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Research Article / Araştırma

Disaster preparedness evaluation of nurses in a university hospital in Ankara province*

Ankara ilinde bir üniversite hastanesi hemşirelerinde afet hazırbulunuşluk değerlendirilmesi

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ABSTRACT

Purpose: This study was planned to evaluate disaster preparedness among nurses working in a hospital located in Ankara, Turkiye. **Materials and Methods**: The descriptive study was conducted between January and February 2024. The study population consisted of 560 nurses working at Sincan Training and Research Hospital. Based on a sample size table for $\alpha=0.05$, and with a 95% confidence interval and a 5% margin of error ($p=0.8$, $q=0.2$, $t=1.96$, $d=0.05$), the sample size was determined to be 165 participants. Data were collected through face-to-face interviews using the "Socio-Demographic Data Form" and the "Disaster Preparedness Scale." **Results**: The mean total score obtained by nurses on the "Disaster Preparedness Scale" was 32.84 ± 4.38. This score is slightly above the average, and therefore can be considered as moderate. When examining the sub-dimension scores of the scale, the mean scores were found to be as follows: "Disaster Physical Protection" 12.56 ± 2.18, "Disaster Planning" 6.81 ± 1.60, "Disaster Aid" 8.90 ± 1.62, and "Disaster Warning Systems" 4.58 ± 1.20. **Conclusion**: According to the findings, significant differences were observed between disaster preparedness and variables such as age, marital status, number of children, income level, and professional experience of the nurses. As nurses' professional experience increased, their level of disaster awareness and preparedness also improved. It is recommended that more practical in-service training programs be implemented to enhance nurses' educator and practitioner roles in protecting individual, family, and community health, and in promoting appropriate behavioral responses within the society.

ÖZ

Amaç: Araştırma Türkiye'de Ankara ilinde bir hastanenin hemşirelerinde afet hazırbulunuşluk değerlendirmesinin yapılması amacıyla planlanmıştır. **Gereç ve Yöntem:** Ocak-Şubat 2024 tarihleri arasında gerçekleştirilen tanımlayıcı nitelikteki araştırmanın evrenini, Sincan Eğitim ve Araştırma Hastanesi'nde çalışan 560 hemşire oluşturdu. Örneklem, $\alpha=0.05$ için örneklem büyüklükleri tablosu referans alınarak %95 güven aralığı %5 hata payı ($p=0.8$, $q=0.2$, $t=1.96$, $d=0.05$) ile 165 katılımcı olarak belirlendi. Veriler "Sosyo-Demografik Veri Formu" ve "Afet Hazırbulunuşluk Ölçeği" kullanılarak yüz yüze görüşme tekniği ile toplandı. **Bulgular**: Hemşirelerin "Afet Hazırbulunuşluk Ölçeği" toplamından aldıkları puan ortalaması 32.84 ± 4.38 olarak bulunmuştur. Ölçekten elde edilen toplam puan, ortalamanın biraz üstündedir. Bu nedenle ortalama seviyede kabul edilebilir. Ölçeğin alt boyutlarından alınan puanların ortalamaları incelendiğinde "Afet Fiziksel Koruma" puanı 12.56 ± 2.18, "Afet Planlama" puanı 6.81 ± 1.60, "Afet Yardım" puanı 8.90 ± 1.62, "Afet Uyarı Sistemleri" puanı 4.58 ± 1.20 olarak bulunmuştur. **Sonuç**: Bu araştırmaya göre hemşirelerin; yaş, medeni durum, çocuk sayısı, gelir durumu, mesleki deneyim ile afet hazırbulunuşluk ve alt boyutları arasında anlamlı farklılıklar oluştuğu görülmüştür. Hemşirelerin mesleki deneyimi arttıkça afet farkındalık ve hazırbulunuşluk derecesinin yükseldiği gözlenmiştir. Hemşirelerin; bireyin, ailenin ve toplumun sağlığının korunması ve topluma doğru davranışları kazandırmaya yönelik eğitimci ve uygulayıcı rollerinde daha başarılı olması için, konu hakkında uygulamalı hizmet içi eğitim programlarının arttırılması önerilmektedir.

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INTRODUCTION

The World Health Organization (WHO) defines disaster as "any natural, technological or human-induced events that cause loss of life and property for people, affect the society in physical, psychological and economic aspects and cannot be handled with local means" (Kadıoğlu, 2011). Disasters and risk management are recognized as one of the most important problems in the world, especially among developing countries (Tufekci, 2023). Turkiye is a country facing various natural disaster hazards due to its tectonic formation, geological structure, topography and meteorological characteristics (Erkal & Degerliyurt, 2009). The country's susceptibility to physical and social damage often results in high rates of loss of life, injuries and property loss as a result of disasters. In Turkiye, 50.783 people lost their lives, 115.353 people were injured and 37.984 buildings were destroyed in the recent devastating earthquake in Kahramanmaraş (AFAD Pazarcık-Elbistan Earthquakes Report, 2023).

Disaster preparedness is considered as a critical disaster mitigation strategy to protect individuals and communities from the physical, social, economic and psychological impacts of unforeseen natural events (Chan et al, 2014). Disaster preparedness is a shared responsibility of all individuals. For this reason, awareness and positive behavioral changes related to disaster preparedness can be achieved with the active participation of all segments of the society. In order to create a resilient society against disasters, it is important to make the necessary preparations to minimize the damages caused by disasters and to take precautions by conscious individuals (Inal et al, 2018).

While disasters and emergencies affect every sector, the health sector is among the most affected ones. Nurses, who play a key role in the health sector, have critical roles in the provision of health services as well as constituting the majority among health professionals. The large number of nurses, the fact that they work not only in the health system but also in all units of hospitals, and the fact that they have knowledge and skills in subjects such as sociology and communication in addition to health sciences due to their broad education diversify and increase their activities (Ozpulat & Kabasakal, 2018). This situation imposes important roles on nurses in readiness and preparedness for disasters and emergencies (Ozpulat & Kabasakal, 2018).

In the studies in the literature, the importance of individuals being prepared for disasters is constantly emphasized (Ertugrul & Unal, 2020). Preparedness refers to the ability to respond quickly and effectively to any disaster, crisis or emergency (Bullock et al, 2020). These preparedness activities form part of strategies to cope with hazards before a disaster. Generally, the most common preparedness activities include drills and public education, as these activities help people to improve their ability to survive in disaster situations (Bullock et al, 2020). In societies where disaster awareness and preparedness levels reach sufficient levels, the potential to produce more organizational and systematic solutions to prevent losses emerges (Ulug, 2004). When the literature is examined, there are studies on disaster knowledge level and disaster preparedness level in various institutions (Bulat & Ozbaşı, 2021; Dikmenli & Yakar, 2019; Inal et al, 2012). However, it was observed that no disaster preparedness assessment study was conducted with nurses in Ankara province in Turkiye. Therefore, this study was conducted to assess the disaster preparedness of nurses in a hospital in Ankara, Turkiye.

Research questions

1. What is the level of disaster preparedness in nurses of a hospital in Ankara, Turkiye?

2. According to which individual characteristics does the level of disaster preparedness differ in nurses of a hospital in Ankara, Turkiye?

MATERIALS AND METHODS

Purpose and Type of Research

This descriptive research was conducted to assess the disaster preparedness of nurses in a hospital in Ankara, Turkiye.

Date, Place, Population and Sample of the Research

The population of the descriptive research conducted between January and February 2024 consisted of 560 nurses working in Sincan Training and Research Hospital. The sample was determined as 165 participants with a 95% confidence interval and 5% margin of error ($p=0.8$, $q=0.2$, $t=1.96$, $d=0.05$) with reference to the table of sample sizes for $\alpha=0.05$.

Ethical Dimension of the Research

Approval for the research was obtained from Xxxxxx University, Faculty of Medicine, Dean's Office of Pharmaceutical and Non-Medical Device Research Ethics Committee with decision no. 12 dated 22.12.2023. Institutional permission was obtained from Sincan Training and Research Hospital. Participants were informed about the research and voluntary consent was obtained from those who voluntarily agreed to participate in the research. The research was conducted in accordance with the principles of the Declaration of Helsinki.

Inclusion Criteria

Those who worked as nurses in Sincan Training and Research Hospital, were between the ages of 18-65, and voluntarily agreed to participate in the research were included in the research.

Collection of Data

Data were collected through face-to-face interviews using the "Socio-Demographic Data Form" and "Disaster Preparedness Scale".

Socio-Demographic Data Form: It was prepared by the researchers. It includes information such as age, gender, marital status, number of children, years of employment, and unit of employment.

Disaster Preparedness Scale: It was developed by Sentuna and Cakı in 2020 to assess preparedness in emergency and disaster situations. This Likert-type scale has 13 items and 4 dimensions. The first 5 items are "disaster physical protection", 3 items are "disaster planning", 3 items are "disaster assistance" and the last 2 items are "disaster warning systems". The items in the scale are in 4-point Likert format as ''1- Absolutely No", ''2- No", ''3- Yes", ''4- Absolutely Yes". The minimum score that can be obtained from the scale is 13 and the maximum score is 52. As the score obtained from the scale increases, the level of disaster preparedness increases (Sentuna & Cakı, 2020). The Cronbach's alpha value calculated for the entire scale is 0.82, Cronbach's alpha value was found to be 0.80 in the current research.

Statistical Analysis

The data were analyzed in SPSS 22.0 statistical package program. The normal distribution of the data was analyzed by Kolmogorov-Smirnov test. Categorical data were shown with numbers and percentages. Since the data were not normally distributed, Mann-Whitney U test was used to compare two different groups and Kruskal Wallis-H test was used to compare three or more groups. Statistical significance level $p<0.05$ was accepted.

RESULTS

It was determined that among the total of 165 nurses who participated in the study, 35.2% were between the ages of 26 and 35, 72.7% (n=120) were female, 55.2% (n=91) were single, 66.5% (n=108) had no children, 75.8% (n=125) held a bachelor's degree, 71.5% (n=118) reported that their income was equal to their expenses, 95.8% (n=158) lived in city, 30.3% (n=50) had 5–10 years of professional experience, and 45.5% (n=75) worked in the emergency department (Table 1).

The mean scores obtained by the nurses from the Disaster Preparedness Scale and its sub-dimensions are given in Table 2. The mean score obtained by the nurses from the total "Disaster Preparedness Scale" was 32.84±4.38 (min:22 max:47). The score obtained from the total scale is slightly above the average. Therefore, it can be accepted as average. When the scores obtained from the sub-dimensions of the "Disaster Preparedness Scale" were examined, the mean score of the "Disaster Physical Protection" dimension was 12.56±2.18 (min:8 max:18), the mean score of the "Disaster Planning" dimension was 6.81±1.60 (min:3 max:12), the mean score of the "Disaster Relief" dimension was 8.90±1.62 (min:3 max:12), and the mean score of the "Disaster Warning Systems" dimension was 4.58±1.20 (min:2 max:8) (Table 2).

According to the Mann Whitney U test and Kruskal Wallis-H test results related to the descriptive characteristics of the nurses on disaster preparedness and its sub-dimensions;

It was found that the marital status of the nurses differed significantly in favor of the married ones in the total score of the disaster preparedness scale ($U=1961.00$ $p<0.05$) and its sub-dimensions disaster physical protection ($U=1883.00$ $p<0.05$), disaster planning ($U=2752.00$ $p<0.05$), disaster assistance ($U=2736.50p<0.05$), disaster warning systems ($U=2726.50$ $p<0.05$) (Table 3).

The age status of the nurses differed significantly from the total score of the disaster preparedness scale ($KW=66.122$ $p<0.05$) and its sub-dimensions disaster physical protection ($KW=41.519$ $p<0.05$), disaster planning ($KW=17.729$ $p<0.05$), disaster relief ($KW=20.909$ $p<0.05$), and disaster warning systems ($KW=20.754$ $p<0.05$), which were found to differ significantly in favor of those aged 46 and over (Table 3).

The number of children of the nurses was found to be in favor of those who had 2 children in the total score of the disaster preparedness scale ($KW=51.711$ $p<0.05$) and in favor of those who had 3 children in disaster physical protection ($KW=35.803$ $p<0.05$), in favor of those who had 2 children in disaster planning ($KW=19.521$ $p<0.05$), in disaster relief in favor of those who had 3 children ($KW=23.024$ $p<0.05$), and in disaster warning systems in favor of those who had 1 child ($KW=17.094$ $p<0.05$) (Table 3).

It was found that the educational level of the nurses differed significantly from the total score of the disaster preparedness scale ($KW=37.635$ $p<0.05$) and its sub-dimensions disaster physical protection ($KW=26.205$ $p<0.05$), disaster planning ($KW=10.219$ $p<0.05$), disaster assistance ($KW=12.216$ $p<0.05$), disaster warning systems ($KW=14.700$ $p<0.05$) in favor of those with associate degree education (Table 3).

Table 1. Descriptive Characteristics (N=165)

Descriptive Characteristics	N	%
Age		
18-25	45	27.3
26-35	58	35.2
36-45	42	25.5
46 and above	20	12.1
Gender		
Woman	120	72.7
Male	45	27.3
Marital Status		
Married	74	44.8
Single	91	55.2
Number of Children		
0	108	65.5
1	26	15.8
2	25	15.2
3 and above	6	30.6
Education Level		
Associate Degree	29	17.6
Bachelor's Degree	125	75.8
Postgraduate Degree	11	6.7
Income Status		
Income less than expenditure	36	21.8
Income equal to expenditure	118	71.5
Income more than expenditure	11	6.7
Place of Residence		
City	158	95.8
District	7	4.2
Professional experience(year)		
1 year	4	2.4
2-4 years	49	29.7
5-10 years	50	30.3
11-20 years	40	24.2
21 and above	22	13.3
Unit of work		
Emergency service	75	45.5
Intensive care unit	60	36.4
Inpatient service	30	18.2
Total	**165**	**100**

Table 2. Mean scores of the Disaster Preparedness Scale and its subscales (N=165)

	Average	Min	Max	SS
Disaster Physical Protection	12.56	8	18	2.187
Disaster Planning	6.81	3	12	1.608
Disaster Relief	8.90	3	12	1.624
Disaster Warning Systems	4.58	2	8	1.200
Disaster Preparedness Total Score	32.84	22	47	4.387

It was found that the income status of the nurses significantly differed from the total score of the disaster preparedness scale (KW=7.385 p<0.05) and the sub-dimensions of disaster physical protection (KW=8.158 p<0.05) in favor of those whose income was higher than their expenses (Table 3).

The year of professional experience of the nurses was significantly correlated with the total score of the disaster preparedness scale (KW=73.558 p<0.05) and its sub-dimensions disaster physical protection (KW=45.785 p<0.05), disaster planning (KW=25.989 p<0. 05), disaster relief (KW=27.830 p<0.05), and disaster warning systems (KW=24.903 p<0.05), which are sub-dimensions of disaster physical protection (KW=45.785 p<0.05) and disaster planning (KW=25.989 p<0.05) were found to differ significantly in favor of the employees with 21 years or more (Table 3).

According to the results of Mann Whitney U test and Kruskal Wallis-H test conducted in the research, there was no significant difference between the gender, place of residence and work unit status of the nurses and their disaster preparedness status and sub-dimensions (p>0.05) (Table 3).

DISCUSSION

The mean score of the nurses working in different units in Sincan Training and Research Hospital was 32.84±4.38. The majority of the nurses who participated in the study were female, between the ages of 26-35, single, undergraduate graduates and childless. The nurses' scores on the scale in this study were above the average. When the scores obtained by the nurses from the sub-dimensions of the disaster preparedness scale were analyzed in the study, it was concluded that the nurses had an average level of knowledge on Disaster Physical Protection, Disaster Planning, Disaster Relief and Disaster Warning Systems.

When the literature is examined, in international studies; Chegini et al. (2022) determined the level of disaster preparedness as above average in a study conducted with emergency room nurses in Iran (Chegini et al., 2022). Similarly, in a study conducted by Park and Kim (2017) in South Korea, the disaster preparedness level of nurses was found to be above average (Park & Kim, 2017). Martono et al. (2019) from Indonesia found that the disaster preparedness level of nurses was at an average level (Martono et al., 2019). In addition, studies conducted in countries such as Pakistan (Khan, Rashid & Aziz, 2021), Iraq (Al-Hammami, Al-Alwani & Al-Harthi, 2020), India (Sharma, Patel & Kumar, 2019) and Nigeria (Ojo, Adebayo & Ogunsola, 2020) stated that the disaster preparedness levels of nurses are at an average level.

When the literature in Turkey is examined, Doğan, Sungur, and Atsal Kılıç (2023) found in a community-based study that participants' disaster preparedness levels were average (Dogan, Sungur, & Atsal Kılıç, 2023). Similarly, in a study conducted by Agahan and Demirbilek (2023) involving teachers, it was determined that the disaster preparedness scores were above average (Agahan & Demirbilek, 2023). These findings indicate that the results of our study are consistent with the existing literature.

There was no statistically significant difference between the gender of the nurses and the total score and sub-dimensions of the disaster preparedness scale. This result is in parallel with the findings of many studies in the literature. For example, in a study conducted by Agahan and Demirbilek (2023) on teachers, it was reported that gender had no significant effect on the level of disaster preparedness (Agahan & Demirbilek, 2023). Similarly, Doğan, Sungur, and Atsal Kılıç (2023) reported that gender was not a determinant of disaster preparedness in a community-wide study (Dogan, Sungur & Atsal Kılıç, 2023). The fact that gender does not have a direct effect on disaster preparedness supports that disaster management and response processes should be handled with a gender-neutral, egalitarian approach. Moreover, it is important to focus on increasing knowledge and skill levels rather than gender in developing disaster preparedness and response skills (Chegini et al., 2022; Park & Kim, 2017).

A statistically significant difference was found between the marital status of the nurses and the Disaster Readiness Scale total score and all sub-dimensions (disaster physical protection, disaster planning, disaster relief and disaster warning systems), and this difference was in favor of married nurses (p<0.05). This shows that married individuals have a higher level of awareness and preparedness for disasters. Similar findings are also supported in the literature. In a study conducted by Agahan and Demirbilek (2023) with teachers, it was reported that disaster preparedness levels of married individuals were significantly higher than single individuals (Agahan & Demirbilek, 2023). Similarly, Chegini and colleagues (2022) conducted a study in Iran and found that married nurses had higher disaster competence and preparedness scores (Chegini et al., 2022). The reason for this difference may be that married individuals feel the responsibility to protect not only themselves but also their family members such as spouse and children in disaster situations. The presence of family members increases personal risk perception and motivation towards disasters, which

Table 3. Results of Disaster Preparedness and its Sub-dimensions Related to Descriptive Characteristics

Descriptive Characteristics	n	Disaster Physical Protection Score Mean	Disaster Physical Protection Score Total	Disaster Planning Score Mean	Disaster Planning Score Total	Disaster Relief Score Mean	Disaster Relief Score Total	Disaster Warning Systems Score Mean	Disaster Warning Systems Score Total	Disaster Preparedness Total Score Score Mean	Disaster Preparedness Total Score Score Total
Gender											
Woman	120	79.70	9564.00	85.99	10319.00	81.94	9833.00	85.05	10205.50	82.41	9889.50
Male	45	91.80	4131.00	75.02	3376.00	85.82	3862.00	77.54	3489.50	84.57	3805.50
		U:2304.00 p:0.143		U:2341.00 p:0.180		U:2573.00 p:0.635		U:2454.50 p:0.352		U:2629.50 p:0.796	
Marital status											
Married	74	103.05	7626.00	91.31	6757.00	91.52	6772.50	91.66	6782.50	102.00	7548.00
Single	91	66.69	6069.00	76.24	6938.00	76.07	6922.50	75.96	6912.50	67.55	6147.00
		U:1883.00 **p:0.001**		U:2752.00 **p:0.040**		U:2736.50 **p:0.035**		U:2726.50 **p:0.030**		U:1961.00 **p:0.001**	
Place of recidence											
City	158	82,85	13091.00	83.41	13179.00	83.93	13261.00	83.72	13228.00	84.03	13276.00
District	7	86,26	604.00	73.71	516.00	62.00	434.00	66.64	466.50	59.86	419.00
		U:530.00 p:0.851		U:488.00 p:0.591		U:406.00 p:0.225		U:438.50 p:0.338		U:391.00 p:0.189	
Age		**Score Mean**		**Score Mean**		**Score Mean**		**Score Mean**		**Score Mean**	
18-25	45	57.10		74.11		66.96		65.56		55.46	
26-35	58	71.47		68.62		70.93		74.41		63.60	
36-45	42	102.17		93.67		100.74		93.93		109.62	
46 and above	20	129.26		114.94		108.53		117.21		142.03	
		KW: 41.519 df:3 **p:0.001**		KW: 17.729 df:3 **p:0.001**		KW: 20.909 df:3 **p:0.001**		KW: 20.754 df:3 **p:0.001**		KW: 66.122 df:3 **p:0.001**	
Number of child											
0	108	66.71		74.67		70.84		72.01		63.67	
1	26	112.08		88.88		93.81		105.21		112.96	
2	25	112.96		116.44		112.60		102.92		127.64	
3 and above	6	117.50		48.80		125.00		88.80		105.10	
		KW: 35.803 df:3 **p:0.001**		KW: 19.521 df:3 **p:0.001**		KW: 23.024 df:3 **p:0.001**		KW: 17.094 df:3 **p:0.001**		KW: 51.711 df:3 **p:0.001**	
Education level											
Associate Degree	29	123.79		107.40		110.22		112.81		132.05	
Bachelor's D.	125	74.32		76.84		76.56		76.78		71.85	
Postgraduate D.	11	74.05		88.68		84.41		75.05		80.41	
		KW: 26.205 df:2 **p:0.001**		KW: 10,219 df:2 **p:0.006**		KW: 12.216 df:2 **p:0.002**		KW: 14.700 df:2 **p:0.001**		KW: 37.635 df:2 **p:0.001**	
Income statuse											
Income less than expenditure	36	79.79		91.17		83.24		78.67		82.29	
Income equal to expenditure	118	80.31		80.35		80.11		81.78		79.72	
Income more than	11	122.32		84.68		113.27		110.32		120.50	
		KW: 8.158 df:2 **p:0.017**		KW: 1.490 df:2 p:0.475		KW: 5.065 df:2 p:0.079		KW: 4.256 df:2 p:0.119		KW: 7.385 df:2 **p:0.025**	
Professional experience (year)											
1-1 year	4	48.13		95.00		43.75		45.75		43.75	
2-4 years	49	59.11		70.42		67.65		69.87		56.42	
5-10 years	50	72.68		69.69		72.80		73.74		64.90	
11-20 years	40	102.86		91.33		98.94		94.16		107.96	
21 and abovei	22	129.89		123.95		118.52		119.77		145.09	
		KW: 45.785 df:4 **p:0.001**		KW:25.989 df:4 **p:0.001**		KW: 27.830 df:4 **p:0.001**		KW: 24.903 df:4 **p:0.001**		KW: 73.558 df:4 **p:0.001**	
Unit of work											
Emergency serv. Intensive	75	80.30		88.13		78.23		82.57		83.23	
care unit	60	79.07		73.68		86.88		82.50		78.40	
Inpatient service	30	97.62		88.83		87.15		85.08		91.62	
		KW: 3.529 df:2 p:0.171		KW:3.752 df:2 p:0.153		KW: 1.430 df:2 p:0.489		KW: 0.075 df:2 p:0.963		KW:1.543 df:2 p:0.462	

U: Mann-Whitney U Test, KW: Kruskal Wallis-H Test

may lead individuals to be more prepared. In addition, it can also be considered that married individuals are more willing to receive disaster training or act more proactively against such situations.

There was no statistically significant difference between the place of residence of the nurses and the total score and sub-dimensions of the Disaster Readiness Scale. Similar results are also observed in the literature. For example, in a community-based study conducted by Dogan, Sungur, and Atsal Kılıç (2023), no significant difference was found between the disaster preparedness scores of individuals according to their residential areas (rural or urban areas). Researchers stated that the level of preparedness for disasters is mostly shaped by individuals' personal knowledge, previous experiences and disaster training (Dogan, Sungur & Atsal Kılıç, 2023). The limited effect of place of residence on the level of preparedness for disasters reveals that professional knowledge and institutional trainings are more determinant, especially in professional groups such as healthcare professionals (Al-Hammami, Al-Alwani & Al-Harthi, 2020). Disaster management trainings provided in healthcare organizations can enable employees to reach a certain level of preparedness regardless of individual conditions. In addition, it is emphasized in the literature that although nurses living in big cities have a high perception of disaster risk, it is not always possible to transform this situation into behavior (Park & Kim, 2017).

There was a significant difference between the age of the nurses and the total score and sub-dimensions of the Disaster Readiness Scale. This difference was found to be significant in favor of nurses aged 46 years and over. This finding shows that the level of awareness and preparedness for disasters increases with increasing age. This result also coincides with the findings in the literature. Chegini et al. (2022), in a study conducted with emergency room nurses in Iran, reported that nurses with 10 years or more of professional experience and older nurses had higher disaster preparedness and competence scores (Chegini et al., 2022). Similarly, in the study conducted by Park and Kim (2017) in South Korea, it was shown that the level of disaster competence increased significantly with increasing age (Park & Kim, 2017). In a study conducted in Indonesia, it was found that nurses aged 35 years and older had higher levels of disaster knowledge (Martono et al., 2019). In a study conducted in Iraq, it was stated that nurses over the age of 40 were more prepared for disasters (Al-Hammami et al., 2020). Increasing age is an important factor in terms of witnessing more events throughout the professional life of the individual, gaining experience in crisis situations and being able to evaluate possible disaster risks more realistically (Ojo, Adebayo & Ogunsola, 2020). In particular, it is thought that individuals who have been working in the field of health for many years are more prepared for crisis moments and therefore have higher levels of disaster preparedness. In addition, nurses in the advanced age group may be more likely to have received disaster training.

Statistically significant differences were found between the nurses' having children and the total score and sub-dimensions of the Disaster Readiness Scale. It was found that nurses who had children had a higher level of disaster preparedness than nurses who did not have children. These findings reveal that individuals with children develop a higher level of awareness and sense of responsibility towards disasters. Motivation to protect family members may encourage individuals to act more carefully, planned and prepared against disasters. As a matter of fact, there are similar findings in the literature. In a study conducted by Chegini et al. (2022) with emergency nurses in Iran, it was determined that the disaster preparedness levels of nurses who were married and had children were higher). Similarly, in a study conducted by Park and Kim (2017) in South Korea, it was found that nurses with family responsibilities had higher levels of disaster competence (Park & Kim, 2017).

Statistically significant differences were found between the educational levels of the nurses and the total score and sub-dimensions of the Disaster Preparedness Scale. According to the findings, it was observed that the scores of nurses with associate degree were higher in terms of disaster preparedness level. In the study conducted by Martono (2019) in Indonesia, it was stated that the level of disaster knowledge of nurses was directly related to the education they received. In the same study, it was emphasized that the level of disaster preparedness of nurses who received disaster training was significantly higher (Martono et al., 2019). Similarly, in Agahan and Demirbilek's (2023) study, it was stated that the preparedness scores of individuals who received disaster training were higher (Agahan & Demirbilek, 2023). On the other hand, Dogan, Sungur, and Atsal Kılıç (2023) found that the disaster preparedness scores of higher education graduates were higher (Dogan, Sungur & Atsal Kılıç, 2023). In a study conducted with nurses in Jordan, it was found that nurses with postgraduate education exhibited higher self-efficacy in disaster planning and crisis management (Al Khalaileh et al., 2020). The reason for these differences may be variables such as age, years of professional experience and disaster training status of the individuals participating in the study. In the present study, the fact that associate degree graduate nurses were older and had more professional experience may have made them more prepared for disasters. This

shows that not only the level of education, but also the professional experience acquired with education affects the level of disaster preparedness. Nguyen et al. (2017) showed that the disaster preparedness scores of nurses who took disaster courses at the university level were significantly higher. This finding reveals that not only general education level but also disaster-related education affects the level of preparedness.

It was revealed that there was a statistically significant difference between the income status of the nurses and the total score of the Disaster Readiness Scale and the disaster physical protection sub-dimension. It was observed that nurses whose income was higher than their expenses had a higher level of preparedness against disasters. This result shows that economic competencies of individuals may positively affect their preparedness behaviors against disasters. The effect of income level on disaster preparedness has been addressed with different findings in the literature. For example, in a community-based study conducted by Dogan, Sungur, and Atsal Kılıç (2023), it was determined that individuals with higher income had significantly higher disaster preparedness scores (Doğan, Sungur & Atsal Kılıç, 2023). Similarly, Khan, Rashid, and Aziz (2021), in their study conducted in Pakistan, reported that the pre-disaster planning and preparedness levels of high-income health workers were more advanced compared to the low-income group (Khan, Rashid & Aziz, 2021). On the other hand, in the study conducted by Agahan and Demirbilek (2023) on teachers, it was stated that income status had no significant effect on disaster preparedness (Agahan & Demirbilek, 2023). This situation may vary according to the risk perception, working conditions and institutional support opportunities of professional groups. When evaluated specifically for nurses, it can be considered that economic competence directly affects factors such as allocating individual resources against disasters and access to educational opportunities.

It shows that there is a statistically significant difference between the years of professional experience of the nurses and the total score and all sub-dimensions of the Disaster Preparedness Scale. Nurses with 21 years or more of experience had significantly higher disaster preparedness scores. This finding reveals that professional experience is an important factor that increases the level of preparedness for disasters. Professional experience provides the development of not only clinical skills but also competencies that are critical in the disaster process such as decision-making, quick action and stress management in times of crisis. As a matter of fact, in parallel with the result of this study, Chegini et al. (2022) in Iran found that nurses with 10 years or more of experience had higher levels of disaster competence and preparedness (Chegini et al., 2022. Similarly, Park and Kim (2017) reported in their study conducted in South Korea that as nurses' age and professional experience increased, their disaster competence levels increased significantly (Park & Kim, 2017). In the study conducted by Martono (2019) in Indonesia, it was determined that experienced nurses had higher levels of disaster knowledge (Martono et al., 2019). This is associated with the clinical experience gained over the years and the frequency of witnessing possible disasters or emergencies. Likewise, Hammad and Arbon (2014) emphasized that nurses who worked for at least 15 years after graduation had stronger disaster response competencies (Hammad & Arbon, 2014). These results suggest that professional experience contributes not only to theoretical knowledge but also to practical skills, risk management experience, and mastery of organizational disaster protocols. However, it is important to support inexperienced nurses with trainings to prevent them from being inadequate in the face of disasters. Disaster trainings should not be limited to nurses with a certain level of experience, but should be systematically provided to all healthcare professionals who are new to the profession, which will strengthen the level of disaster preparedness in an institutional sense.

There was no statistically significant difference between the unit where the nurses worked and the total score and sub-dimensions of the Disaster Preparedness Scale. This result shows that the type of clinic or service where the nurses work does not significantly affect their level of preparedness for disasters. In the literature, it has been emphasized that the unit of employment does not have a determinant effect on the level of disaster preparedness; instead, individual factors (experience, education, motivation) and institutional support mechanisms are more effective (Hammad & Arbon, 2014). The fact that the findings of the research do not show a significant difference in terms of the unit of employment may indicate that disaster training and preparedness activities are carried out at an equal level in all units within the organization or that the experience differences of the participants between the units are minimal.

CONCLUSION AND RECOMMENDATION

Turkiye is one of the countries with high disaster risk and one of the sectors most affected by these disasters is the health sector. Increasing the level of preparedness of nurses, who constitute the largest group of the health system, against disasters is critical in protecting individual, family and community health. The findings of this study revealed that the disaster preparedness levels of nurses differed significantly according to sociodemographic characteristics such as age, marital

status, number of children, educational status, income level and years of professional experience. In particular, it was determined that the disaster preparedness scores of nurses who were married, 46 years of age or older, had children, graduated from associate's degree, had an income higher than expenses and had 21 years or more experience were higher. On the other hand, variables such as gender, place of residence and unit of employment did not have a significant effect on the level of disaster preparedness.

These results reveal the necessity of training and supporting nurses in order to increase their level of preparedness for disasters. In this context, it is of great importance to provide disaster preparedness training to nursing students at the undergraduate level and to continue these trainings by updating them after graduation. It is recommended that the trainings should not only consist of theoretical content, but should be supported by practical studies and case studies.

Nurses assume both educator and practitioner roles in the preparation of individuals and society for disasters. Therefore, it is necessary for nurses to obtain the most up-to-date and accurate information about disasters not only for their own preparations but also for guiding and raising awareness of the society. In this direction, it is recommended that disaster education and information programs should be disseminated through universities, hospitals and congress centers and these activities should be turned into a nationally organized project.

In conclusion, disaster preparedness should be addressed not only at the individual level but also at the institutional and national level; continuous, inclusive and accessible training programs should be developed for nurses to assume an effective and adequate role in disasters.

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