effect on disaster preparedness. The R^2 value was calculated as 0.037 ($R=0.193$; $R^2=0.037$; $p<0.05$). This value shows that 37% of Disaster Preparedness (variance) is explained by disaster awareness. The beta (β) coefficient of the independent variable is 0.193. As a consequence of these results, it has been determined that disaster awareness has a significant effect on disaster preparedness since $p<0.05$.

5. DISCUSSION

Some of the hypotheses (H1, H2) put forward in the study were partially and some (H3, H4) were completely accepted. It can be said that both disaster awareness and disaster preparedness levels of Vocational School students are at a good level. When the literature on disaster awareness studies is examined, there are studies that support the findings of our study (Şahin et al., 2018; Tekin and Dikmenli, 2021) and studies that have different results from our findings (Dikmenli and Yakar, 2019; URL 1; Ozkazanc and Yuksel, 2015; Bhat et al., 2017; Avcı et al., 2020; Oyanık and Cengiz, 2020; Demirci, 2021). When the literature on disaster preparedness studies is examined, there are studies that support our findings (Aslantaş and Tabuk, 2021) and differ from our findings (Ağahan, 2018; Koçak, 2004; Tanner and Doberstein, 2015; URL 1; Ozkazanc and Yuksel, 2015; Şahin et al., 2018; Dinçer and Kumru, 2021; Hasan et al., 2022). When some studies in the literature are examined, it is understood that disaster awareness and disaster preparedness are not at a sufficient level in most of the studies applied to the general public. It can be said that factors such as the education level of the participants, their socio-economic status, lack of access to disaster education, and awareness-raising activities may have an impact on this situation. It is understood that different results emerge in the research conducted on university students, and the factors that cause these results can be expressed as the disaster of the provinces where the research is done on university students, the programs (Disaster-related; Others) at the university, the disaster experiences of the students and the fact that they have not received disaster education, etc.

The gender variable was analyzed within the framework of disaster awareness and preparedness. There was no significant difference between the gender variable and both disaster awareness ($p>0.05$) and disaster preparedness ($p>0.05$). When the literature was examined, Türksever (2021) found that disaster awareness did not differ significantly in terms of gender in his study on university undergraduate students. Contrary to the results of the study, there are also studies in which disaster awareness and preparedness differ significantly in terms of male-female variables. Dikmenli and Yakar (2019) found that male students' disaster awareness levels were high in a way that made a significant difference compared to females. Ağahan (2018) determined

that male health workers are more prepared for disasters. Ertuğrul and Ünal (2020) determined that the average of females in terms of gender variable of disaster preparedness belief is higher than that of males. When the literature is analyzed, it is understood that gender variable shows a difference in terms of disaster preparedness and awareness. In our study, the disaster preparedness and awareness levels of both females and males are above the average, and the results of disaster awareness are statistically parallel with the study of Türksever (2021).

No significant difference was detected with any sub-dimension in terms of gender variable in the preparedness sub-dimensions. Baykal et al., (2023) found a significant difference only in the Disaster Warning and Signals dimension among the preparedness sub-dimensions in terms of gender variable in their study, and other findings support our study. Tercan (2022) also obtained similar results with our study.

In terms of gender groups, no difference was found in Disaster Education Awareness, Pre-Disaster Awareness, and Post-Disaster Awareness dimensions. In False Disaster Awareness, females had higher mean scores. Since the False Disaster Awareness items were reverse coded to turn them into positive statements, it can be considered as a positive result for females. Dikmenli and Yakar (2019) found differences in the dimensions of Disaster Education Awareness, False Disaster Awareness (males had higher mean scores), and Post-Disaster Awareness. In the Pre-Disaster Awareness dimension, no difference was found regarding gender. Türksever (2021) found no significant difference between gender groups in all sub-dimensions of disaster awareness. Tekin (2020) found that the average of females was higher in the false disaster awareness dimension regarding gender and did not detect any difference between other sub-dimensions. Aras et al. (2021) also found that women's averages were higher after the reverse items were coded as in Tekin's (2020) study.

The hypotheses put forward within the framework of the program (Disaster-related; Others); disaster awareness and disaster preparedness were tested with the independent sample t-test. It was determined that there was a statistically significant difference between disaster-related programs and other programs, both in disaster awareness ($p<0.05$) and disaster preparedness ($p<0.05$). In this context, it was found that disaster awareness was higher in disaster-related programs compared to students studying in non-disaster-related programs, and disaster preparedness was higher in disaster-related programs compared to students studying in non-disaster-related programs. In the study conducted by Dikmenli and Yakar (2019), there were no differences in the level of disaster awareness among university fields studied by teacher candidates. Ertuğrul and Ünal (2020) concluded that there is no statistical difference between the departments of Vocational School in the context of disaster preparedness belief. Dökmeci and Merinç (2018) found that in their study on faculties and vocational schools at Tekirdağ Namık Kemal University, disaster awareness and preparedness averages were at the lowest level in vocational schools. Rogayan and Dollete (2020) reported that with the inclusion of disaster-related courses in the curriculum of universities, students and the communities that will be affected by students will be informed about disaster risks and hazards. They reported that methods such as symposiums, distribution of disaster information brochures, and notification of disaster preparedness information to the public reduce the disaster risks of individuals with high disaster awareness and that these methods play an important role in disaster preparedness. Within the scope of the study, we can state that the Civil Defense and Firefighting program as well as the Emergency and Disaster Management program at Artvin Vocational School are programs related to disasters and emergencies, so disaster preparedness and disaster awareness levels differ between departments/programs, unlike other studies.

In terms of the program of education, the average scores of the students who received education in disaster-related programs were higher in Disaster Physical Protection, Disaster Help, and Disaster Warning and Signals dimensions. No difference was found in terms of the Disaster Planning sub-dimension. These results have not been discussed in the literature before and will contribute to future studies.

In terms of the program groups, differences in Disaster Education Awareness, Pre-Disaster Awareness, and Post-Disaster Awareness dimensions were found in favor of disaster-related programs. In False Disaster Awareness, no difference was found. In the literature, no difference was found between disaster-related programs and other programs within the framework of the False Disaster Awareness sub-dimension in the study of Aras et al. (2021). The findings related to other sub-dimensions in terms of this variable have not been discussed in the literature before and will contribute to the literature in this respect.

Disaster education; The hypotheses put forward within the disaster awareness and preparedness framework were tested with the independent sample t-test. It was determined that there was a statistically significant difference between disaster awareness ($p<0.05$) and disaster preparedness ($p<0.05$) between those who received disaster education and those who did not. In this context, disaster awareness; Those who received disaster education were higher than those who did not. Similarly, in disaster preparedness; It was determined that the students who received disaster education were found to be higher than the students who did not receive disaster education. Ertuğrul and Ünal (2020), in their study on Vocational School students, determined that the disaster preparedness belief average of the students who received disaster education was higher. Aslantaş and Tabuk (2021) determined a high level of disaster preparedness perceptions of 112 health workers who received disaster training. Dinçer and Kumru (2021) revealed that individuals who engaged in disaster-related drills and training had better levels of preparedness for disasters. Hasan et al. (2022) found that university students with higher disaster knowledge had higher levels of preparedness. Cerulli et al., (2020) state that as a result of their studies, education will contribute greatly to increasing disaster awareness. Avcı et al. (2021) concluded that nurses who had received disaster training had greater levels of disaster awareness. Donahue et al. (2014) revealed in their study that individuals who received training before a disaster were more likely to be prepared for the latter possible disasters, whilst those who did not make preparations for disasters did not know how to do so since they hadn't been instructed previously. In Türkiye, topics related to disasters are included in life sciences, social studies, and geography curricula at educational levels (Başıbüyük and Pala, 2023). Koç et al. (2020) draw attention to the fact that in the studies on disaster education, more emphasis is placed on natural disasters, especially earthquakes, and that there are relatively few studies on preschool and special individuals. İnal et al. (2018), in their study on primary and secondary education curricula within the framework of disaster education, stated that the curriculum is focused on earthquake and natural disasters and that there is a need for educational content that includes all disaster hazards and risks. Çakır and Kılcan (2022) found that scenario-based teaching contributed positively to disaster knowledge and attitudes in their study on 6th-grade secondary school students. Şahan and Dinç (2021a; 2021b), in their study for secondary school students, found that disaster education given with simulation technique was both more effective than traditional teaching methods and had a positive effect on preparedness. Bor (2023), in his study on the disaster awareness of vocational college students, it was determined that the disaster awareness levels of the students increased significantly after the disaster awareness training prepared by AFAD. Mızrak (2018) states that disaster education will have a positive impact on the activities at all stages of disaster management and will increase community resilience. Studies in

the literature show that disaster education increases disaster awareness and disaster preparedness levels. In particular, AFAD's declaration of 2021 as the year of disaster education in Türkiye to increase disaster awareness and the provision of online and face-to-face awareness training are thought to have a positive effect on the result obtained in the study.

A significant difference was found in terms of Disaster Physical Protection and Disaster Help sub-dimensions for students who received disaster education. No difference was found for Disaster Help and Disaster Warning and Signals sub-dimensions. Tercan (2022) and Baykal et al. (2023) found that the mean scores of those who received disaster education were higher in terms of all sub-dimensions.

In terms of disaster education groups, the mean scores of the students who received disaster education in Disaster Education Awareness, Pre-Disaster Awareness, and Post-Disaster Awareness dimensions were found to be higher. In the False Disaster Awareness, no difference was detected. These results are in parallel with the findings of the students trained in disaster-related programs. Tekin (2020) found that the average scores of Post-Disaster Awareness of those who received disaster education were higher, and no difference was detected in terms of other dimensions.

Disaster experience; The hypotheses put forward within the framework of disaster awareness and disaster preparedness were tested by independent sample t-test. It was determined that there was no statistically significant difference between the disaster experience variable and both disaster awareness ($p>0.05$) and disaster preparedness ($p>0.05$). There are parallel results with the findings obtained in the study: Aras et al., (2021) in their study between disaster awareness and earthquake experience, Demirci (2021) in Izmir province between disaster experience and disaster awareness, Ertuğrul and Ünal (2020) found that there was no statistical difference between disaster preparedness beliefs and disaster experience. Contrary to these results, Dikmenli and Yakar (2019) found the level of awareness of those who experienced disasters to be higher. Dinçer and Kumru (2021) determined that the level of preparedness of health workers who have experienced disasters is higher. Ağahan (2018) determined that disaster awareness and preparedness anxiety levels are higher for those with disaster experience. In the study of AFAD (URL 1), 65% of the participants stated that the disaster experience enabled them to raise awareness and 52% of them stated that they prepared for disasters. Tkachuck et al., (2018) found that disaster experience was an important predictor of both actual and perceived preparedness. It will strengthen people even more by learning lessons from their bad experiences, being aware of these experiences, and taking various precautions to prevent them from happening again. In this context, it is important that both disaster awareness and disaster preparedness levels were above the average, although there is no statistical difference between those who have experienced disasters and those who have not.

The mean scores of the individuals with disaster experience were significant and high only in the Disaster Planning sub-dimension. No significant difference was found in other sub-dimensions. Baykal et al. (2023) and Tercan (2022) found no significant difference in terms of any sub-dimension.

In disaster experience groups, no significant difference was found in the sub-dimensions of disaster awareness. In the literature, Dikmenli and Yakar, (2019) found that the average of those who experienced a disaster in the dimensions of Disaster Education Awareness, Pre-Disaster Awareness, and Post-Disaster Awareness was higher. No significant difference was found in the False Disaster Awareness sub-dimension. Bulu (2023) concluded that there was a significant

difference in terms of the Disaster Education Awareness dimension in disaster experience groups. However, no significant difference was found between Pre-Disaster Awareness, False Disaster Awareness, and Post-Disaster Awareness in terms of disaster experience groups. In Tekin's (2020) study, it was determined that the disaster experiences of prospective primary school teachers did not make a difference in terms of disaster awareness sub-dimensions. Aras et al., (2021) in the False Disaster Awareness sub-dimension did not find a significant difference in terms of earthquake experience.

The hypotheses put forward within the framework of individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends), disaster awareness and disaster preparedness were tested by independent sample t-test. For individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) statistical differences were determined in terms of both disaster awareness ($p<0.05$) and disaster preparedness ($p<0.05$). In the study conducted by AFAD (URL 1) throughout Türkiye, more than half of the participants (51%) stated that the disaster experience of their relatives contributed to their preparation for disasters and 64% to their disaster awareness.

The mean scores of those who had disaster experience in their immediate environment were found to be significant and high only in the Disaster Planning sub-dimension. No significant difference was found in other sub-dimensions. These results have not been discussed in the literature before within the framework of these sub-dimensions and will contribute to future studies.

Individuals who have experienced a disaster in their immediate environment (such as family, relatives, and friends) groups have higher scores in Disaster Education Awareness and Pre-Disaster Awareness dimensions. No difference was found in terms of False Disaster Awareness and Post-Disaster Awareness dimensions. In terms of disaster awareness sub-dimensions, this variable has not been discussed in the literature before. In this respect, it will contribute to the literature.

The hypothesis about the relationship between disaster awareness and disaster preparedness of Vocational School students was tested by performing a correlation analysis. It was determined that disaster awareness was positively related to disaster preparedness. Different results have been obtained in some studies in the literature. Rogayan and Dollete (2020) found a positive and moderate relationship between disaster awareness and preparedness for disasters in their study in the Philippines, which is in line with our study, while Scolobig et al., (2012) did not find a statistical relationship between flood risk awareness and preparedness. In addition, ChungHee et al. (2015) found no statistical difference between disaster preparedness and disaster awareness in their study. Individuals with high disaster awareness and disaster risk perception are naturally expected to be more prepared for dangerous events that may lead to possible disasters or individuals who are prepared for disasters are expected to have a high disaster risk perception and awareness. In this context, the result obtained in the study, in line with this expectation, a positive relationship was determined between disaster awareness and disaster preparedness.

The hypothesis about the effect of the disaster awareness of Vocational School students on disaster preparedness was tested by regression analysis. It is seen that disaster awareness has a statistically significant positive but low-level effect on disaster preparedness. Suryaratri et al., (2020) found that disaster awareness has a positive and significant effect on disaster preparedness in their study on households in Indonesia. It is expected that disaster mitigation and

preparedness activities of individuals with high disaster awareness should be in this direction. Although the result obtained in the study was at a low level, it was determined that the disaster awareness of the students had a statistical effect on their preparedness for disasters.

The students were asked the question "Is there a disaster risk in the province where the education is received?". 80.4% of the students participating in the study think that the city they study in has a disaster risk. In the study of AFAD (URL 1), it was determined that 45% of the participants think that there is a disaster risk in the place where they live in 42 provinces with the highest disaster risk in Türkiye. In particular, it is one of the key factors in the fight against disasters that individuals have information about the disaster risks in the place they live and makes preparations accordingly. This result is important in terms of students' disaster knowledge, awareness, and risk perception about the city where natural disasters (landslides, rockfalls, floods, etc.) are experienced intensively.

6. CONCLUSION

Significant results were obtained from the hypotheses put forward for the purpose of the study. Accordingly, hypotheses H3 and H4 are accepted. Hypotheses H1 and H2 are also partially accepted. The fact that the participants' disaster awareness and preparedness are good levels is an important result for university students studying in a city where various types of disasters are dominant. It is understood from both the study findings and literature studies that disaster education plays a key role in raising public awareness and preparing for disasters. In particular, it is thought that the fact that there are programs related to disasters and emergencies in the vocational school where the research is conducted, the various pieces of training received about the disaster, and the risks of disaster (landslides, rockfalls, and floods) of the province where the study is experienced contribute positively to the study findings. In this context, Türkiye's young population density is high. University students, who mostly represent the Z generation, should be trained in disaster risk perception and awareness in order to reduce disaster damage and be prepared for disasters. When we take into account their level of environmental impact, this can be one of the most important initiatives toward developing a disaster-resilient society. The crucial issue is that after getting training on both disaster awareness and preparedness, individuals in the disaster resilience process are able to sustain and internalize these training and awareness-raising actions.

Ethical Dimension of the Study: *It was taken with the decision of Artvin Çoruh University Scientific Research and Publication Ethics Committee dated 01.07.2022 and numbered E-18457941-050.99-54391.*

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