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RESEARCH ARTICLE

JOURNAL OF INTERNATIONAL HEALTH SCIENCES AND MANAGEMENT

LEADERSHIP IN NURSING: RESEARCH TRENDS*

Hande YEŞİLBAŞ [1]

Filiz KANTEK[2]

Abstract

This study aims to investigate the research trends in articles published on leadership in nursing. Leadership is a major research topic in nursing. However, the research trends in leadership in nursing still remain unknown.

The researchers used a certain keyword "leadership" in 833 research articles in the nursing category of the Social Sciences Citation Index (SSCI) in the Web of Science (WoS) database, and in Science Citation Index Expanded (SCIE) WoS index. The research data were recorded and analyzed in Excel and they were visualized with VOSviewer. The study findings indicated that research articles on leadership in nursing were produced in 51 different countries between 1970 and 2018. It was additionally noted that USA has the highest number of publications and that the Journal of Nursing Administration was the most popular journal in regard to leadership in nursing topic. It was also reported that a majority of these studies (98.7%) were published in English with most common keywords "leadership", ''nursing'', "transformational leadership", "nursing leadership".It was further found that the number of studies on leadership in nursing has been gradually increasing, that the researchers in the United States were trailblazers in the field, and that the Journal of Nursing Administration has been one of the primary sources on this subject area.

This study, accordingly, is considered to guide researchers in relation to research trends in leadership in nursing.

Keywords: Nursing, leadership, nurse, social network analysis, bibliometric analysis.

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[1]PhD Candidate Research Assistant Department of Nursing Management Faculty of Nursing, Akdeniz University 07070,Antalya, Turkey. handeyslbs@gmail.com

Orcid Number: https://orcid.org/0000-0003-1388-221X

[2]PhD Associate Professor, Department of Nursing Management Faculty of Nursing, Akdeniz University 07070, Antalya, Turkey. fkantek@akdeniz.edu.tr

Orcid Number: https://orcid.org/0000-0002-1524-9824

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1. INTRODUCTION

Leadership often refers to a combination of abilities and knowledge to organize and mobilize a group of people to achieve certain goals (Eren, 2010). Besides being a primary managerial skill for all professional groups, leadership is also considered important for nursing practice (Amestoy et al., 2017).

The current state of healthcare is globally characterized with limited financial resources, poor human resources management, increasing number of patients, and inadequate public investment (Scherer et al., 2018). Moreover, hospital managers frequently report difficulties in responding the patient needs and an urgent need for cooperating with the leaders in care management. Accordingly, it is utterly important that professional leaders have relational skills, make decisions from a critical perspective, and promote an ongoing leadership potential to meet healthcare needs and to improve clinical practice (Amestoy et al., 2017). Nurses, on the other hand, may potentially contribute to a better understanding of the needs and priorities of their patients and provide a better quality patient care when they improve their leadership skills (Frankel, 2008). Nursing leaders in clinical units promote positive patient-nurse interaction and support quality and safe patient care (Scott, 2011). Nurses with efficient leadership skills certainly play an active role in the development of professional attitudes, beliefs and roles as well as enhancing professional skills and competencies and creating an appropriate learning environment for nurses (Nasrin et al., 2012; Scott, 2011).

Leadership has been a crucial research topic in nursing for years. A literature review revealed a great many number of studies on understanding the leadership in nursing from a variety of perspectives. Kusakli and Bahcecik (2012) carried out a study on the emotional intelligence and leadership practices in nursing; Dewar et al. (2019) investigated the development process of the transformational leadership support program for nursing home managers in Scotland. Balsanelli et al. (2018) studied leadership in nursing and its relation with the hospital work environment, Choi et al. (2018) focused on the impact of the educational leadership of executive nurses on medical team efficiency. Furthermore, Goh et al. (2018) examined the leadership styles of executive nurses and the perception of nurses towards various leadership styles. And yet again, bibliometric studies on the current situation in nursing have remained largely unsatisfactory.

Bibliometry is an approach to evaluation of research based on simply counting (Pendlebury, 2008). It is also defined as a method used in combination with mathematical and statistical techniques to examine scientific resources such as published journals, books, and etc. (Diodato, 1994). By using bibliometric analysis, the studies published in an academic field are evaluated in terms of research topics, years, institutions, keywords, number of authors, citations, common citations, etc.. These findings are particularly useful to conduct a cross-national and institution-based correlative analysis on various topics, to identify the most efficient authors and journals (Al and Tonta, 2004; Yalcin, 2010; Yozgat and Kartaltepe, 2009; Zan, 2012). Bibliometric analysis is an available retrospective method to assess previous studies but it may also serve to predict future developments in the field (Morris et al., 2002). In addition, bibliometric studies are crucial to follow up the progress of a scientific field (Xiao and Smith, 2009). Evaluating scientific studies in a certain field with reference to various parameters may yield a retrospective and prospective analysis of studies to delineate new research trends (Kozak, 1995).

Although there are many studies on leadership in nursing literature, the bibliometric study on this subject is limited.This study, therefore, aims to analyze the studies on leadership in

nursing with a bibliometric analysis. It is suggested that the study results will provide substantial data for further studies, provide guidance for future studies, and contribute to the development of scientific literature in this field.

2. METHODS

Study design and literature review

Retrospective descriptive design was used in this particular study and the research data were obtained from the Web of Science (WoS) database. The selection process of the studies is given in Figure 1.While searching for data in WoS, the "leadership" keyword was first searched in the "study title" section. As a result, 833 articles were found eligible that were conducted between 1970 and 2018. All these articles included in the study were individually evaluated by both researchers in terms of their compliance with the inclusion criteria and both researchers agreed on the studies to be included in the review. Consequently, the study included all studies which complied with the inclusion criteria, and which were published in international journals on leadership in nursing conducted until 2019.

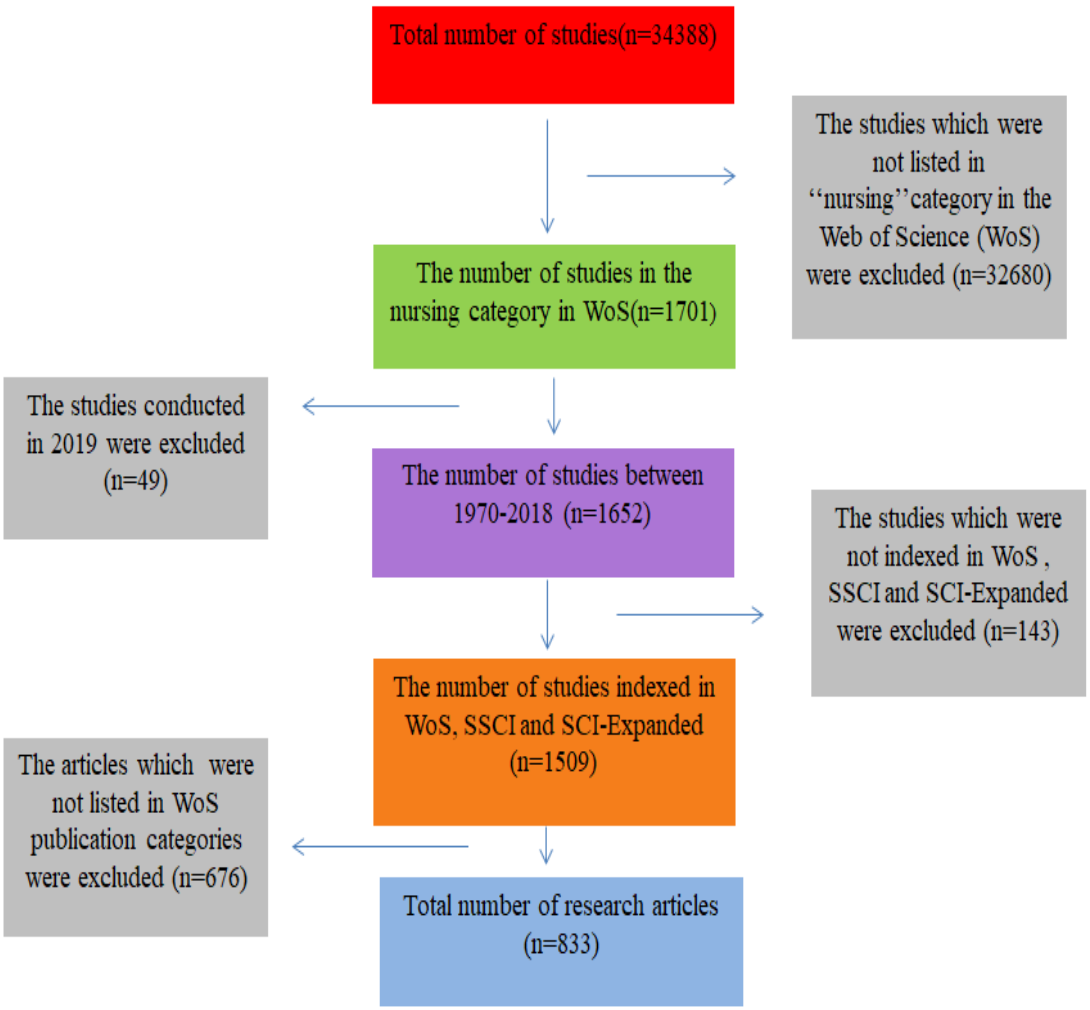


Figure 1. Study selection process flow diagram

Inclusion criteria

The inclusion criteria were determined to be as follows: The studies that would be included in the study must focus on leadership in nursing, they must be published before 2019, and they must be a research article indexed in SSCI and SCI-Expanded as listed in the WoS 'nursing' category (Figure 1).

Exclusion criteria

The studies that did not examine leadership in nursing, published after 2018, and which do not have a research article with SSCI and SCI-Expanded index in the WoS 'nursing' category are excluded from the scope of the research (Figure 1).

Data collection and analysis

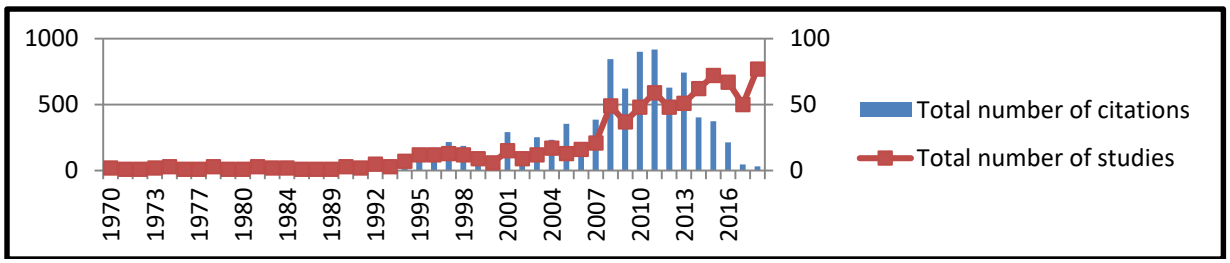
Initially, 833 studies were selected and saved in a computer file before listed in Excel for data cleansing. The studies listed in the Excel document were checked for typographical errors and duplication and it was eventually found that there were spelling errors in the names of the authors and institutions. These errors were corrected by the researchers and the Excel document was converted to the appropriate file format to be used in Vosviewer program. The descriptive characteristics (institutions, journals, countries, citations, distribution of publications by years, etc.) were analyzed with Excel, and SPSS programs were used for the analysis of descriptive characteristics. Secondly, VOSviewer program was used to visualize the study data. Despite the fact that many computer programs are available to create and visualize bibliometric maps, VOSviewer is widely preferred by researchers because it is free to access and also allows to visualize big data (Van Eck and Waltman, 2010).

Ethical considerations

As the study is a literature review model, it has no direct effects on humans and/or animals and therefore, the researchers didn't seek any approval from the board of ethics.

3. RESULTS

Graph 1 illustrates the distribution of the number of studies and the total number of citations by years. The graph indicates that the studies included in the review were published between 1970-2018. It was also found that the number of studies ranged from 1 to 77, and that the highest number of publications were produced in 2018. The total number of citations varied from 1 to 916 until 1 May 2019 (when the literature search was conducted). The studies received only 1 citation in total in 1977, 1979, 1989 and 1989 while they received 916 citations in total in 2011, the highest number of citations in all these years.



Graph 1. The distribution of number of studies and total number of citations by years.

An analysis of the publication language further showed that 98.7% of the research articles ere published in English followed by Korean (0.007%), German (0.003%), and Portuguese (0.003%).

Figure 2 presents a network of countries producing more than five publications. These studies were produced by 51 countries in total and the most productive countries were the United States (467 studies), Australia (86 studies), Canada (77 studies); and Turkey was ranked number 19 with 5 studies.

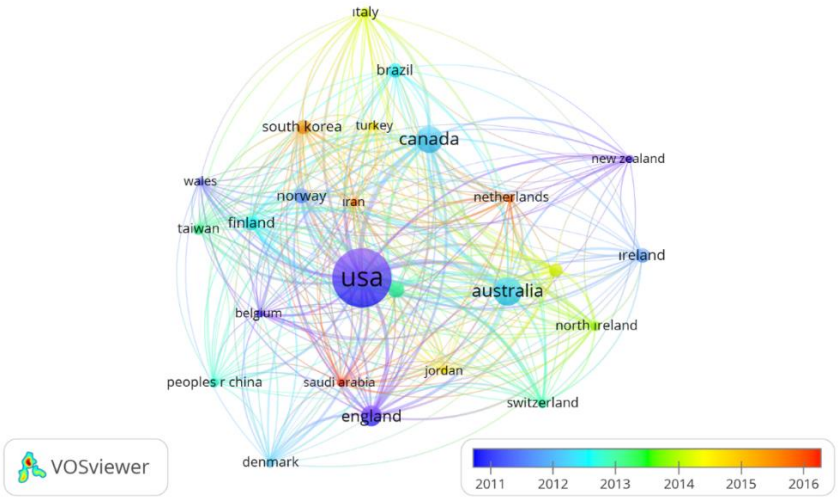


Figure 2. The network of countries that produced more than five publications

Figure 3 shows the network of journals with more than 10 publications. It was noted that the studies were published in 89 different journals and the Journal of Nursing Administration (149 studies), Journal of Nursing Management (130 studies) and Journal of Advanced Nursing (41 studies) were found to be the most productive journals.

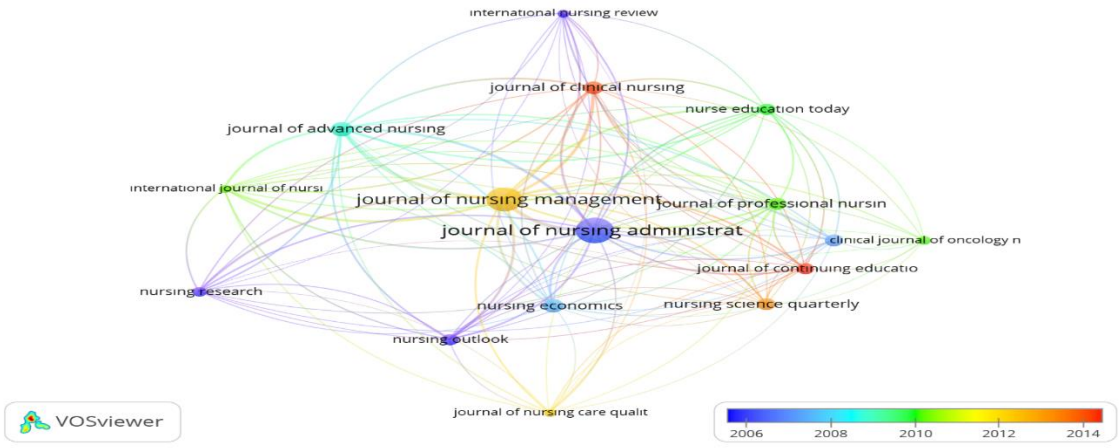


Figure 3. The network of journals with more than 10 publications

The study results also demonstrated that these studies were produced in 968 different institutions and the most productive institutions were Western Ontario University- Canada (29 studies), Western Sydney University- Australia (18 studies) and Sydney Technology University- Australia (15 studies). Hacettepe University (2 studies), Ege University (1 study),

Dokuz Eylul University (1 study) and Koc University (1 study) in Turkey also contributed to the scientific literature on leadership in nursing.

Table 1 indicates the distribution of top five studies by the number of citations. The studies included in the analysis received 8606 citations and the most cited article was entitled "Leadership, Organizational Stress, and Emotional exhaustion Among Hospital Nursing Staff" with 173 citations.

Table 1. The distribution of top five studies by the number of citations.

Studies	Number of citations	% of 8606
1. Stordeur, S., D'hoore, W., & Vandenberghe, C. (2001). Leadership, organizational stress, and emotional exhaustion among hospital nursing staff. Journal of Advanced Nursing, 35(4), 533-542.	173	20.1
2. Wong, C. A., Spence Laschinger, H. K., & Cummings, G. G. (2010). Authentic leadership and nurses' voice behaviour and perceptions of care quality. Journal of Nursing Management, 18(8), 889-900.	124	14.4
3. Laschinger, H. K. S., Finegan, J., & Wilk, P. (2009). Context matters: The impact of unit leadership and empowerment on nurses' organizational commitment. Journal of Nursing Administration, 39(5), 228-235.	120	13.9
4. Giallonardo, L. M., Wong, C. A., & Iwasiw, C. L. (2010). Authentic leadership of preceptors: predictor of new graduate nurses' work engagement and job satisfaction. Journal of Nursing Management, 18(8), 993-1003.	113	13.1
5. Morrison, R. S., Jones, L., & Fuller, B. (1997). The relation between leadership style and empowerment on job satisfaction of nurses. Journal of Nursing Administration, 27(5), 27-34.	105	12.2

Figure 4 illustrates the network of most frequently used keywords (more than 10 times at least) used in all studies. It was reported that 1212 keywords in total were used in these studies and the most common keywords were leadership (206 times), nursing (76 times), transformational leadership (43 times) and nursing leadership (42 times).

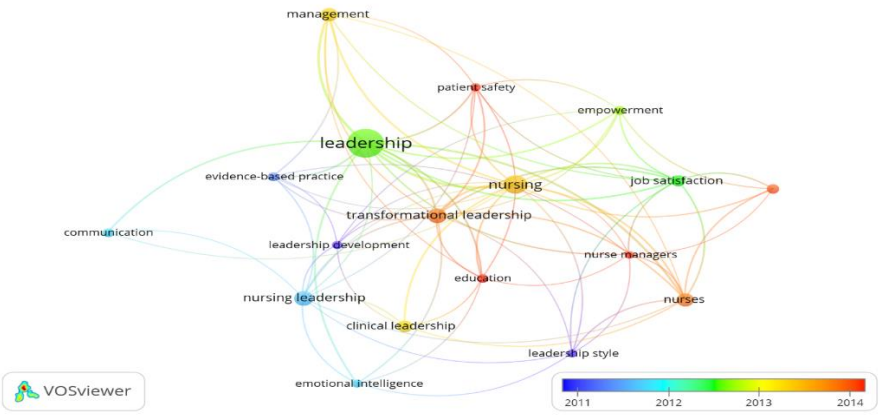


Figure 4. The network of most frequently used keywords (more than 10 times at least)

Figure 5 shows the network of terms (top 20) used in the abstracts. It was noted that 11436 terms in total were used in the study abstracts and the most frequent terms were leadership (458 times), nurse (382 times), research (335 times), leader (275 times) and care (216 times).

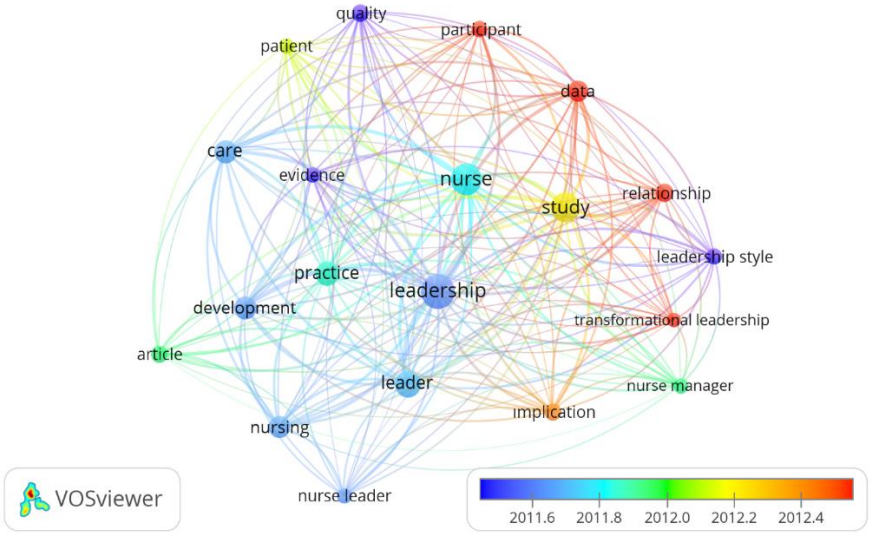


Figure 5. The network of terms (top 20) used in the abstracts

4. DISCUSSION

In this study, the studies about leadership in nursing were evaluated in regard to their bibliometric characteristics, which eventually aimed to map out the growing interest in leadership in nursing on a national and international scale. In order to derive in-depth and holistic data on leadership in nursing literature, the analysis deliberately focused on the number of publications, publication language, authors' institutions, most productive scientific journals and countries, the number of citations, keywords and the network of terms.

The total number of citations and the number of studies of leadership-related studies in nursing were analyzed by years and it was found that the highest number of publications was

produced in 2018. It was also noted that the number of studies gradually increased while there was a noteworthy decrease in the total number of citations in recent years, which might be related to the fact that it will take years for recent studies to be widely accessed and cited and the number of citations they receive will reasonably increase in due course. That the number of studies reached a peak in 2018 confirms the increasing interest in leadership in nursing.

The major institutions and their contribution to these studies were also analyzed and it was noted that researchers from 968 different institutions published researches on leadership in nursing. In institution-based comparisons, it was found that most of the articles were written by researchers from foreign countries, which already affirms that scientific literature on leadership in nursing is corroborated with scientific contributions at an international level rather than national level.

When the countries that guide the field of study are analyzed, it is determined that the most productive country is USA in the researches related to leadership in nursing. Similarly, in two systematic review studies on leadership, it was stated that most of the included studies were produced by USA (Cummings et al., 2010; Hafsteinsdóttir et al., 2017). In addition, in previous bibliometric studies, USA was found to be the most productive country (Hutchinson et al. 2017; Chen et al., 2010). Considering the number of researchers and the support provided to the researchers, USA can be interpreted as expected to be the most productive country.

It was further reported that the articles on leadership in nursing were mostly published in two leading journals, the Journal of Nursing Administration and the Journal of Nursing Management. The keywords of these studies were also analyzed and it was found that the most common keywords were leadership, nursing, transformational leadership and nursing leadership. Although keywords are commonly considered to provide insight into the research topic, it was concluded that the research topics were not diversified and these studies were deliberately specific to the field of nursing focusing on similar research topics.

It wouldn’t be reasonable to suggest that the findings of this particular study obtained only from WoS databases represent a wide range of literature on leadership in nursing, which is, indeed, a significant limitation of this analysis. Besides, it is certainly considered that the researches on leadership in nursing will be enriched with developing an interdisciplinary methodology and assuming a multiperspective approach in nursing studies. It is further recommended that nursing researchers be referred to international journals indexed in international citation indexes in order to enhance the number and quality of publications on leadership in nursing from Turkey besides collaborating with researchers from different fields to develop an interdisciplinary methodology and approach to nursing studies.

5. CONCLUSION

The findings of this particular study indicate that a majority of the studies on leadership in nursing were produced in the United States, that the Journal of Nursing Administration was the most popular journal on leadership in nursing topic, and that the most frequently used keywords in these studies were “leadership”, “nursing”, “transformational leadership", and “nursing leadership”. The bibliometric findings of this research are of utmost significance with regard to following up the development of scientific literature on leadership in nursing as well as gaining insight into the trends and the formation of the current researches. It is also suggested that taking the results of this particular review into consideration while planning and publishing future studies will contribute to the production of knowledge on leadership in nursing.

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RESEARCH ARTICLE

JOURNAL OF INTERNATIONAL HEALTH SCIENCES AND MANAGEMENT

EVALUATION OF WORKLOAD, EMOTIONAL EXHAUSTION LEVELS AND PROFESSIONAL SATISFACTION OF PHYSICIANS: THE CASE OF KONYA*

Yunus Emre ÖZTÜRK[1]
Hilal AKMAN DÖMBEKCİ[2]
Şeyma KAHVECİ[3]

ABSTRACT

The aim of this study was to evaluate the workload, emotional exhaustion levels and professional satisfaction of physicians. The data were collected through the online questionnaire filled out by 356 physician participants using the convenience sampling method. While 51.1% of the physicians participating in the study were female, 68.0% of them were married, 61.8% of them aged between 24 and 34 years, and 72.8% of them had a working year of 1-10 years. There was no significant difference between workload, emotional exhaustion and professional satisfaction averages and gender and marital status. A significant difference was found between working year and the average workload. It appeared that there was a moderate, positive and statistically significant relationship between the workload and emotional exhaustion. In conclusion, an attempt to evaluate the workload, emotional exhaustion levels and professional satisfaction of physicians was made in the study**.** According to the results obtained in the study, it was observed that the physicians working between 1 and 10 years had higher level of workload compared to physicians with a working year of 11 years and more. According to another result which is parallel with the literature, a moderate, positive and statistically significant relationship was found between the workload and emotional exhaustion. It was determined that the physicians in the 35-45 age group had higher levels of workload, had more emotional exhaustion and had more professional satisfaction compared to the physicians in the other age group.

Keywords: Workload, emotional exhaustion, professional satisfaction, physician

A R T I C L E I N F O

* This article was presented as a verbal statement at the 3rd International and 13th National Congress of Health and Hospital Administration.

[1] Selçuk University, Faculty of Health Sciences, yunuseozturk@gmail.com

Orcid Number: https://orcid.org/0000-0002-6178-6129

[2] Selçuk University, Faculty of Health Sciences, akmanhilal@hotmail.com

Orcid Number: https://orcid.org/0000-0003-0089-860X

[3] Selçuk University, Faculty of Health Sciences, *seyma.krpe@gmail.com*

Orcid Number: https://orcid.org/0000-0003-1264-595X

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1. INTRODUCTION

The work life, which is one of the living areas, has a very important place for many people. The link between a person's health and work life is in a strong interaction (Öztürk et al.,2007). Since human factor is the focal point of the occupational subject of health workers, it has higher effects on employee health than other occupational groups. The reactions resulting from this effect stand out as work related stress, work related tension, boredom and exhaustion (Sünter et al., 2006). Burnout is an important issue for the working life and is more common especially in occupational groups such as physician, nursing, psychologist, physiotherapist, social service specialist, teacher and managers who have face-to-face relationship with people (Ünal et al., 2001; Gül et al.,2014; Sayıl et al.,19989; Çan et al., 2006; Düzyürek et al.,1992).

The concept of burnout, that was first introduced by Freudenberger (1974 and 1975), was later described by Maslach and Jackson (1981). With the broadest expression in the literature, burnout is a situation which affects the employees in occupational groups with intense communication with people and in which people become unable to perform their current works as required after losing their internal resources, and it has three components: emotional exhaustion, depersonalization, personal achievement (Öztürk et al.,2012; Balcıoğlu et al.,2008). In particular, emotional exhaustion is expressed as the most basic dimension of burnout and is defined as the depletion of emotional resources and decreased energy of the individual (Çapri, 2006; Shirom et al.,1989). Furthermore, there are many reasons for emotional exhaustion for the individual, such as qualifications of the profession, organizational characteristics, demographic characteristics, job attitudes and job characteristics (Maslach et al., 2001). When these factors were considered, it was determined that job characteristics and workload were the most important determinants among the determinants of burnout (Bolat,2011). In short, workload is expressed as the roles that are excessively assumed by employees, and various pressures that affect employees' performance (Çelik et al., 2013). In individuals with excessive workload, fatigue, decrease in job performance, job dissatisfaction, quitting, depression and other psychological problems are observed together with burnout. (Demir et al., 2003; Ersoy et al., 2001; Schmitz et al., 2000). Therefore, the individual is dissatisfied with the work and life. In this context, since human factor is the focus of the occupation of physicians, who assume an important task in terms of protecting and improving health in the health sector, the work-related stress and tension they experience, weariness, and occupational burnout as well as their satisfaction with their profession in physicians must be emphasized more. Thus, the study aims at evaluating the workload of physicians, their levels of burnout and job satisfaction. The study conducted in line with the purpose of the research is believed to be contributing to the literature as no similar studies were found investigating physicians in this context and no study was come across in the literature review related to the relationship between Workload, Emotional Exhaustion and Professional Satisfaction, and in which these three variables were investigated in combination. The study is important in that it will contribute to the national literature and will guide similar studies.

2. METHOD

An online questionnaire consisting of four parts was prepared for this study. The data of the research were collected between 08.07.2019 and 06.09.2019. In the first part, participants were asked to answer questions about demographic information such as age, gender, marital status, and the year of specialty in their working life and their preferences for specialty. The other parts included a total of 20 questions consisting of 9 questions aimed at measuring emotional exhaustion, 6 questions aimed at measuring professional satisfaction and 5 questions aimed at measuring the level of workload. The Emotional Exhaustion subscale consisting of 9 statements of the Maslach Burnout Inventory, that was developed by Maslach and Jackson (1986) and the validity and reliability study of which was performed by Ergin (1992) in Turkey, was used to determine the emotional exhaustion levels of the physicians who participated in the questionnaire. This subscale is a scale with high validity and reliability that is used in many studies. Another scale used in the study was the Professional Satisfaction Scale with tested validity and reliability that was prepared by Yüksel (2013) in the master's thesis entitled "The effect of emotional exhaustion in accountants on professional satisfaction and intention to quit". The part of the "Swedish Demand-Control-Support Questionnaire (Job Stress Scale)", that was developed by Karasek et al. (2000) to explain job-related burnout, adapted to Turkish by Demiral et al. (2007) in our country, and was another scale used in the study, related to workload was used. The Cronbach Alpha Coefficient of the scales and questionnaire used in the study was found to be 0.721. Furthermore, the population of the study consisted of 4208 physicians in Konya according to Health Statistics Yearbook 2017 data published by the Ministry of Health in 2018. In the study, table of acceptable sample sizes for specific populations created by Altunışık et al. (2012) was used to determine the sample size. The population in question consists of 4208 individuals, and a sample group of 354 individuals for 5,000 individuals in the closest upper population group in the sampling table was considered appropriate, and thus 356 physicians were included in the study through convenience sampling method. The data obtained in the study were analyzed in the SPSS (Statistical Package for Social Sciences) statistical analysis program, and descriptive statistics, variance analysis, independent samples t-test, correlation and regression analysis were performed on the data.

3. RESULTS

The results related to physicians participating in the study are presented in the following table.

Table 1. Demographic Data of the Participants

Gender	**Number (n)**	**Percentage (%)**	**Area of Expertise**	**Number (n)**	**Percentage (%)**
Female	182	51.1	Surgical Medical Sciences	53	14.9
Male	174	48.9	Basic Medical Sciences	30	8.4
Marital status	**Number (n)**	**Percentage (%)**	Internal Medical Sciences	273	76.7
Married	242	68.0	**Working year**	**Number (n)**	**Percentage (%)**
Single	114	32.0	1-10	259	72.8
Age	**Number (n)**	**Percentage (%)**	11+	97	27.2
24-34	220	61.8			
35-45	89	25.0	**Total**	**356**	**100**
46-56	47	13.2			

According to Table 1, while 51.1% of the physicians participating in the study were female, 68.0% of them were married, 61.8% of them aged between 24 and 34 years, and 72.8% of them had a working year of 1-10 years. Furthermore, when the areas of expertise of the participants were examined, it was determined that 76.7% of them worked in the field of Internal Medical Sciences.

Table 2. t Test of the Differences between Some Demographic Variables and Workload, Emotional Exhaustion and Professional Satisfaction Averages

Gender	**n**	**Mean**	**Sd**	**t**	**p**	**n**
Workload	**Female**	182	2.98	0.76	-0.233	0.81
	Male	174	3.00	0.82		
Emotional exhaustion	**Female**	182	2.79	0.62	0.306	0.76
	Male	174	2.77	0.68		
Professional Satisfaction	**Female**	182	2.47	0.65	0.209	0.83
	Male	174	2.45	0.81		
Marital status		**n**	**Mean**	**Sd**	**t**	**p**
Workload	**Married**	242	3.01	0.78	0.58	0.56
	Single	114	2.95	0.80		
Emotional exhaustion	**Married**	242	2.79	0.68	0.58	0.54
	Single	114	2.75	0.57		
Professional Satisfaction	**Married**	242	2.42	0.76	-1.36	0.17
	Single	114	2.54	0.68		
Working year		**n**	**Mean**	**Sd**	**T**	**p**
Workload	**1-10**	259	3.05	0.77	2.23	0.02
	11+	97	2.84	0.82		
Emotional exhaustion	**1-10**	259	2.81	0.63	1.56	0.11
	11+	97	2.69	0.68		
Professional Satisfaction	**1-10**	259	2.42	0.67	-1.56	0.12
	11+	97	3.57	0.89		

As it is seen in Table 2, t-test analysis was performed between the gender, workload, emotional exhaustion and professional satisfaction averages of the participants. According to the analysis results, there was no significant difference between workload, emotional exhaustion and professional satisfaction averages and gender and between workload, emotional exhaustion and professional satisfaction averages and marital status ($p>0.05$). There was no significant difference between working year and emotional exhaustion and professional satisfaction averages, however, a significant difference was found between working year and the workload average. It was observed that the physicians working between 1 and 10 years had higher level of workload compared to physicians with a working year of 11 years and more.

Table 3. Correlation Analysis of the Relationship between Workload and Emotional Exhaustion

		1	2
1. Workload	r		
	p		
2. Emotional exhaustion	r	0.521**	
	p	0.000	
3. Professional Satisfaction	r	0.097	-0.021
	p	0.069	0.687

As it is seen in Table 3, correlation analysis was performed between workload and emotional exhaustion. According to the results of the analysis, there was a moderate, positive and statistically significant relationship between workload and emotional exhaustion (r: 0.521 and p<0.001). In short, emotional exhaustion levels of physicians increased as their workload increased.

Table 4. Regression on the Relationship between Workload and Emotional Exhaustion

Dependent Variable	ΔR2	Independent variable	B	Std. Error	t	F
Workload	0.279	**Constant term**	0.947	0.198	4.787**	69.817
		Emotional exhaustion	0.633	0.055	11.620**	
		Professional Satisfaction	0.48	0.48	2.393**	

The proposed model was statistically significant p<0.001). According to the results of the regression analysis, the values of ΔR2 (percentage of variance explained) and F (significance level of the regression model) indicated that emotional exhaustion and professional satisfaction could be explained by workload.

Anova test was performed to for the difference between the ages of the participants and their workload, emotional exhaustion and professional satisfaction averages, and a significant difference was found (p<0.05). According to the Post-Hoc test performed between workload and age, it was observed that physicians in the 35-45 age group had higher levels of workload, had more emotional exhaustion and had more professional satisfaction compared to the physicians in the 46-56 and 24-34 age range.

One-way variance test was performed between physicians' working areas and their workload, emotional exhaustion and professional satisfaction averages. According to the analysis, while no significant difference was found between emotional exhaustion and working area, it was observed that there was a significant difference between workload and professional satisfaction and working area. According to the Post-Hoc test performed between working area and workload, it was determined that the physicians working in the field of Surgical Medical Sciences had higher levels of workload and also had more professional satisfaction compared to the physicians working in the fields of Basic Medical Sciences and Internal Medical Sciences.

Table 5. Anova Test on the Differences between Some Demographic Variables and Workload, Emotional Exhaustion and Professional Satisfaction Averages

Age		**n**	**Mean**	**Sd**	**F**	**p**
Workload	**24-34**	220	3.00	0.76	6.04	0.003
	35-45*	89	3.14	0.84		
	46-56*	47	2.65	0.73		
Emotional exhaustion	**24-34**	220	2.77	0.62	1.86	0.15
	35-45*	89	2.87	0.68		
	46-56*	47	2.65	0.72		
Professional Satisfaction	**24-34**	220	2.37	0.64	4.78	0.009
	35-45*	89	2.65	0.84		
	46-56*	47	2.51	0.88		
Working area		**n**	**Mean**	**Sd**	**F**	**p**
Workload	**Basic Medical Sciences ***	30	2.68	0.72	3.48	0.032
	Internal Medical Sciences	273	2.99	0.75		
	Surgical Medical Sciences *	53	3.16	0.94		
Emotional exhaustion	**Basic Medical Sciences**	30	2.67	0.61	1.39	0.25
	Internal Medical Sciences	273	2.77	0.63		
	Surgical Medical Sciences	53	2.90	0.76		
Professional Satisfaction	**Basic Medical Sciences ***	30	2.22	0.73	1.67	0.00
	Internal Medical Sciences	273	2.39	0.62		
	Surgical Medical Sciences *	53	2.97	1.04		

4. DISCUSSION AND CONCLUSION

In this study, an attempt to evaluate the workload, emotional exhaustion levels and professional satisfaction of physicians was made. According to the results of the study, it was determined that there was no significant difference between workload, emotional exhaustion and professional satisfaction averages and gender. When the relationship between emotional exhaustion and gender in the literature was examined, in the studies conducted by Dikmetaş (2011) and Schweiter (1994) on physicians, in the study conducted by Yaman and Ungan (2002) on assistant physicians specializing in family practice, and in the study carried out by Kuh (2017) on 411 healthcare professionals working in emergency services in Denizli province, no significant relationship was

found between emotional exhaustion and gender, while in the study conducted by Ergin (1993) in which he examined exhaustion in 552 physicians and nurses, and in the studies conducted by Maslach (2001), Cordes (1993) and Budak (2005), it was determined that emotional exhaustion was at a higher level in females than males. When the relationship between gender and workload was examined in the literature, in the collaborative study conducted by Ceylan (2019) and Boz (2019), they did not find a significant relationship between gender and workload levels. Furthermore, according to the results of the studies conducted by Yakut (2011) and Tan (2012), no significant relationship between gender and professional satisfaction. Besides, in the present study, no significant difference was found between the mean scores of workload, emotional exhaustion and professional satisfaction and marital status. While Sayıl (1998), in his study on physicians and nurses, did nor find a significant difference between emotional exhaustion and marital status, Öztürk (2012), Kocabıyık (2008) and Yavuzyılmaz (2007) determined in their studies that the level of exhaustion was higher in single physicians. Ceylan (2019), Bolat (2011) and Boz (2019) concluded in their research that in parallel with the work done, there was no significant difference between marital status and workload levels. No significant difference was found between working year and emotional exhaustion and professional satisfaction, but a significant difference was identified between working year and workload average. In the studies conducted by Karlıdağ (2000), Özyurt (2006), Freeborn (2001), Çam (1995), Ergin (1993), and Erol (2007), they determined that as the years of working as a physician increased, the levels of emotional exhaustion decreased significantly. Gözüm (2005), Sayıl (1998), Doğan (2005) and Işık (2005) did not observe a significant difference in the exhaustion levels of employees according to their working period. According to another result obtained in the study, it appeared that there was a moderate, positive and statistically significant relationship between workload and emotional exhaustion. In parallel, in the study of Tayfur (2012), the relationship between workload and emotional exhaustion was found to be quite strong, and it was determined that the level of feeling emotionally exhausted by the employees increased as the workload increased. The studies carried out by Cordes (1993), Bolat (2011), Lourel (2008) and Leiter (2010) support this result. In the study, no relationship was found between emotional exhaustion and professional satisfaction, however, in the studies of Yüksel (2013) and Shepdor (2011), it was argued that the professional satisfaction of the employees with emotional exhaustion decreased. A significant difference was found between the ages of the participants and their workload, emotional exhaustion and professional satisfaction averages. It was observed that physicians in the 35-45 age group had higher levels of workload, had more emotional exhaustion and had more professional satisfaction compared to the physicians in the 46-56 and 24-34 age range. In the study carried out by Erol (2007), it was also argued that emotional exhaustion levels of physicians would increase as their age increased.

One of the most important results obtained in this research is that as the workload of physicians increases, their emotional exhaustion levels also increase. Undoubtedly, the profession of medicine is an occupation that has a vital impact on human health. The fact that physicians working in Turkey have additional duties and responsibilities such

as scientific research, training, administrative work and academic studies as well as healthcare services such as examining patients and performing surgeries cause working conditions to appear heavy and risky. The increasing workload and long working hours mostly resulting from insufficient equipment and limited number of health personnel and low wages on top of all these adversities lead physicians to feel professional dissatisfaction and have low motivation. For this reason, in order for physicians to be productive in their professions, their intensive working tempo should be lowered, their working environments should be improved, and their current workload should be reduced. In this way, their professional satisfaction can be increased, and their emotional exhaustion can be diminished. Policies regarding the improvement of working environment and conditions should be developed. As such, it can be ensured that exhaustion in the working life of the physicians is prevented and their job commitment is high. By ensuring this, the success of physicians in their job can be increased and their feeling of satisfaction with their job and professional satisfaction levels may be positively affected. Another noteworthy issue is the low number of health professionals in general and physicians in particular in our country. Although the numbers continued to increase day by day since the early years of the Republic, the targeted number has not been reached in the number of healthcare professionals and physicians. Assuming that the low number of physicians per capita is the reason for the high workload of physicians, employing more physicians can be a solution. If the training period is also taken into account, since it will take a long time before it is realized, this solution can be implemented as a long-term plan. In addition, smaller but effective changes can be made to reduce the workload on physicians in the short run. For example, jobs performed by physicians in health institutions which mostly have bureaucratic characteristics can be turned over to other healthcare professionals or medical secretaries. Specialization programs for nurses, midwives and health officers can be organized in the form of specialization training, enabling them to take a more active role in the provision of health services. In this way, it is thought that the workload of physicians can be reduced. Emotional exhaustion stemming from heavy workload will also be reduced. On the other hand, the high level of professional satisfaction of physicians who can work more effectively with less workload would be an expected result.

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Research Article

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DETERMINING PROFESSIONAL ATTITUDES OF NURSE MANAGERS

Emel GÜMÜŞ[1]
Ece UYSAL KASAP[2]

ABSTRACT

This is a descriptive study that is conducted to determine professional attitudes of nurse managers. The study population was formed by all nurses at a managerial position in a group of hospitals in Turkey from May 2018 to July 2018. The study sample included 202 nurses, who agreed to be enrolled and were not on sick leave or administrative leave in the study period. Data is collected using personal characteristics form and Inventory of Professional Attitude at Occupation. Data is electronically analyzed with percentile, mean, T test and Mann-Whitney U test. It is revealed out that 75.2% of nurses aged 31 or above, 87.1% were female, 62.4% had professional experience of 1 to 15 years and 57.4% had been working for 1 to 5 years in the organization. Total score of Inventory of Professional Attitude at Occupation was 142.49±23.6. It is determined that age, gender, marital status, professional experience, corporate experience and professional position do not influence the professional attitude at occupation ($p>0.05$), while the educational status affected the professional attitude at occupation ($p<0.05$). Cronbach Alpha value of Inventory of Professional Attitude at Occupation was 0.97. According to data of the study, it is determined that professional attitude of nurses is at good level. It is recommended to promote continuous education to evaluate improvement in professional attitude aspects of nurses and for professionalism.

KEY WORDS: Nursing Care, Professionalism, Professional Attitude

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[1] PhD Student, Istanbul University-Cerrahpasa Institute of Graduate Studies, Department of Nursing Management, Istanbul, TURKEY. emellgumus@gmail.com

Orcid Number: https://orcid.org/0000-0002-3313-6831

[2] PhD Student, Istanbul University-Cerrahpasa Institute of Graduate Studies, Department of Nursing Management, Istanbul, TURKEY. euysalkasap@gmail.com

Orcid Number: https://orcid.org/0000-0001-8973-0904

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1. INTRODUCTION

Nursing is a professional health discipline that deals with health of population and each individual and prioritizes self-development (Karadaglı, 2016). Professionalism can be defined as use of knowledge, skills and attitudes, which all members of an occupation should have, while playing the professional roles and fulfilling the responsibilities (Erbil and Bakır, 2009; Tarhan et al., 2016), while a professional person implies an individual who decides professional and ethical values in line with the rules of the occupation, is open for continuous learning, changes and novelties, uses technical and scientific aspects of the occupation well, is creative and has unique skills, may act autonomously and has strong knowledge about the occupation (Zakari et al., 2010; Adıguzel et al., 2011; Tarhan et al., 2016; Ertekin Pınar et al., 2013).

Recently, health sector experience continuous and quick changes. Nurses face more ethical and moral problems in patient care procedures in line with the quick changes in social value system and they are ever increasingly requested safe, qualified and quality healthcare services. Fulfillment of these requests requires services by not only experienced nurses, but also professional nurses. Therefore, nurses are extremely responsible for gaining and updating qualifications at regular intervals. Since nursing care has a strong influence on patient satisfaction and health outcomes, it is mandatory for nurses to act professionally (Braganca, 2017).

Today, the momentum gained by scientific studies has increased the number of nurses who are well research-oriented, open to novelties and self-development, are aware of their responsibilities and have strong communication skills and leadership aspects (Unsar et al., 2011). These characteristics boost the professionalism in the nurses and thus, nurses render patient care wit higher quality along with a change and improvement in their occupational perspective (Oweis, 2005).

Professionalism in nursing is effective on professional development, quality of nursing care, occupational esteem, autonomy, job satisfaction and corporate efficiency. Nurse managers are responsible for managing and executing all these processes due to their duties and authorizations. It is important to boost professional practices in order to have nurse managers supervise themselves and other nurses, whom they are responsible for. Studies are conducted to increase level of professionalism in nurses and nursing practices by evaluating the professional attitudes of nurse managers. This study is conducted to determine the professional attitudes of nurse managers at their occupation.

2. MATERIALS AND METHOD

This is a descriptive study that is conducted to determine professional attitudes of nurse managers.

The study population is formed by all nurses (N:300) with a managerial position at hospitals of a group company in Turkey. The study sample included 202 nurses, who agreed to be enrolled and were not on sick leave or administrative leave in the study period, before a study sample was selected.

This descriptive study is conducted on May to July 2018 in order to determine the level of professional attitude in nurses with a managerial position at hospitals of a group company in Turkey.

Written and oral consent is obtained from managers of the organization, where the study is conducted. Authorization is verbally obtained from authorized persons of establishments, before the study is started. Since the participation is voluntary, the study enrolled nurses who agreed to be enrolled.

2.1. Statistical Analysis

SSPS 21 software is used for statistical analysis of the study data. Mean, percentage, standard deviation, Cronbach Alpha, T test and Mann-Whitney U test are used for the data analysis. P value <0.05 is considered significant.

2.2. Data Collection Tools and Data Collection

Data is collected using personal characteristics form, which is developed by investigators in line with the literature, and the Inventory of Professional Attitude at Occupation. Personal characteristics form covers 7 questions that aim to address definitive characteristics of nurses. Inventory of Professional Attitude at Occupation was developed by Erbil and Bakır in 2006. For this Likert-type inventory, each statement is given a score, ranging from 5 to 1. Each statement is scored "5" for "It is absolutely true for me", "4" for "It is somewhat true for me", "3" for "I am uncertain", "2" for "It is not true for me" and "1" for "It is absolutely not true for me". For the inventory, the score range is 32 to 160 points. Total score of the inventory gives the score of professional attitude at occupation. Higher scores points to higher level of professionalism. Cronbach Alpha of the inventory is 0.89. Cronbach Alpha of our study was 0.97.

2.3. Limitations of Study

Results of the study cannot be generalized, as the study is conducted at privately owned hospitals of a group company.

RESULTS

Table 1: Distribution of Nurse Managers by Sociodemographic Characteristics (N:202)

Sociodemographics	N	%
Age		
18-30	50	24.8
≥31	152	75.2
Gender		
Female	176	87.1
Male	26	12.9
Marital Status		
Married	148	73.3
Single	54	26.7
Educational Status		
High School and Two Year Degree	80	39.6
Bachelor's Degree and Above	122	60.4
Position at Organization		
~~Chief~~ Nurse Manager of Unit	167	82.7
Manager, Deputy Manager, Supervisor of Patient Care Services Department	35	17.3
Occupational Experience		
1-15 Years	126	62.4
16 Years and Over	76	37.6
Work Experience in Organization		
1-5 Years	116	57.4
6 Years and Over	86	42.6

It is revealed out that 75.2% of the participant nurse managers aged 31 or older, 87.1% were female, 73.3% were married, 60.4% had bachelor's and master's degrees, 82.7% were supervisor nurses, 62.4% had occupational experience of 1 to 15 years and 57.4% had been working for 1 to 5 years in the organization (Table 1).

Table 2: Cronbach Alpha Value of Inventory of Professional Attitude at Occupation and Mean Scores

Scale	Cronbach Alpha	Mean ± SD	Min-Max
Inventory of Professional Attitude at Occupation	0.97	4.46±0.74	1.12-5.00

Mean score of the inventory was 4.46±0.74 in the study. Cronbach Alpha reliability coefficient of the inventory was 0.97 (Table 2).

Table 3: Distribution of Professional Attitudes of Nurse managers at Occupation by Demographics (N:202)

Variables		N	Inventory of Professional Attitude at Occupation
Age Group*	18-30 Years	50	
	31 Years and Above	152	P>0.05 t:0.725
Gender**	**Female**	**176**	MWU(z)= -1.220
	Male	26	P>005
Marital Status*	Married	**148**	
	Single	54	P>0.05 t:0.373
Educational Status*	High School and Two Year Degree	80	**P<0.05 t:-0.944**
	Bachelor's Degree and Above	**122**	
Occupational Experience*	**1-15 Years**	126	
	16 Years and Over	76	P>0.05 t:0.044
Work Experience in Organization	**1-5 Years**	**116**	
	6 Years and Over	86	P>0.05 t:0.429
Position at Organization**	**Nurse Managers of Unit**	**167**	MWU(z)= -0.820
	Manager, Deputy Manager, Supervisor of Patient Care Services Department	35	P>0.05

*T Test ** Mann-Whitney U

When variation of professional attitude of nurse managers at occupation by demographics is evaluated, it is detected that professional attitudes of nurse managers are not influenced by age, gender, marital status, professional experience and position at the organization ($p>0.05$), while the education status affects the professional attitude ($p<0.05$; Table 3).

3. DISCUSSION

Nurse managers were mostly female and married in this study that evaluated the professional attitudes of nurse managers. Nurse managers were mostly female and married also in the study conducted by Kaya and Kantek to evaluate the professional value perceptions of nurse managers and moreover, the nurses were mostly female in the study by Karadaş et al. to evaluate professional attitudes and professionalism of nurses (Kaya and Kantek, 2016; Karadas et al., 2018). According to these findings, women nurses still predominate over the profession of nursing.

The study revealed out that the age range was 31 years and above in most of the nurse managers, their professional experience was 1 to 15 years and they were working in the organization for 1 to 15 years. The study conducted by Kaya and Kantek also reported that the age range was 31 to 40 years in most of nurse managers. The professional experience of nurse managers was mostly above 11 years in the study conducted by Kaya and Kantek (Kaya and Kantek, 2016). This result points to sufficient experience of nurse managers.

The study shows that educational status of the nurse managers is bachelor's degree and above. Kaya and Kantek also reported that most nurse managers had bachelor's degree or any other postgraduate degree, while Tarhan et al. conducted a study to evaluate both professional attitude at occupation and level of professionalism and the authors reported that the nurses mostly had bachelor's degree and master's degree; a study conducted by Sabancıogulları and Dogan showed that most nurses had bachelor's degree (Kaya and Kantek, 2016; Tarhan et al., 2016; Sabancıogulları and Dogan, 2014). When changes in professional attitudes of nurse managers at the occupation by demographics are reviewed, it is found that the education status influenced the professional attitude ($p<0.05$). Similarly, Kaya and Kantek reported that the education status affected the professional value perception of the nurse managers. Dikmen et al. also conducted a study to evaluate professional attitudes of nurses and the authors reported that there was no significant difference between professional attitudes of nurses in terms of educational status and that professional attitude gets stronger, as the educational level of nurses increases. Goris et al. conducted a study titled "professional values of nurses and relevant factors" and the authors concluded that highest score was gained by nurses, who were graduated from a master's degree programme, in the professional values scale. In a study conducted to develop a behavioral inventory for professionalism in nursing, Karadağ et al. reported the highest mean score of professionalism for the nurses, who were graduated from a master's degree or doctorate degree programme. Tarhan et al. reported that professional attitude is higher in nurses with education status of master's degree. Fisher conducted another study on effect of education status on professional values of nurses and reported that education is an effective factor (Dikmen et al., 2014; Goris et al., 2014; Karadag et al., 2004; Tarhan et al., 2016; Fisher, 2011). Based on these results, educational status of nurses correlates positively to the professional attitudes. Educational status is an important criterion for the development of a professional identity.

When the position at the organization is addressed in the study conducted on nurse managers, the participant nurse managers were mostly supervisor nurses. Supervisor nurse was also the most common position of the nurse managers in the study conducted by Kaya and Kantek on nurses and the study also reported high professional attitude for nurse managers. The study conducted by Dikmen et al. reported that the nurses at position of supervisor nurse had significantly higher mean scores in the Inventory of Professional Attitude at Occupation than other nurses. Sabancıogulları and Dogan conducted a study on nurses and also reported that professional self-esteem is higher in supervisor nurses than other nurses. Karamanoglu et al.

evaluated professionalism in nurses of surgery clinics and reported that occupational professionalism is higher in nurse managers than other employees (Kaya and Kantek, 2016; Dikmen et al., 2016; Sabancıogulları and Dogan, 2014; Karamanoglu et al., 2009). As is the case with our study, these facts can suggest that certain factors, such as educational status, professional experience and undertaking managerial responsible, are found in manager/supervisor nurses and these factors affect their professional attitudes positively. Our study reported that educational status influences the professional attitude of nurse managers and this finding can suggest that the higher educational status, the higher level of professional attitude.

Total score of Inventory of Professional Attitude at Occupation was 142.49±23.6 in the study. Accordingly, it is possible to speculate that professional attitudes of nurse managers are high. Occupational professional attitude of nurses was 137.39±16.29, 140.28±11.99 and 137.69.01±12.9 in studies conducted by Erol, Dikmen et al. and Karadas et al., respectively (Erol, 2016; Dikmen et al., 2014; Karadas et al., 2018). These results are in line with results of our study.

On the contrary to our study, Yılmaz and Vermisli conducted a study on nurses of intensive care unit and the reported professional attitude score was 120.28.±19.35; authors stated that professional attitude was low in nurses of the intensive care unit (Yılmaz and Vermisli, 2016).

4. CONCLUSION

Based on results of the study, it is found that professional attitude of nurse managers was at good level. It is revealed out that professional attitude of nurse managers is influenced by educational status, but not by age, gender, marital status, professional experience and their existing position. It is found that the higher education level, the higher level of professional attitude.

In the light of these results, promoting the educational status of nurse managers may contribute to higher professional attitude. Future studies may evaluate the factors that influence professional attitudes of nurse managers in a larger sample in order to make contributions to development of strategies for reinforcing the professional attitudes of nurse managers.

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Original Article

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EVALUATION OF THE HOSPITAL DISASTER PREPAREDNESS INFORMATION OF HEALTH PERSONNEL

Samet DİNÇER[1]
Seda KUMRU[2]

ABSTRACT

Background: Hospitals are institutions that provide continuous services and play a primary role in the emergency aid and life-saving process. The aim of this study was to evaluate the information of health personnel about the hospital disaster preparedness. Methods: In this observational cross-sectional study, a questionnaire for the calculation of the Hospital Disaster Preparedness Information Score of Health Personnel which was applied in a foundation university hospital and 276 questionnaire data were analyzed. Results: The mean Hospital Disaster Preparedness Information Score of Health Personnel was 64.96±13.57 (minimum 8-maximum 84). The information scores of those who read the disaster plan, participated in disaster training and disaster drills and disaster plan preparing and updating were higher than those who did not, and the difference was statistically significant. Most participants stated that there were emergency exit signs (95.29%), fire measures (94.93%), an emergency warning system (89.49%) in the hospital. 19.2% of the participants stated that they were not informed about their responsibilities and duties in case of disasters and 15.49% stated that the current disaster and emergency plan was not told to them. Conclusions: Although the hospital fulfills physical precautions such as emergency exit signs, fire extinguishing tubes and an alarm system, it is thought that there are deficiencies in the participation of health personnel in the disaster management process. It is thought that works on increasing the sensitivity of health workers to disasters, informing them about the measures taken and being involved in this process will increase the effectiveness of the disaster management process.

Keywords: disaster management, hospital's disaster management, hospital's disaster preparedness

A R T I C L E I N F O

[1]Instructor, Durağan Vocational School, Sinop University, city. sdincer@sinop.edu.tr

Orcid Number: https://orcid.org/0000-0001-8498-2408

[2]PhD, Assistant Professor, Department of Health Management, İzmir Bakırçay University, İzmir. seda.kumru@bakircay.edu.tr

Orcid Number: https://orcid.org/0000-0001-7083-1377

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1. INTRODUCTION

Disasters are extraordinary situations that occur due to human- or nature-related reasons, where the existing resources of the society are insufficient in the struggle, causing material and environmental losses due to the damage of a large number of people and resulting in a deterioration in the functioning of the society. Risk is a measure of expected losses such as death, injury and economic losses that may arise from disasters. In disaster management, there are two basic steps as preparedness, which aims to minimize all the losses that may occur in the disaster, and mitigation, which aims to mitigate the losses that may occur (UNDP India, 2008; Horrocks, Hobbs, Tippett, and Aitken, 2019).

Hospitals are institutions that provide continuous services and play a primary role in the emergency aid and life-saving process. With these characteristics, hospitals have an active role in case of a disaster. There are some basic requirements for the preparedness of hospitals against disasters, such as disaster plans, precautions taken in line with this plan, personnel training and drills. The hospital disaster plan provides the opportunity for hospitals to be planned and prepared for disasters that may lead to chaos. It is very important that hospital workers are educated on the measures taken against disasters, work flows and related duties, their responsibilities and conducting regular disaster drills (UNDP India, 2008; Naser, Ingrassia, Aladhrae, and Abdulraheem, 2018). In a study by Samsuddin, 17 indicators effective in the preparedness of hospitals against disasters were examined, and the training of human resources was determined as the most critical indicator (Samsuddin et. al., 2018).

Due to its geological, meteorological and topographical structure, Turkey faces natural disasters such as earthquakes, landslides, floods, rock falls and avalanches. In addition, it has risks for many extraordinary human-related events such as fire, chemical and biological events, terrorism-related events and industrial-related events. Turkey ranks 45th out of 191 countries in the Global Risk Index with a 5.0 index score, which represents high risk (AFAD, 2018). As the most populous city of Turkey, Istanbul is particularly confronted with natural disaster risks such as earthquakes due to its geographical location. Moreover, it is at high risk of industrial accidents and explosions and political attacks since it is a crowded industrial city.

In recent years, efforts have been focused on providing more systematic disaster management in Turkey. Health institutions constitute an important part of these efforts. In 2015, the Ministry of Health issued a Regulation on the Implementation of Hospital Disaster and Emergency Plans (Turkish Ministry of Health, 2015) covering all hospitals. In this regulation, issues such as establishing and updating hospital disaster and emergency plans in all hospitals were regulated.

Examining the national and international literature, it is seen that there are many studies on disaster management in hospitals and that these studies are conducted especially with nurses (Ibrahim, 2014; Basal and Ahmed, 2018; Çelik, 2010; Chapman and Arbon 2008; Hisar and Yurdakul, 2015; O'Sullivan et al,. 2008; Özcan, 2013; Taşkıran, 2015; Tavan et. al., 2016; Vatan and Salur, 2010). In addition, considering the health services provided in hospitals as a whole, it is thought that studies involving all health personnel will contribute to both the literature and practice. One of the recommendations in the study of Gowing et al. was that disaster preparedness assessment studies cover the entire health care team in a multidisciplinary way (Gowing et al., 2017).

It is a prerequisite for hospitals to take the necessary precautions against disasters and to make all preparations technically to ensure the continuity of the health service provided in case of disasters. However, for the process to be managed correctly, it is necessary for the personnel to

be informed about these issues and to take an active role in the process. The aim of this study was to evaluate the hospital disaster preparedness information of health personnel working in a foundation university hospital in Istanbul.

2. MATERIALS AND METHODS

Study Design

This observational-cross-sectional research was designed to collect data from the health personnel working in the foundation university hospital by a questionnaire. The research was carried out in a foundation university hospital with 515 beds, 267 outpatient rooms and 25 operating rooms in the European side of Istanbul. Ethics committee approval and permission to conduct a questionnaire were given by the hospital management (Ethics committee approval of the Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee No. 463, dated 15/08/2018).

The population of our study consisted of 1332 health personnel actively working in the hospital during the research period. The sample of this study was calculated as 299 with a 5% deviation by easy sampling method. The questionnaires were conducted between October 2018 and November 2018 on a voluntary basis. 300 questionnaires that were distributed in print form for the research were answered, but 276 questionnaire data were analyzed by excluding the missing questionnaires that were found to be unsuitable according to statistical evaluations.

Survey Instrument

In this study, a questionnaire was developed by the researchers to evaluate Hospital Disaster Preparedness Information Score of Health Personnel. The questionnaire was prepared in accordance with expert opinions and studies on hospital disaster management (Ibrahim, 2014; Al-Ali and Abu Ibaid, 2015; Al Khalaileh et al,. 2010; Kökçü, 2010; Moabi, 2008; (Sakhare, Waghmare and Joshi, 2016) utilizing the Hospital Disaster and Emergency Plan Preparation Guide of the Ministry of Health. The questionnaire consisted of instructions, some descriptive questions and 42 questions with yes, no or no idea options to assess Hospital Disaster Preparedness Information Score of Health Personnel. Descriptive questions contain questions about participants' sex, age, occupation, working years in the profession and hospital. Questions are related to professional preparedness of the hospital to respond to natural disaster and human-related disasters.

Data Analysis

The characteristics of the health personnel participating in the study, such as gender, age, education, occupation, working years in the hospital and working years in the profession, are presented with descriptive statistics. Descriptive statistics of the health personnel, such as having previously worked in a hospital during a disaster, having read the current disaster and emergency plan, preparing and updating the disaster and emergency plan, participating in a disaster-related training and participating in disaster and emergency drills are presented with descriptive statistics.

The 42 questions included in the Hospital Disaster Preparedness Information Score of Health Personnel evaluation questionnaire were assessed based on a point system (I have no idea: 0 points, Yes: 1 point, No: -1 points), and the answers given to the whole scale were collected, and a single value was obtained. 42 points were added to the total score to make sure that the

total score was not a negative value (where No answers were more than Yes answers). In this case, the assessment of a participant was in the range of 0 to 84 points. The results were evaluated according to this calculation. The internal consistency (Cronbach's Alpha) value of the answers of the 276 participants was 0.945.

Whether the Hospital Disaster Preparedness Information Score of the Health Personnel differed according to their characteristics such as working years in the hospital, working years in the profession and their training and experience in disaster management was assessed using Statistical Package for the Social Sciences (SPSS) 22.0 software. Since the distribution of the data obtained did not show a normal distribution, in the comparison of groups of independent variables, the Mann-Whitney U test was used for two groups, and the Kruskal-Wallis test was used for three or more groups. In addition, Bonferroni correction was used as post hoc test in multiple comparisons. Statistical significance level was taken as 0.05.

Study limitations

Our research was limited to the health workers of the foundation university hospital where the study was conducted.

3. RESULTS

A total of 276 health care workers responded to the survey. The data presented in Table 1 reveal that among the 276 health care workers, most respondents (63.0%) were female health care workers. 192 respondents were nurses or midwives, and 84 were health technicians. The age of the participants varied between 19 and 46 years, and 56.9% of the participants were 24 years old or younger. 37.7% of the participants had a bachelor's degree, and 32.2% had a two-year associate degree. Among the respondents, 87 (31.5%) were working in the inpatient department, while 86 (31.2%) were working in the outpatient department, 54 (19.6%) were working in the operating room, 49 (17.8%) were working in intensive units. Most (41.7%) had 1-5 years of experience, while 24.3% had been working for less than a year in this hospital. (Table 1).

Table 1: Demographic characteristics of the study participants (n = 276)

Sex	**n**	**%**
Male	102	37,0
Female	174	63,0
Age	**N**	**%**
≤24	157	56,9
25-30	84	30,4
31≤	35	12,7
Specialty	**N**	**%**
Nurse/midwife	192	69,6
Technician	84	30,4
Level of education	**N**	**%**
High school	74	26,8
Two-year associate degree	89	32,2
Bachelor's degree	104	37,7
Master's degree/Doctoral degree (PhD)	9	3,3
Department	**N**	**%**
Intensive Care Units	49	17,8
Outpatient department	86	31,2
Operation Theatre	54	19,6
Inpatient department	87	31,5
Years of Working	**N**	**%**
Less Than 1 Year	67	24,3
1- 5 Years	115	41,7
6- 10 Years	35	12,7
>10 Years	59	21,4
Years of Working in This Hospital	**N**	**%**
< 1 year	91	33,0
1-5 years	131	47,5
5-10 years	54	19,6

Table 2 presents the participants' training, experience and roles related to disaster management. 13.82% of the health personnel had previously worked in a hospital during a disaster. Among the respondents, 156 (56.5%) had training in disaster preparedness, 96 (34.8%) had been involved in the preparation and updating of disaster and emergency plans. Most (63%) participants had not yet read the current disaster and emergency plan, and 54.3% had not participated in disaster and emergency drills.

Table 2: Characteristics related to the Disaster Preparedness of the study participants (n=276)

	No		**Yes**	
	n	**%**	**n**	**%**
Have you ever worked in a hospital during a disaster?	238	86,2	38	13,8
Did you read the current disaster and emergency plan?	174	63,0	102	37,0
Have you been involved in the preparation and updating of disaster and emergency plans?	180	65,2	96	34,8
Have you ever attended a training on disaster?	120	43,5	156	56,5
Did you take part in disaster and emergency drills?	150	54,3	126	45,7

Table 3 shows the frequency and percentages of "no idea", "yes" and "no" responses for the 42 statements aimed at determining the Hospital Disaster Preparedness Information Score of the Health Personnel.74.64% of the participants stated that disaster and emergency preparedness trainings were done in the hospital, and 72.83% stated that emergency drills were done. However, the rate of participation in disaster trainings (56.5%) and the rate of participation in drills (45.7%) were lower. While most participants knew about the hospital having a disaster and emergency plan (84.78%) and an emergency response plan (86.96%), the percentage of reading this plan (37%) and the percentage of participation in the preparation and updating of this plan (34.8%) were lower. %55.07 of the participants stated that they were told about the disaster plan, 30.43% stated that they had no idea about it and 14.49% stated that they were not told about it. Moreover, 36.96% of the participants stated that they had no idea about the existence of work flow instructions, and 14.86% stated that they were not informed about the work flow instructions of the hospital. 19.2% of the health personnel stated that they were not informed about their responsibilities and duties in case of disasters, and 26.09% stated that they had no idea about this issue. 39.86% stated that they had no idea about the existence of forms to be used in case of disasters, 42.39% had no idea about the existence of event notification flow chart, and 46.01% had no idea about the existence of event-specific plans. 45.65% had no idea about the existence of a personnel information inventory in the disaster and emergency action plan, 44.2% had no idea about the personnel to be assigned in case of disasters, and 46.38% had no idea about the job descriptions of these people.

Table 3. Health care personnel's opinions on the hospital's preparedness for a disaster (n=276)

		Yes		No Idea		No	
		n	%	n	%	n	%
Q1	Is your hospital prepared for disasters and emergencies?	222	80.43	43	15.58	11	3.99
Q2	Is the hazard degree of your hospital for disasters and emergencies determined?	161	58.33	104	37.68	11	3.99
Q3	Does the hospital have a Disaster and Emergency Plan?	234	84.78	38	13.77	4	1.45
Q4	Does the hospital have an emergency response plan?	240	86.96	33	11.96	3	1.09
Q5	Have you been told about the current disaster and emergency plan of the hospital?	152	55.07	84	30.43	40	14.49
Q6	Does the hospital have an Event Management Team for disasters and emergencies?	177	64.13	85	30.8	14	5.07
Q7	Are work flow instructions created against disasters and emergencies?	159	57.61	102	36.96	15	5.43
Q8	Has an Event Management Center been designated for the hospital's disasters and emergencies?	154	55.8	114	41.3	8	2.9
Q9	Has the Hospital's Hazard and Vulnerability Analysis been performed?	135	48.91	125	45.29	16	5.8
Q10	Have you been informed about work flow instructions to be followed in case of emergency?	160	57.97	75	27.17	41	14.86
Q11	Were measures taken against the risk of fire in the hospital? (fire escape, extinguisher tubes, alarm system, etc.)	262	94.93	9	3.26	5	1.81
Q12	Have measures been taken against earthquakes and their risks (cabinet fixing, etc.)?	223	80.8	36	13.04	17	6.16
Q13	Is there a designated meeting area in the hospital for emergencies?	234	84.78	38	13.77	4	1.45
Q14	Is there an emergency warning system (siren, etc.) in the hospital for communication in case of disaster and emergency?	247	89.49	24	8.7	5	1.81
Q 15	Are there emergency exit signs in the hospital?	263	95.29	9	3.26	4	1.45
Q16	Is there a place in the hospital where they can use as a shelter for	131	47.46	127	46.01	18	6.52

	chemical disasters and emergencies?						
Q17	Is disaster preparedness and emergency training done in the hospital?	206	74.64	50	18.12	20	7.25
Q18	Are there emergency drills in the hospital?	201	72.83	50	18.12	25	9.06
Q19	Have measures been taken in the hospital against a possible chemical event?	139	50.36	118	42.75	19	6.88
Q20	Have measures been taken against situations that affect business continuity (such as power outages)?	192	69.57	73	26.45	11	3.99
Q21	Are emergency supplies regularly checked and maintained at the hospital?	184	66.67	79	28.62	13	4.71
Q22	Have you been informed about your responsibilities and duties in the event of a disaster in the hospital?	151	54.71	72	26.09	53	19.2
Q23	Are there any disaster and emergency forms in the Disaster and Emergency Plan of your hospital?	150	54.35	110	39.86	16	5.8
Q24	Is there a Work Flow of Events and Notifications Framework in the disaster and emergency plan of your hospital?	136	49.28	117	42.39	23	8.33
Q25	Are there any event-specific plans in the disaster and emergency plan of your hospital?	134	48.55	127	46.01	15	5.43
Q26	Are the personnel to be assigned in case of a disaster and emergency defined in the Disaster and Emergency Plan?	139	50.36	122	44.2	15	5.43
Q27	Are the duties of persons to be assigned in a disaster and emergency situation defined in the Disaster and Emergency Plan?	130	47.1	128	46.38	18	6.52
Q28	Are the places, areas and gaps that could be used in case of a disaster or emergency been specified in the Disaster and Emergency Plan?	194	70.29	72	26.09	10	3.62
Q29	Are issues related to mitigation against hazards (strengthening the building, fixing things, etc.) set out in the Disaster and Emergency Plan?	208	75.36	58	21.01	10	3.62
Q30	Are disaster and emergency response to all hazards identified in the Disaster and Emergency Plan?	183	66.3	76	27.54	17	6.16
Q31	Are improvements for all hazards identified in the Disaster and Emergency Plan?	172	62.32	86	31.16	18	6.52
Q32	Are emergency contact numbers included in the Disaster and Emergency Plan?	230	83.33	31	11.23	15	5.43
Q33	Are the evacuation routes specified in the Disaster and Emergency Plan?	210	76.09	48	17.39	18	6.52
Q34	Are infrastructure system charts such as gas infrastructure included in the Disaster and Emergency Plan?	137	49.64	127	46.01	12	4.35
Q35	Is there a list of emergency companies and financial suppliers in the Disaster and Emergency Plan? (for food, water, etc.)	158	57.25	95	34.42	23	8.33
Q36	Are maps or sketches showing hospital facilities (Site Plan) and hazard zones (gas station, etc.) included in the Disaster and Emergency Plan?	127	46.01	124	44.93	25	9.06
Q37	Are personnel with special needs (patients, disabilities, etc.) considered in the Disaster and Emergency Plan?	145	52.54	109	39.49	22	7.97
Q38	Is staff information available in the Disaster and Emergency Plan?	132	47.83	126	45.65	18	6.52
Q39	Is the Disaster and Emergency Plan of the hospital regularly updated?	132	47.83	129	46.74	15	5.43
Q40	Is the Disaster and Emergency Plan of the Hospital made after a hazard and risk analysis?	152	55.07	108	39.13	16	5.8
Q41	Has the Disaster and Emergency Plan of the hospital been prepared in cooperation with local administration units?	172	62.32	96	34.78	8	2.9
Q42	Has the Disaster and Emergency Plan of the hospital been shared with local administrations (Provincial/District Disaster Management Center, Civil Defense Directorate, etc.)?	179	64.86	86	31.16	11	3.99

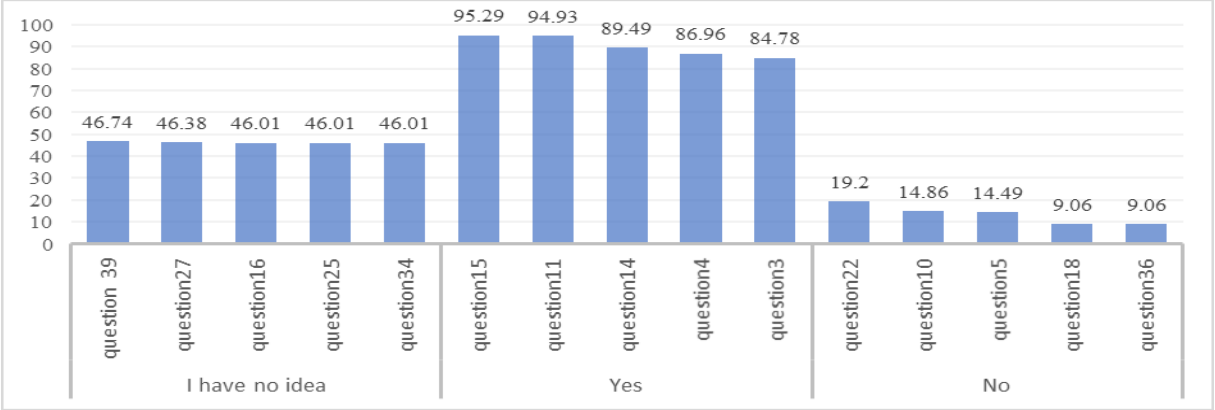
Q:Question

Most participants stated that measures were taken against risks such as fire (94.93%) and earthquake (80.8%) in the hospital. 84.78% stated that there was a designated gathering area for emergencies, 89.49% stated that there was an emergency warning system for communication in emergency situations, 95.29% stated that there were emergency exit signs, 70.29% stated that measures were taken against chemical events, 66.3% stated that there were interventions and 62.32% stated that there were improvements for all hazards, 69.57% stated that necessary measures were taken against situations affecting business continuity (such as power outages), and 66.67% stated that emergency supplies were regularly checked and maintained. Most respondents stated that there were emergency contact numbers (83.33%) and that evacuation routes were identified (76.09%) in the disaster plan.

However, 30.8% of the respondents stated that they had no idea whether the hospital had an incident management team for disasters and emergencies. 41.3% of the participants had no idea about the existence of the event management center, 46.01% had no idea about the existence of a shelter in case of chemical events, 46.01% had no idea about the existence of schedules of infrastructure systems such as gas in the disaster plan, 44.93% had no idea about the existence of maps or sketches showing hospital facilities and hazard zones. 34.78% of the respondents answered the question whether the Disaster and Emergency Plan was prepared in cooperation with the local administration units with "no idea" and 31.16% answered the question whether the Disaster and Emergency Plan was shared with the local administrations (Provincial/District Disaster Management Center, Civil Defense Directorate, etc.) with "no idea". 37.68% had no idea about the hazard level of the hospitals, and 45.29% had no idea about the hazard and vulnerability analysis of the hospital. However, most participants (80.43%) considered the hospital as prepared for disasters and emergencies.

Graph 1 shows the first 5 questions with the highest "yes", "no" and "no idea" answers among these 42 statements. The questions that most health personnel answered with "no idea" were: Is the hospital's disaster and emergency plan updated regularly (46.74%); Do the disaster and emergency plan provide job descriptions for persons to be employed in a disaster and emergency situation (46.38%); Is there a place in the hospital to use as a shelter for chemical disasters and emergencies (46.01%); Does the hospital's disaster and emergency plan include event-specific plans (46.01%); Does the hospital's disaster and emergency plan include schedules of infrastructure systems such as gas (46.01%). The questions that most health personnel answered with "yes" were: Are emergency exit signs available in the hospital (95.29%); Have precautions been taken for fire risk in the hospital (fire escape, extinguisher tubes, alarm system, etc.)(94.93%); Is there an emergency warning system (siren, etc.) in the hospital for communication in case of disaster and emergency (89.49%); Does the hospital have an emergency response plan (86.96%); Does the hospital have a disaster and emergency plan (84.78%). The question with the most "no" answer was whether they were informed about their responsibilities and duties in case of a disaster in the hospital (19.2%). 14.86% of the participants stated that they were not informed about the work flow instructions to be applied in case of emergency, 15.49% stated that the current disaster and emergency plan was not told to them; 9.06% stated that there were no emergency drills and that there were no maps or sketches showing hospital facilities and hazard zones (Graph 1).

Graph 1: Top 5 Questions with Yes, No and No Idea Answers (%)



The minimum score of the 276 health personnel from the 42 questions was 8, and the maximum score was 84. Mean Hospital Disaster Preparedness Information Score of the Health Personnel was calculated as 64.96±13.57. Whether there was a statistically significant difference between the Hospital Disaster Preparedness Information Scores of the Health Personnel according to their rolles and experience about disasters was investigated. The Hospital Disaster Preparedness Information Scores (67.45±15.27) of those previously employed in any hospital during a disaster were higher than those who were not (64.56±13.27**)**, but the difference was not statistically significant (p>0.05). The Hospital Disaster Preparedness Information Scores (73.4±12.61) of those who read the current disaster plan were higher than those who did not (60.01±11.53), and the difference was statistically significant (p:<0.001).The Hospital Disaster Preparedness Information Scores of those who participated in disaster and emergency plan preparation and updating works, disaster and emergency preparedness trainings and disaster and emergency drills were higher than those who did not, and the difference was statistically significant (p:<0.001) (Table 4).

Table 4: Analysis of the Hospital Disaster Preparedness Information Scores of the Health Personnel According to Disaster-Related Experiences

	n	Mean + Standard Dev.	Median (Min-Max)	Mean Rank
Have you ever worked in a hospital during a disaster?				
Yes	38	67.45±15.27	37.0-84.0	157.86
No	238	64.56±13.27	8.0-84.0	135.41
Test Statistics		U:5257.5	Z:1.611	p=0.107
Did you read the current disaster and emergency plan?				
Yes	102	73.4±12.61	17.0-84.0	196.18
No	174	60.01±11.53	8.0-84.0	104.69
Test Statistics		U:14757.5	Z:9.198	p:<0.001
Have you been involved in the preparation and updating of disaster and emergency plans?				
Yes	96	72.75±13.09	17.0-84.0	191.95
No	180	60.81±11.92	8.0-84.0	109.99
Test Statistics		U:13771.0	Z:-8.130	p:<0.001
Have you participated in disaster and emergency preparedness trainings?				
Yes	156	70.43±11.03	17.0-84.0	172.11
No	120	57.85±13.3	8.0-84.0	94.8
Test Statistics		U:14603.5	Z:-7.982	p:<0.001
Did you take part in disaster and emergency drills?				
Yes	126	71.31±11.47	41.0-84.0	176.99
No	150	59.63±12.91	8.0-82.0	106.17
Test Statistics		U:14299.5	Z:-7.347	(p:<0.001)

The Hospital Disaster Preparedness Information Score of the Health Personnel increased as their working years in the hospital increased, and the scores between the groups formed according to working years showed statistically significant differences (KW: 17.815; p: <0.001).The Hospital Disaster Preparedness Information Score of those with a working experience of 5-10 years was higher than those with less than 1 year experience and those with 1-5 years of experience, and there was a statistically significant difference (p<0.001 and p:0.005) (Table 5).

Table 5: Analysis of the Hospital Disaster Preparedness Information Scores of the Health Personnel According to Working Years

	N	Mean + Standard Dev.	Median (Min-Max)	Mean Rank
Working Time in This Hospital				
< 1 year	91	62.21±12.53	37.0-84.0	119.40
1-5 years	131	64.56±13.49	8.0-84.0	135.97
5-10 years	54	70.56±14.03	14.0-84.0	176.82
Test Statistics			KW:17.815	(p:<0.001)
Pairwise Comparison				
< 1 Year vs 5-10 Years		Std. Test Statistics: -4.191		Adj. Sig: <0.001
1-5 Years vs 5-10 Years		Std. Test Statistics: -3.167		Adj. Sig: 0.005
Time in the Profession				
< 1 year	67	61.78±11.04	37.0-84.0	114.90
1-5 years	115	63.35±14.29	8.0-84.0	129.68
5-10 years	35	67.89±10.17	50.0-84.0	151.56
>=10 years	59	69.98±14.99	14.0-84.0	174.75
Test Statistics			KW:20.400	(p:<0.001)
Pairwise Comparison				
< 1 Year vs>=10 Years		Std. Test Statistics: -4.203		Adj. Sig: <0.001
1-5 Years vs>=10 Years		Std. Test Statistics: -3.529		Adj. Sig: 0.003

Similarly, the longer the experience in the profession, the higher the Hospital Disaster Preparedness Information Score was (KW: 20.400; p:<0.001). The Hospital Disaster Preparedness Information Score of those with 10 or more years of working experience was higher than those with less than 1 year and 1-5 years of experience, and there were statistically significant differences (p<0.001 and p:0.003).

4. DISCUSSION

In this study, which aimed to evaluate the hospital disaster preparedness information of health personnel, important findings were reached that will guide hospitals' assessment of their current situation against disasters and improving their activities. In this study, the lowest score obtained from 276 health personnel was 8, and the highest score was 84. The mean Disaster Preparedness Information Score of the Health Personnel was calculated as 64.96±13.57. In the study of Sakhare, it was stated that health workers had moderate disaster preparedness information 78% (Sakhare, Waghmare and Joshi, 2016).

As the working years of the health personnel increased, their Hospital Disaster Preparedness Information Score increased, and the scores between the groups formed according to their working years showed a statistically significant difference (KW: 17.815; p: <0.001). The Hospital Disaster Preparedness Information Score of those with 5-10 years of working experience was higher than those with less than 1 year and 1-5 years of experience, and there were statistically significant differences (p<0.001 and p:0.005). Significant relationships were found between working years and disaster preparedness information (Gürsoy 2019; Basal and Ahmed, 2018; Nofal et al., 2018).

In this study, 74.64% of the participants stated that disaster and emergency preparedness training was done in the hospital, and 72.83% stated that emergency drills were performed. However, participation in disaster trainings (56.5%) and drills (45.7%) was low. In the study of Işık in 2004, 16.2% of the participants stated that they had drills, and 37.8% stated that they had no idea of these (Işık, 2004). In the study of Yurdakul in 2013, 56% of the participants stated that drills were performed, and 55% stated that participating in these exercises was mandatory (Yurdakul, Piroğlu and Okay, 2013). In the study of Şen and Ersoy in 2017, it was concluded that participation in disaster plan trainings was 42.9% (Şen and Ersoy, 2017). In a study in India, 61.5% of the participants stated that they did not receive disaster preparedness training ((Sakhare, Waghmare, and Joshi 2016). Surveys (Nofal et.al. 2018) have shown that hospitals conduct disaster trainings (Nofal et al., 2018), although the training needs of health personnel on disaster preparedness and management were emphasized (Berhanu et al. 2016; O'Sullivan et al. 2008; (Sakhare, Waghmare and Joshi, 2016). An important issue here is the adequacy of disaster education and encouragement of health personnel for these trainings. It was seen that more than one quarter of the workers of critical positions did not receive disaster management training and did not feel comfortable about being given a role in a disaster situation. Moreover, more than 85% of these people expect to face disaster in future work periods (Walczyszyn et. al., 2016). In the study of Canatan et al., it was emphasized that drills had a positive effect on disaster management (Canatan, Erdogan and Yilmaz, 2015). Drills are one of the most effective activities in the disaster preparedness process along with disaster trainings. Examining the studies, different results are seen regarding drills. While one study showed 81% of the respondents to state that there were disaster drills (Nofal et al., 2018), a study in Nigeria had this rate at 35.1% (Adenekan, Balogun and Inem, 2016). Research results generally indicate that health personnel should have regular training and drills for disaster and emergency preparedness and that health personnel should be encouraged to participate in these activities.

Research shows different findings on the disaster plan of hospitals and awareness of health personnel. Different studies have given percentages of 78% (Sakhare, Waghmare and Joshi, 2016), 58% (Adenekan, Balogun and Inem, 2016) and 40% (O'Sullivan et al. 2008) for those who said yes to the question whether their hospitals had a disaster plan. It can be said that there are developments regarding disaster plans in hospitals in Turkey. 37.8% of the participants in the study of Işık in 2004 and 64% of the participants in the study of Yurdakul in 2013 stated that their hospitals had a disaster plan (Şen and Ersoy, 2017; (Yurdakul, Piroğlu and Okay, 2013). In this study, 84.78% of the participants stated that there was a disaster plan, and 86.96% states that there was an emergency response plan. In line with these results and considering the Disaster Plan Preparation Directive in Turkey, it is thought that progress has been made in the field of disaster management in Turkey over the years and that the health personnel in the foundation university hospital where the study was conducted were informed about the disaster

plan. In this study, 46.74% of the participants answered the question whether the disaster plan was updated regularly with "no idea". Similar results are observed in other studies (Adenekan, Balogun and Inem, 2016). However, it was found that 63% of the participants did not read the plan, 19.2% were not informed about their responsibilities and duties in case of a disaster and 26.09% had no idea of the issue. In the study of Şen and Ersoy, it was concluded that 53.6% of those assigned to the disaster team did not know their task, and 6.3% were incorrect about it (Şen and Ersoy, 2017). In general, with the effect of related legal regulations, it is seen that hospitals have created their disaster plans, but there are limitations in terms of reading, learning and understanding of the disaster plans by health personnel.

One of the important risks for hospitals is fire. There are significant concrete measures to reduce the risk of fire such as fire escapes, extinguisher tubes and alarm systems. In this study, 94.93% of the participants stated that measures such as fire escapes, extinguisher tubes and alarm system were taken against the risk of fire. In the study of Işık, 76.4% of the participants stated that there was a fire escape, and 61.5% stated that there was an alarm system (Işık, 2004). In the study of Yurdakul, %92.7% of the participants stated that there were fire alarm systems and fire extinguishing devices ((Yurdakul, Piroğlu and Okay, 2013). According to research results, it can be said that hospitals take basic precautions against fire risks. However, there are various risks for hospitals. As stated in the Disaster Action Plan Preparation Guide, different scenarios and plans should be developed for these risks. In this study, 48.55% of the participants stated that they had plans for special events, and 46.01% stated that they had no idea about this issue. In the study of Bozkırlı, 48.55% of the participants stated that they had event-specific plans, while %46.01i said they had no idea (Bozkırlı, 2004). In the study of Gürsoy, 48.8% of the respondents stated that scenarios were created for severe epidemics, 52.2% for nature disasters, 48.8% for biological accidents or attacks, 51.2% for chemical accidents or attacks, 49.8% for radiological/nuclear accidents or attacks, 52.7% for explosive or flammable accidents or attacks (Gürsoy, 2019). In our study, 47.46% of the participants stated that they had a place to use as a shelter for chemical disasters and emergencies. In the study of Işık, %27.8i of the participants stated that there was a shelter in their hospital, and 39.4% stated that they had no idea about this issue (Işık, 2004). When the results of previous studies are considered in general, it is seen that participants had relatively less information on scenarios against special events, especially on measures against chemical and biological events. In our study, one of the issues in which relatively more health personnel had no idea (41.3%) was the presence of the event management center. In the study of Şen and Ersoy, only 23.6% of the participants knew the location of the hospital disaster management center correctly (Şen and Ersoy, 2017).

In this study, 34.78% of respondents answered the question whether the disaster and emergency plan was prepared in cooperation with the local government units with "no idea", and %31.16s of the respondents answered the question is the disaster and emergency plan shared with local authorities with "no idea". In the study of Gürsoy, 62.32% of the respondents stated that the disaster plan was prepared in cooperation with local governments, and 64.86% stated that the plan was shared with local governments (Gürsoy, 2019). In the study of Bozkırlı, the rate of hospitals working in cooperation with official institutions and local administrations was determined as 71% (Bozkırlı, 2004).

5. CONCLUSIONS

The hospital disaster preparedness information score of health personnel increases as their working years increases. Disaster trainings, participation in drills and reading the disaster plan

increase the information score. Hospitals have taken physical measures such as emergency exit signs, fire extinguisher tubes and alarm system and formed disaster plans. However, most participants did not read the disaster plan. There is a lack of information on disaster plans, which are to guide people in case of a disaster, work flow instructions to be applied and roles and responsibilities of the assigned personnel. Similar results are observed in previous research. It is thought that the effectiveness of the disaster management process will be increased by not only taking concrete measures but also by increasing the sensitivity of health workers to disasters, informing them about the measures taken and including them in this process.

Hospitals, especially where most of their staff have a working time of 1 year or less, should give priority to the training of hospital staff about disasters and to informing the hospital about the measures taken for disaster. In case of disaster, all hospital employees become an important factor in terms of the sustainability of health services. For this reason, planning disaster training and drills to cover all personnel will be beneficial in terms of the management of this extraordinary situation. Moreover, the relevant official institutions should be included in these processes during the preparation of disaster and emergency plans.

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Conflict of Interest:

This article was produced from the master thesis titled "Hospital Management in Extraordinary Situations" by Samet Dinçer under the supervision of Seda Kumru. All of the authors have approved that no conflict of interest in this study.

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Research Article

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PREPAREDNESS FOR EARTHQUAKE: KNOWLEDGE AND BEHAVIOR*

Uğur YAYLA[1]
Turgut ŞAHİNÖZ[2]

ABSTRACT

This research; is a cross-sectional survey conducted on individuals aged 18 years and over to determine the level of earthquake information and the extent to which their information is transformed into practice for individuals living in Erzincan province in the first- degree earthquake hazard zone. In the study, although the participants' knowledge point averages (82.17 ± 17.24) were quite high, the average behavior scores (36.27 ± 23.83) were found to be low. It was found that there was no significant relationship between the participants' knowledge scores and demographic characteristics, but the behavior average scores of the males were found to be meaningfully significantly higher when man compared to women, married compared to single, homeowners compared to non-homeowners, people with experience of devastating earthquake compared to those who were not experienced and owing to earthquake,people that lost their relatives in earthquake compared to those who did't loose ($p<0.05$). Very few (33.0%) of those who knew that they needed an earthquake bag (92.8%) were found to have an earthquake bag at home. It was also found that very few (19.3%) of those, who knew they had to have fire extinguishers, had fire extinguishers at home. It was determined that the rate of participants' who feltas if they were ready for earthquake (6.2%) was very low. As a result; it was found out that the average of earthquake knowledge score of the individuals was high but the average of behavior score was low. In line with this result, we propose to give practical trainings to transform their information about earthquake into behavior.

Keywords: Disaster, Earthquake, Earthquake Knowledge Level, Erzincan, Preparedness.

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[1]PhD Student. Gumushane University Social Sciences Institute, ugryyl24@gmail.com,
Orcid Number: https://orcid.org/0000-0003-3934-8250

[2]Assoc. Prof. Dr. Ordu University Health Sciences Faculty, Department of Health Administration, drsahinöz@hotmail.com
Orcid Number: https://orcid.org/0000-0001-8489-8978

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1. INTRODUCTION AND PURPOSE

Earthquake, cracks in the ground and movements due to breakage is called the earth shaking event (Karancı at al., 1999). In 2016, there were 14.128 earthquakes in the world with a magnitude of 4.0 and above (Ersoy, 2017). Turkey is located in the most dangerous area (Pampal and Özmen, 2009). Earthquake is one of the greatest materially and spiritually problems for our country as a natural disaster. According to the earthquake zones map, 96% of the land in our country is under earthquake hazard and 98% of our population lives in risky regions (Taş, 2003).

Erzincan province in terms of the threat of earthquakes is one of Turkey's most risky localities. Within the boundaries of Erzincan province, 33 earthquakes in the historical process that caused great damage until 1900 have come to the scene. During the instrumental period (after 1900), 13 earthquakes that have caused damage greatly occured; 34,123 people lost their lives, 3,982 people were injured and 127,891 houses were seriously damaged (Pampal and Özmen, 2009). The great earthquakes in Erzincan caused the introduction of the first laws about earthquakes.

Considering buildings affected by earthquakes and the number of people who died, it is seen that earthquakes are much more affected by financial and moral capital than other types of disasters (Akar, 2013). In the last century, due to natural disasters, direct losses of our country constitute 1% of the Gross National Product (Karagöz, 2007). Indirect losses are much more. The ertquake that occured in August 17, 1999 inTurkey is reported to have animpact on public finances about 6.2 billion dollars (DPT, 1999).

Undoubtedly, the most important thing to be planned and to be implemented by various institutions, which can be classified in different stages, before, during and after the earthquake, is to make people aware of the earthquake (Aksoy and Sözen, 2014).

Earthquake awareness is to understand the risks of earthquakes and to protect people from earthquake. Being aware of earthquake requires not only learning the correct information to create earthquake awareness, but also having the right attitude, behavior and skills to determine where and how to act against earthquake (Demirci and Yıldırım, 2015).It is almost impossible to completely eliminate the problems that have occurred during the earthquake (Şimşek, 2007). But if the earthquake can be known byhumans, the effects of the earthquake can be reduced to minimum. Acquisition of earthquake consciousness; it is necessary for individuals to know what they have to do before and during the earthquake, and to apply them correctly. Therefore, in order to determine the behaviors that are effective in the acquisition of earthquake consciousness, the things to be donebefore, during and after earthquake must be determined and taught to people (Aydın, 2010).

On the other hand, having an earthquake consciousness does not only mean memorizing the rules about earthquake-related scientific facts, what should be done before and after the earthquake. Earthquake consciousness expresses consciousness against eartquakesby showing right thinking, right decision and correct behavior by individuals and society (Demirci and Yıldırım, 2015).

The most effective way to struggle disasters is to take precautions before disasters to reduce the losses and losses that may result from disasters (Ulaş Kadıoğlu and Uncu 2018). One of the most important issues in disaster mitigation studies is to raise public awareness. In order to run a successful disaster mitigation program, members of the community must understand the fact that the effects and risks of natural and technological disasters can be reduced (Sözen et al., 2001: 7-4).

The prevailing strategy for earthquake preparation is the wound wrapping strategy. However, the main strategy to be implemented should be a total preparedness and non-injury strategy that will reduce losses and increase resilience. The adoption of this strategy, greater attention to the period before the earthquake in Turkey, and dissemination of labor that should be invested in, and institutionalization of legislation related changes are to be made mandatory. In addition to Disaster

Management, there is a need to turn to Risk Management, Crisis Planning, as well as planning forms with probability scenarios (Balamir, 2000: 44).

Increasing awareness of earthquake preparedness in Japan is important for minimizing the damage caused by earthquake disaster. For this reason, dissemination of useful information about the earthquake and training of the citizens are carried out by disaster prevention personnel. Movies about the subject are shown, fairs are organized, and awareness of being prepared through radio and television is kept alive. Every year, the first day of September is declared as "National Earthquake Prevention Day" and earthquake drills are held on a national scale (Şengezer, 2000: 74).

Social preparedness against disaster in the USA is an integral part of disaster preparedness programs. Each settlement unit is considered as a local government unit and each one has different characteristics, resulting in different measures taken. In the latest study aimed at reaching the communities, all emergency materials were collected and these were matched to the relevant units using the most effective distribution method. For this, a support mechanism has been developed by using funds allocated for emergencies to units lacking the necessary resources in order to take action without involving past primary duties (Day, 2000: 121).

In the study carried out by Karancı (1997), it was found that a great majority of them still have earthquake anxiety after the 1992 Erzincan earthquake and they did not prepare for possible earthquakes for 5 years.

It was observed in the Askale-Erzurum earthquake that the principles of protection are neglected and distorted construction, which does not comply with the rules, may produce serious results in this and similar natural disasters, although its severity is low. Although our country is in the earthquake zone, it has shown that our people are not sufficiently conscious about the reality of the earthquake and that we do not have enough information about what we should do to protect against natural disasters such as earthquakes (Çakır et al., 2016).

There are some studies on earthquake preparedness that have assessed the readiness of individuals based on their knowledge and skills (Haraoka vd., 2012; Chetkovic vd., 2015; Bahtiyeh ve Öcal, 2016; Öcal, 2011]. Some studies have also considered structural and non-structural safety in some cities (Dargahi vd, 2017) and some studies have investigated students' readiness (Ronan vd., 2015; Amanat vd, 2013).

Other studies have discussed the relationship between earthquake preparedness and personal, socio-economic, cultural and psychological factors (Dooley vd., 1992; Junn ve Guerin, 1996). Researchers have attempted to analyse such factors as age, sex, income and previous earthquake experience (Palm ve Carroll, 1998); socio-economic status [18]; attitudes towards disasters (Palm, 1998); physical capacity and social attachments and relationships and (Mileti vd., 2004); and home ownership and fear of natural disasters (De Man ve Simpson-Housley, 1987), especially of earthquakes (Turner vd., 1986). These factors significantly influence public preparedness, which varies by region, time and population group (Farley vd., 1993).

In the literature, there have not been enough studies to raise awareness and preparedness of the people before the disaster. This study will make an important contribution to individuals in developing their knowledge and behavior related to disasters. It is very important that the people living in the 1st degree earthquake zone are conscious about the earthquakes and to be ready for earthquakes. This research was planned in order to determine the level of knowledge and behavior of the people about earthquakes and to determine their preparedness against earthquakes.

2. MATERIAL AND METHOD

2.1 Purpose of the research

The purpose of this research is to determine the level of knowledge of adult individuals regarding earthquakes and the extent to which they apply this information in preparation for earthquakes.

2.2 Type of Study

This research is a cross-sectional study.

2.3 The Universe of the Research and Sampling

The universe of the study was 69,502 people aged 18 years and over living in the neighborhoods and borders of the Central District of Erzincan Province. The sample consisted of 397 people identified by the Yamane formula, but the study was carried out by 400 people.

Systematic sampling method was used when sample was selected from the participants. According to TSI (Turkish Statistical Institute) data, the average household size in our country is 3.8. Taking this average into consideration, the average number of households in Erzincan was calculated as 18,290. By dividing the number of households by the number of samples, the number of cycle (45) was found. In each district, the first digit of the questionnaire was determined by lot method from 1 to 10 numbers. The specified number of cycle (45) has been added each time to reach 400 persons. If they refused to participate in the survey, or if they were not at home, a questionnaire has been applied to one of the digits after the first digit.

The questionnaire was applied by interviewers who were trained by researcher and applied between 29.04.2016-13.05.2016 with face to face interview technique. Questionnaires were applied with the approvalof the participants.

2.4 Data Evaluation

The data obtained in the research were transferred to the computer via package programs. Percentage ratios, t-test, variance analysis and chi-square significance tests were used in the analysis of the data. The Statistical Package for Social Sciences (SPSS) for Windows (Version 21.0) was used for the statistical analysis. Level of significance was taken as $p<0.05$.

2.5 Earthquake Preparedness Questionnaire (EPQ)

The Earthquake Information Scale (EIS) consists of 23 questions developed by Spittal et al. (2006) and adapted to Turkish by Oral et al. (2015). The EIS was formed by adding "do" and "do not" options by the researcher to measure the state of being prepared for earthquake. Cronbach's alpha coefficient calculated to verify the reliability of the EPQ was obtained as 0.89. The scale form used to measure the earthquake knowledge levels of the participants was used with permission.

Scoring of the scale was made by calculating over 100 points by giving four full points to the “I know” and “I did” options of 25 questions in total, along with compulsory earthquake insurance, determining the meeting place after earthquake and 23 questions in scale. “I don’t know” and “I didn’t” options aren’t rated. Increasing the preparation and behavioral score in the scale means that the participants have high earthquake information levels. Items 7-12, 14-18, 20-23 describe mitigation actions, and eight items 1-6 and 19 describe survival actions. The instructions of the scale asks participants to indicate, by circling Yes or No, which steps they had taken to prepare for a major earthquake and this format makes it easy for participants from different education levels to complete. "I made" options for 25 questions in total, together with the 23 questions in the questionnaire, compulsory earthquake insurance and determination of meeting place after earthquake.

2.6 Ethical Aspect of the Research

Ethical committee approval numbered 2019/10 was obtained from the Scientific Research Ethics Committee of the Rector's Office of Gümüşhane on 21.11.2019 in order to conduct the research.

3. FINDINGS

400 people over 18 years of age residing in Erzincan city center participated in the survey. The socio-demographic characteristics of the participants are given in Table 1.

Table 1. Demographic features of Participants

Demographic features	N	%
Gender		
Female	199	49.8
Male	201	50.2
Age Groups		
18-25	103	25.7
26-35	154	38.5
36-45	105	26.3
46+	38	9.5
Income (TL)		
0-1,299	108	27.0
1,300-2,599	203	50.7
2,600-3,499	60	15.0
3,500+	29	7.3
Education status		
Primary School	44	11.0
Middle School	38	9.5
High School	134	33.5
Associate Degree	83	20.7
University Degree	85	21.3
Master's Degree+PhD	16	4.0

It was found that 49.8% of the participants were female, 50.2% were male, the majority (38.5%) were in the 26-35 age group and 33.5% were high school graduates, 18 were the younger, 84 were the elder, average age was32, average monthly income was 1,679 TL (Table 1).

Table 2. Socio-Demographic Characteristics of Participants

Socio-Demographic Characteristics	N	%
Marital Status		
Single	179	44.7
Married	221	55.3
Working Condition		
Self employed	156	39.0
Public employee	119	29.8
Unemployed	96	24.0
Private employee	29	7.2
Residential Type		
Single storey	82	20.5
Two storey	77	19.3
Three storeyand over	241	60.2
Residential Home Ownership		
Own House	244	61.0
Rent	156	39.0

Again, 44.7% of the participants were single, 55.3% were married, considering their job status mostly (39%) was composed of workers, 61% were living in their own homes and 60.2% were living in three or more storey houses.

Table 3. Rates of Participants to Know Earthquake Survey Questions Correctly

Survey Questions	Knows		Applies	
	N	%	N	%
1. It is necessary to think about the possibility of a major earthquake when buying, renting or building the house we currently live in.	373	93,3	187	46,8
2. The cupboards must be fixed to the wall.	368	92,0	131	32,8
3. Youneedto fasten the combior hot water tank.	363	90,8	224	56,0
4. It is necessary to take measures to strengthen the chimney of the building or house we live in or to reduce the possibility of collapse in a major earthquake.	336	84,0	163	40,8
5. We need to take measures to increase the earthquake resistance of the building we live in or to reduce the possibility of collapse in a major earthquake.	369	92,3	155	38,8
6. We need to take measures to reinforce our roof or reduce the likelihood of collapse in a major earthquake.	360	90,0	161	40,3
7. We need to make a new arrangement in our cupboards so that heavy objects are at ground level.	334	83,5	153	38,3
8. Weneed to attach safety latches to our cupboards.	298	74,5	80	20,0
9. It is necessary to be careful that the items containing water do not stand on electrical appliances.	355	88,8	224	56,0
10. It is necessary to ensure that heavy objects stand on the ground.	377	94,3	239	59,8
11. We need to store water to survive.	353	88,3	92	23,0
12. Excess pochette and toilet papers should be stored to meet our toilet needs in emergencies.	307	76,8	112	28,0
13. After a major earthquake, it is necessary to separate enough tools to make minor repairs at home.	324	81,0	170	42,5
14. You need to get canned food for emergency use.	352	88,0	85	21,3
15. You need to get a first aid kit.	371	92,8	132	33,0
16. It is necessary to take the essential medicines necessary for use in diseases and allergies.	342	85,5	114	28,5
17. You need to get a radio with a running battery.	314	78,5	95	23,8
18. You need to get a running lantern.	367	91,8	233	58,3
19. In our house, it is necessary to secure the movable items such as computers and televisions.	361	90,3	190	47,5
20. It is necessary to buy an alternative cooking source (such as a barbecue, small tube, etc.).	332	83,0	169	42,3
21. After the earthquake, it is necessary to determine a meeting point for everyone.	319	79,8	81	20,3
22. You need to get a working fire extinguisher.	345	86,3	77	19,3
23. You need to take some precautions in your workplace.	343	85,8	106	26,5

When we look at Table 3, one of the questions we asked to determine the level of knowledge about the earthquake was "It is necessary to keep the heavy items on the ground", which is the most well-

known question, and 94.3% of the participants gave yes answer to this question. This ratio is the highest of 23 questions. However, when looking at the rate of applying this information; the application was found to be below the level of knowledge (59.8%). In addition, while the awareness rate of the question "It is necessary to consider the possibility of a major earthquake when buying, renting or building the house we live in" is high (93.3%), theapplication rate (46.8%) is low. Likewise, the awareness rate of the question of "It is necessary to buy a first aid kit" is high (92.8%) but application rate is low (33.0%).

The most basic need for sustaining our life after an earthquake is water and food. However, participants were found to have a very low rate of applicationof "storing water for survival" (23.0%) and "storing canned food to use in emergency situations" (21.3%).

In our study, we have found that the average score of the information about the earthquake was very high (82.17), but the situation is not satisfactoryat all about what to do about the earthquake. When the participants' behavior score averages were evaluated, it was found that they were very low (36.27) according to the knowledgepoint averages.

Table 4. Comparison of Participants' Knowledge and Behavior Score Average by Some Socio-Demographic Characteristics

Socio-Demographic Characteristics	**Knowledge Score ($\bar{X}$±Sd)**	**Behavior Score ($\bar{X}$±Sd)**	**Socio-Demographic Characteristics**	**Knowledge Score ($\bar{X}$±Sd)**	**Behavior Score ($\bar{X}$±Sd)**
Gender			**Getting Earthquake Training**		
Female	81.76±17.00	32.84±23.05	Trained	86.88±13.76	46.77±26.76
Male	82.56±17.51	39.66±24.16	Untrained	80.35±18.10	32.23±21.32
t	-0.462	-2.886	**t**	3.43	5.67
p	0.644	0.004	**p**	0.001	0.001
Marital status			**Getting First Aid Training**		
Married	82.15±16.88	38.75±22.84	Trained	84.83±14.95	41.69±24.05
Single	82.18±17.72	33.20±24.72	Untrained	78.34±19.51	28.46±21.28
t	0.21	-2.32	**t**	3.76	5.66
p	0.983	0.021	**p**	0.001	0.001
Residential Home Ownership			**Compulsory Earthquake Insurance**		
Rent	80.64±18.49	32.35±23.30	Insured	85.80±14.28	44.33±22.86
Own House	83.14±16.36	38.77±23.88	Not Insured	79.28±18.81	29.86±22.66
t	1.42	2.64	**t**	3.82	6.31
p	0.157	0.009	**p**	0.001	0.001
Experienced a Destructive Earthquake			**Setting a meeting place**		
Yes	83.41±14.76	39.60±24.42	Determined	91.16±10.54	55.79±25.47
No	80.30±19.15	31.27±22.06	Undetermined	80.02±17.84	31.61±20.92
t	1.775	3.469	**t**	5.263	8.717
p	0.077	0.001	**p**	0.001	0.001
Loosing Relatives in Eartquake					
Lost	84.85±16.89	44.50±26.67			
Not lost	81.73±17.28	34.93±23.10			
t	1.25	2.81			
p	0.209	0.005			

When Table 4 is examined, it was found that there was no statistically significant relationship between the participants' knowledge scores and gender, marital status, living house, destructive earthquake, and loss of relativesinthe earthquake (p> 0.05).

There was a significant difference between the participants those who had compulsory earthquake insurance compared to those who did not have (p <0.05). In addition, those who determined a meeting place after the earthquake were found to have significantly higher mean scores of knowledge and behavior than those who did not (p <0.05).

According to those who did not take earthquake and first aid trainings, it was found that the average scores of knowledgeand behavior scores were significantly higher than those who did not, and the knowledge and behavior score averages were significantly higher than those who did not determine meeting place after earthquake (p <0.05).

Table 5. Comparison of Participants' Knowledge and Behavior Score Average by Some Socio-Demographic Characteristics and Feeling Prepared to Earthquake

	Knowledge Score ($\bar{X}$±Sd)	Behavior Score ($\bar{X}$±Sd)
Education status		
Primary School	81.18±19.75	38.18±22.48
Middle School	80.84±18.83	32.00±23.81
High School	81.55±18.45	36.35±25.65
Associate Degree	83.66±13.40	35.61±24.15
University Degree	82.21±16.73	36.94±21.45
Master's Degree+PhD	85.25±17.69	40.25±24.10
F	0.332	0.413
p	0.894	0.840
Income (₺)		
0-1,299	79.77±19.45	29.81±22.91
1,300-2,499	83.27±14.83	37.67±24.03
2,500-3,499	83.80±17.30	40.00±21.55
3,500+	80.00±23.05	42.75±26.31
F	1.303	4.179
p	0.273	0.006
Working Condition		
Self employed	83.89±15.77	39.22±20.86
Public sector employee	84.82±12.93	50.20±20.74
Unemployed	82.92±16.30	36.33±26.46
Private sector employee	78.00±20.80	28.29±21.00
F	2.630	7.889
p	0.05	0.001
Residential Type		
Single storey	81.17±18.15	30.82±23.21
Two storey	82.90±16.72	40.88±26.46
Three storey and over	82.27±17.14	36.64±21.00
F	0.212	3.656
p	0.809	0.027
Feeling Prepared to Earthquake		
I'm never prepared	80.51±18.76	28.23±20.80
I'm a little prepared	83.28±14.98	42.02±19.93
I am very prepared	90.40±12.64	74.08±25.24
F	4.261	63.966
p	0.015	0.001

When Table 5 is analyzed, no statistically significant difference was found between the educational status and the average of knowledge and behavior score of the participants in the research group (p> 0.05). A statistically significant difference was found between the groups that felt prepared for earthquake in terms of the mean score of the participants in the study group (p <0.05). As a result of the Post Hoc Tukey test conducted to understand between which groups the difference is, it is determined that the difference is between the groups that say "I am not prepared at all" and "I am very prepared" (9.88). In addition, a statistically significant difference was found between the groups that felt prepared for earthquake in terms of the mean score of the participants (p <0.05). The difference was found to be between the groups saying "I am not prepared at all" and "I am a bit prepared" (13.79) and "I am not prepared at all" and "I am very prepared" (45.84).

Table 6. Participants' Feeling Readiness to Earthquake

Feeling Readiness to Earthquake	**N**	**%**
I'm never ready	225	56,2
I'm a little ready	150	37,5
I am very ready	25	6,3
Total	**400**	**100**

When Table 6 was examined, 56.2% of the people in the research group stated that they were never ready to earthquake, 37.5% were a little ready and 6.3% were very ready. It has been found that the majority of people in our research do not feel themselves ready to earthquake. This is also evident from the fact that the average behavior score is low (36.27).

Table 7. Percentage of participants who report having undertaken the survival and mitigation actions listed in the EIS

	Yes (%)
Survival Actions	31
Mitigation Actions	51

The average percentage of damage mitigation and survival actions carried out by Erzincan participants were 51 and 31 percent, respectively. The earthquake preparation activities undertaken by the Erzincan participants were "It is necessary to ensure that heavy objects stand on the ground" and "It is necessary to think about the possibility of a major earthquake when buying, renting or building the house we currently live in". The fact that the average preparation score is very high for Erzincan is thought to be caused by major earthquakes in the past.

4. DISCUSSION

61% of natural disasters occurring in our country are earthquakes (Işık vd., 2015). The measures to be taken against earthquakes are very important in terms of loss of life and property. The most important of these measures is public awareness studies.

In Spittal et al.'s (2006) study; while the awareness of the first aid kit preparation was moderate (66.10%), the rate of thinking about the possibility of a major earthquake when buying, renting or building the house they live in (37.33%), buying a working fire extinguisher (33.22%), to determine the meeting place after eartquake (19.18%), to increase the earthquake resistance of the building or house they live in or to reduce the possibility of collapse in a major earthquake (33.22%) awareness was found to be low.

In a study conducted by Güngörmış et al. (2012), it has been reported that the rate of buying a first aid kit (92.7%), thinking about the possibility of a major earthquake when buying, renting or building the house they live in (79.4%), buying a working fire extinguisher device (% 83.1), determining the meeting place after an earthquake (64.1%), taking measures to increase the earthquake resistance of the building or house they live in or reducing the possibility of collapse in a major earthquake (84.1%) awareness was high.

In our study, it was determined that the proportion of these expressions was higher than the other studies conducted and that these ratios increased gradually with years. This shows that people consider the risk of earthquakes when buying, renting or building a house. Moreover, it can be said that they have earthquake awareness in order to reduce loss of life and property after an earthquake, to receive first aid kit, to have fire extinguisher and to determine meeting place.

In our study, no significant difference was found between men and women in terms of the average of earthquake knowledge scores. In the study of Kadıoğlu and Uncu (2018), no statistically significant difference was found between gender and disaster knowledge scores. In the study of Ünal et al. (2017), a statistically significant difference was found between gender and disaster preparedness levels.

No significant difference was found between gender and earthquake knowledge point averages in Polat's (2014) and Öcal's (2007) studies. Polat's (2014) and Öcal's (2007) studies support the study we have conducted. However, Soffer et al. (2010) found that there is a meaningful relationship between gender and earthquake knowledge scores and this is in conflict with our study. Since our study is conducted in 1st degree earthquake zone, the average score of the individuals was found to be high. It is thought that this situation has eliminated the meaningful difference.

In our study, a significant difference was found between men and women in terms of average earthquake behavior score. In the study conducted by Najafi et al. (2015), it was found that disaster preparedness behavior scores of men were statistically more significant than women. In the study of Ostad Taghizadeh et al. (2012), no significant relationship was found between gender and earthquake preparedness. The precautions about being prepared where our study is carried out are mostly taken by household heads, and in our society, household heads are mostly men. This situation is thought to reveal the relationship between gender and average earthquake behavior score. In our study, no statistically significant difference was found between the marital status of the participants and the earthquake knowledge score average. In Polat's (2014) and Oral et al.'s (2015) study; it was reported that the average score of the married people was significantly higher than that of the single ones. It is thought that earthquake awareness is reduced to all segments of the society.

In our study, a significant difference was found between the ownership of the house where the participants reside and the mean score of behavior. Spittal and his colleagues in 2006 and 2008 reported that there was a significant positive correlation between having a home ownership and being prepared for earthquake. The studies are supporting each other.

In our study, no significant difference was found between the participants' destructive earthquake experiencing situations and the average earthquake knowledge score. In the study conducted by Öcal (2011), no significant difference was found between the earthquake experience and earthquake knowledge score. In the study of Ünal et al. (2017), a significant relationship was found between disaster survival experience and disaster levels. Ostad Taghizadeh et al. (2012) in the study they have conducted reported that there is a significant positive correlation between earthquake experience and earthquake knowledge level and earthquake preparedness. It is understood that those who lost their relatives in the earthquake transformed the earthquake knowledge into behavior more than the other persons.

In our study, a significant difference was found between participants' destructive earthquake situations and their mean behavior score. In the study conducted by Najafi et al. (2015), a significant difference was found between the individuals who experienced disasters and their behavioral score.

In our study, no significant difference was found between the educational status of the participants and the average of knowledge and behavior score. In the study conducted by Kadıoğlu and Uncu (2018), the difference between the knowledge scores according to the educational status is statistically significant. As the education level increases, the average of knowledge points increases. In the study conducted by Öcal (2011), no significant difference was found between disaster education status and earthquake knowledge score. In the study conducted by Soffer et al. (2010), no significant difference was found between their educational status and the average of knowledge and behavior score (Soffer, 2010: 4). It is thought that disaster information activities in the society are gradually increasing.

In our study, a statistically significant difference was found between the participants' earthquake education status and the average of earthquake knowledge score. In the study conducted by Kadıoğlu and Uncu (2018), the difference between disaster education status and disaster knowledge average score is statistically significant. A significant difference was found in the study conducted by Polat (2014). The studies are supporting each other.

5. CONCLUSION AND RECOMMENDATIONS

In this study, where we examined the state of earthquake preparedness in terms of earthquake knowledge and behavior levels of the people living in the 1st degree earthquake zone, the following results were reached:

• Significant differences were found between the mean knowledge scores of the participants and their job status, earthquake training, first aid training, compulsory earthquake insurance, determining a meeting place and feeling prepared for earthquake. A significant difference was found between the average behavior score of the participants and being male, being married, having high income, working situation, sitting in their own home, having experienced destructive earthquake, losing relatives as a result of earthquake, getting earthquake and first aid training, complying with compulsory earthquake insurance, determining a meeting place and feeling prepared for earthquake.

• The top three information that the public knows the most are; stabilizing heavy items on the ground, thinking about the possibility of a major earthquake when buying, renting or building the house we live in and buying an earthquake kit.

• The top three behaviors that the public applies the most are; to stabilize heavy items on the ground, to get a working lantern, to fix the combi or hot water tank.

• While the vast majority of women do not feel prepared for earthquake, most of the men feel more or less prepared.

Based on these results, our suggestions are:

• Providing practical training through various public and private organizations to transform the earthquake information of individuals into behavior,
• Determination of meeting areas after the earthquake by governorships and municipalities and informing the public with various signs and lighting,
• Obligation to keep earthquake kit and fire extinguisher in the houses,
• Fixed construction of cabinets and locked doors during the construction of houses and furniture,
• It is recommended to carry out social projects on earthquake and first aid education that will especially involve women.

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Research Article

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ANXIETY CAUSED BY THE COVID-19 PANDEMIC IN THE INDIVIDUAL AND ESCAPE FROM THE HOSPITAL

Sedat BOSTAN[1]

Ahmet KAYA[2]

Deniz GÜNEŞ[3]

İrfan USTA[4]

ABSTRACT

In the epidemic period, other health services can be interrupted by allocating resources to epidemic-causing cases. It has been reported that anxiety and depression levels of individuals increase during these periods. Some studies report a decrease in the number of patients using health services during the SARS epidemic.

With this study, it is aimed to give an idea about the health problems that may arise by identifying the tendency of the COVID-19 pandemic to negatively affect the mental health of individuals and to avoid using health services, apart from the effect of making people sick and killing them.

Beck anxiety and beck depression scales were used in the study. In addition, a scale was developed to measure the intention of individuals to go to hospital. The validity and reliability of the scales were tested and approved. Data were collected from one thousand seven people with the easy sampling method with the digitally created questionnaire form.

During the pandemic process, it was found that approximately one third (34.5%) of the individuals had symptoms of anxiety and nearly half (48%) of them had depression symptoms. Individuals stated that they could go to the hospital only when they had a serious illness (3.49) or emergencies (3.6).

It has been suggested that the COVID-19 pandemic should be evaluated holistically with other health problems, and pandemic hospitals should be identified and separated from other hospitals, and other patient groups should benefit from uninterrupted health services and practices to reduce the social stress associated with the pandemic.

Keyword: COVID-19, Anxiety, Depression, Intention to Go to Hospital, in Turkey

A R T I C L E I N F O

[1]Assoc. Prof., Ordu University, Health Management Department, Faculty of Health Sciences, Ordu, Turkey.
sbostan29@gmail.com Orcid number: https://orcid.org/0000-0001-9845-7938

[2]Prof. Dr., Ordu University, Faculty of Medicine, Department of Cardiology, Ordu, Turkey.
drkayaahmet69@gmail.com Orcid number: https://orcid.org/0000-0001-9845-7938

[3]Res. Assist., Ordu University, Faculty of Health Sciences, Health Management Department, Ordu, Turkey.
denizgunes1912@gmail.com Orcid number: https://orcid.org/0000-0002-1995-8142

[4]Dr., Gazi Osmanpaşa University, Faculty of HealthSciences, Health Management Department, Tokat, Turkey.
irfan.usta@gop.edu.tr Orcid number: https://orcid.org/0000-0001-5797-2714

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INTRODUCTION

The history of the disease is as old as human history. Diseases affect the patient first, then the relatives of the patients, and then the whole social environment (Bostan et al., 2020). Looking at the history of the diseases, it is seen that a disease is not only a health problem, but it also deeply affect the economy, politics and social life.

There are some diseases that have caused great disasters in the past and are still effective today. It is known that epidemic diseases such as Cholera (Parıldar, 2020), Malaria (Akpınar & Özcan, 2018; Global Malaria Program: WHO Global, 2019), Spanish Flu (Eşidir & Bak, 2020), Black Plague (Akın, 2018) take more lives from wars and cause social changes.

In the last two decades, it has been observed that some infectious diseases have turned into epidemics. Examples of this are infectious diseases originating from the severe acute respiratory syndrome coronavirus (SARS virus) and the Middle East respiratory syndrome coronavirus (MERS virus), as well as re-emerging infectious diseases caused by swine and avian influenza and Ebola viruses (Grubaugh et al., 2019; Wu et al., 2020).

The new coronavirus disease (COVID-19), the newest member of the infectious diseases group that causes endemia and pandemics, emerged in December 2019 as a new coronavirus pneumonia epidemic in Wuhan, China, in the Hubei region. (Cheng et al., 2020) COVID-19 spread first across China in 2020 and then across the world rapidly.

The World Health Organization (WHO) declared the new type of coronavirus disease as a pandemic on March 11, 2020. Globally, as of September 9, 2020, 27,417,497 people were reported to have contracted COVID-19 and 894,241 died from the infection, according to the official WHO website (WHO, 2020).

First COVID-19 case was detected in Turkey on 10 March 2020 and the first virus-related death was reported on March 17, 2020 (T. C. Ministry of Health, 2020). Total number of COVID-19 cases in Turkey reached to 283,270 cases by September 9th 2020. It is known that 23,243 of these cases are active cases and there are 6,782 deaths (Worldometer, 2020). Europe in general, and some countries in particular, such as Spain and Italy, have been strongly affected by the transmission and deaths caused by the pandemic (Rossi et al., 2020).

All countries, both developed and developing, had to take a series of protective measures in order to control the rapidly spreading virus. These strict measures, ranging from the prohibition of travel to the closure of workplaces, social isolation and curfew, deeply affected social life, brought most sectors of the economy to a standstill, and even caused a halt in some (Duran & Acar, 2020).

The Covid-19 pandemic creates important mental health problems in society such as stress, anxiety and depression (Liu S. et al., 2020). In societies with epidemic diseases, acute stress reactions occur during the mandatory quarantine process. Disruption of the usual routine, inadequate use of health services, exposure to incomplete or wrong information, uncertainty of the quarantine period, the fear of being infected or transmitting the disease causes some mental disorders in individuals (CSTS, 2020; Kaya, 2020).

During epidemic periods, other health services may be interrupted by allocating resources to epidemic-causing cases. In this period, health authorities reduce the admission of non-epidemic

patients to the hospital or patients do not apply for treatment with anxiety, causing negative effects on health (Sayılı et al., 2020).

Some reports have shown the impact of infectious disease outbreaks on hospital admissions. During the SARS epidemic in Hong Kong, it was observed that there was a significant decrease in general emergency room attendance, trauma cases and minor cases (Man et al., 2003). In another study conducted in Taiwan, it was found that the number of applications to the emergency room decreased by 40% during the SARS epidemic (Chen et al., 2004). During the SARS outbreaks in Toronto, there has been a decrease in hospital admissions (Heiber & Lou, 2006). In addition, during the epidemic period information is also available that, cancer patients disrupted their treatment (Chen et al., 2004); the first medical intervention was delayed in emergencies (Tam et al., 2020); people applied wrong interventions due to panic (https://tr.euronews.com, 10.09.2020) and that increased anxiety can lead people to suicide (Sahoo et al., 2020).

In Turkey, during the COVID-19 pandemic process, calls for "do not go to the hospital unless it is necessary" are made very strongly by the health authorities (https://www.takvim.com.tr, 18.3.2020). In addition, health authorities try to control going to the hospital by warning citizens not to go to the hospital without an appointment, with appointment restrictions (https://www.cnnturk.com/, 2.6.2020; http://www.orduolay.com/, 4.9.2020). Adverse results of individuals to hesitate to go to the hospital again, is reflected in the media (https://www.cnnturk.com/, 20.5.2020).

This information indicates that during epidemic periods, health authorities call for "do not go to hospital unless it is necessary" or patients in need of health service avoid going to the hospital "for fear of contamination risk". In this case, the epidemic becomes responsible not only for those who are sick, but also for the health risks of individuals whom it prevents from receiving health services.

In the literature reviews, it was seen that various aspects of the COVID-19 pandemic were investigated very intensely and rapidly. However, no study has been found on how the pandemic affects the tendency of normal individuals to use health services.

This study mainly aims to get an idea about;

What effect does the COVID-19 pandemic have on individuals' anxiety and depression levels;

How the contagion anxiety created in individuals by the COVID-19 pandemic and the health authorities 'call to "do not go to hospital unless it is necessary" affect individuals' "intention to go to hospital";

It seeks answers to the questions of how the change in anxiety and depression levels of individuals interacts with the "intention to go to the hospital".

Thus, with this study, it is aimed to gain an idea about the negative effects of the COVID-19 pandemic, apart from the effect of making sick and killing individuals, negatively affecting the mental health of individuals and avoiding using health services.

METHOD

In the process that COVID-19 pandemic has continued in Turkey and in the world, the pandemic has had different effects on the entire healthcare sector and on patients. This study aims to investigate how individuals are affected by the pandemic process. The research is a descriptive study and the data were collected by quantitative method.

Universe and Sample

The study aimed to measure individuals' levels of being affected by the pandemic using the intention to go to hospital, anxiety, and depression scales. 1007 people were included in the study using the easy sampling method and the random sampling technique. The data were collected through a questionnaire prepared in digital environment on 28-29-30 April 2020 under pandemic conditions. A team of around fifty people located in different places of Turkey has enabled people over the age of 20 to participate in the survey by directing the questionnaire through WhatsUp program.

Data Collection Scales, Process and Scale Analysis

In the study, a questionnaire consisting of socio-demographic characteristics, beck anxiety (Beck at all; 1988), beck depression (Beck et al., 1960) scales and intention to go to hospital scale was used as data collection tool. For the implementation of the questionnaire, permissions were obtained from the Ethics Committee of Ordu University and the Ministry of Health Covid Pandemic Scientific Research Permit Committee.

Beck anxiety and beck depression scales are widely used scales in healthcare. The validity of these scales was tested by confirmatory factor analysis; the validity of the "intention to go to hospital scale" developed by Bostan was tested with exploratory factor analysis. Validity is the degree to which a test or scale measures what is intended to be measured (Coşkun et al., 2017). In addition, reliability analyzes of all scales were made. Analysis results of the scales are given in Table 1.

Table 1: Validity and Reliability Analysis of the Scales

Factor Analysis		Beck Anxiety	Beck Depression	Intention of Going to Hospital
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,932	0,950	0,841
Bartlett's Test of Sphericity	Approx. Chi-Square	11079,583	10198,005	3967,075
	Df	210	210	45
	Sig.	0,000	0,000	0,000
Factor loading range		500-753	371-756	505-771
Total variance explained	%	42,237	43,124	43,205
Cronbach’s Alpha		0,927	0,931	0,845

When Table 1 is examined, it is seen that the KMO sampling coefficient is above 0.80 in all three scales. It is accepted that the sample size used in the study reaches perfect as the KMO value approaches 1, and when this value is 0.80 it is very good and when it is 0.90 it is excellent (Karagöz, 2017). The results of the Barlett sphericity test, which was used to evaluate the appropriateness of the scale to factor analysis, were found to be significant (p = 0.000). Accordingly, scales are found suitable for factor analysis. It was understood that the factor loads of all three scales were generally high and their power to explain the total variance was above 0.40 and was sufficient. Since the reliability analysis Cronbach's Alpha coefficients of the scales are above 0.80, it has been determined that they are highly reliable.

SPSS statistics software was used to test the aims of the study. Analyzes were carried out at 95% (p = 0.05) confidence interval. Descriptive statistical methods and correlation analysis were used in the study.

RESULTS

The demographic characteristics of the participants are given in Table 2. When the table is examined; 29.9% of individuals are university, 27.4% high school and 21.1% primary or secondary school graduates; 64.8% are women; 60% of them are in the 20-39 age range; 60.4% are single; 94.7% of them live with their family; 20.5% of them have chronic diseases.

Table 2: Distribution of Demographic Data

Variables	N	%
1.Educational Status		
Primary school	212	21,1
High school	276	27,4
Associate degree	168	16,7
Undergraduate	301	29,9
Graduate	50	5,0
2.Gander		
Female	653	64,8
Male	354	35,2
3.Age		
Between 20-39	604	60,0
Between 40-59	370	36,7
60 ≥	33	3,3
4.Marital Status		
Married	361	35,8
Single	608	60,4
Widow	38	3,8
5. Who do you live with?		
Family	948	94,7
Alone	53	5,3
6. Do you have a chronic illness?		
Yes	206	20,5
No	801	79,5
7. Have you ever encountered with COVID-19 patients?		
Yes	105	10,4
No	902	89,6
8. Has your any relative suffered from COVID-19?		
Yes	132	13,1
No	875	86,9
9. Have you ever been tested for COVID 19?		
Yes	63	6,3
No	944	93,7
10. If so, what is the result?		
Positive	8	12,1
Negative	58	87,9

10.4% of the participants encountered a patient with COVID-19; a relative of 13.1% suffered from COVID-19; 63 of them had a COVID-19 test; 8 of them stated that the test result was positive.

Data on the anxiety levels of individuals are given in Table 3. It was found that 34.5% of the individuals had different levels of anxiety symptoms. It was found that 21% of the individuals had mild anxiety, 8.6% had moderate anxiety and 4.9% had severe anxiety.

Table 3: Beck Anxiety Level of the Participants

	N	%
Minimal Anxiety (0-7)	616	65,5
Mild Anxiety (8-15)	210	21
Moderate Anxiety (16-25)	86	8.6
Severe Anxiety (26-63)	95	4,9

Data on the depression levels of the participants are given in Table 4. It has been found that 48% of the individuals have different levels of depression symptoms. It was found that 24.1% of individuals had mild depression, 16.4% had moderate depression and 7.5% had severe depression.

Table 4: Beck Depression Level of Participants

	N	%
Minimal depression (0-9)	524	52
Mild depression (10-16)	242	24,1
Moderate depression (17-29)	165	16,4
Severe depression (30-63)	76	7,5

During the Covid-19 pandemic process, it was observed that individuals' efforts to protect themselves from the pandemic were reflected in their intentions and behaviors to benefit from health services and to go to the hospital. The findings of the individuals regarding their intention to go to the hospital under pandemic conditions are given in Table 5.

When the table is examined, it is seen that the individuals' intention to go to the hospital in the seventh statement in case of "continuing health problems" (2.37) was found to be low. Individuals' intention to go to the hospital "when their illness becomes serious" (3.43) rises to a moderate level. Individuals were found to have a high level of intention to go to hospital when their health problems were "urgent" (3.66). Individuals state that they do not want to "go to the hospital in any way" (2.46).

Table 5: Scale of Intention of Going to Hospital

Scale of Intention of Going to Hospital	$\bar{x}$	*SS*
Factor means	2,1	1,14
1. In these days when the coronavirus epidemic continues, I go to the hospital because I am curious about the condition of the patients.	1,2929	,77394
2. In these days when the coronavirus epidemic continues, I go to the hospital to visit my relatives or friends.	1,3793	,80326
3. In these days when the coronavirus epidemic continues, I go to the hospital to have prescribe my medicine	1,7418	1,10433
4. In these days when the coronavirus epidemic continues, I go to the hospital to have the tests in my mind.	1,5819	1,02697
5. In these days when the coronavirus epidemic continues, I go to the hospital for the appointment my physician has given me for a routine check.	1,8471	1,22290
6. In these days when the coronavirus epidemic continues, if I feel mild discomfort, I go to the hospital.	1,5343	1,03352
7. In these days when the coronavirus epidemic continues, If my current disease increases a little more, I go to the hospital.	2,3714	1,31330
8. In these days when the coronavirus epidemic continues, I go to the hospital when my current illness becomes serious. .	3,4399	1,48689
9. In these days when the coronavirus epidemic continues, if I have trouble that I think is urgent, I go to the hospital.	3,6683	1,46028
10. I would never go to the hospital nowadays as the coronavirus epidemic continues.	2,4608	1,30765

The relationship between the participants' anxiety, depression levels and their intention to go to the hospital was investigated with correlation analysis and the findings are given in Table 6.

Table 6: The Relationship Between Anxiety and Depression Levels of Individuals and Their Intention of Going to Hospital

	Anxiety	Depression
Anxiety	1	
Depression	,712**	1
Intention of going to hospital	,116**	,104**

**. Correlation is significant at the 0.01 level (2-tailed).

When the table is examined, it was found that there is a strong linear relationship between the anxiety levels of individuals (0.712) and the level of depression increases as the level of anxiety increases. Similarly, a weak linear relationship was found between the anxiety (0.116) and depression (0.104) levels of the individuals and their intention to go to the hospital. Increases in the anxiety and depression levels of individuals weakly increase the intention to go to the hospital.

The effects of demographic characteristics of the participants on anxiety, depression, and their intention to go to hospital were examined by t and ANOVA tests. Anxiety and depression levels of females were higher than males ($p = 0.000$); it was found that males' intention to go to hospital was higher than females ($p = 0.005$). It was determined that the anxiety ($p = 0.033$) and depression

(p = 0.000) levels of the single participants were higher than the married ones, and the intention of going to the hospital was higher in the married (p = 0.005). Among the participants, it was observed that the depression level (p = 0.000) of the graduates of associate degree and university was higher than those with primary, secondary and high school graduates. Anxiety (p = 0.00) and depression (p = 0.000) levels of the participants aged 20-39 were higher than those aged 40-59; it was calculated that those aged 40-59 years had a higher intention to go to hospital (p = 0.01) than those aged 20-39.

Anxiety (P = 0.006) and depression (P = 0.02) levels were found to be higher in participants who were single. It was calculated that the anxiety levels (P = 0.001) and intention to go to the hospital (P = 0.000) of the participants with chronic diseases were higher than those without chronic diseases.

Anxiety (p = 0.006) and depression (p = 0.02) levels were found to be higher in participants who were single. It was calculated that the anxiety levels (p = 0.001) and intention to go to the hospital (p = 0.000) of the participants with chronic diseases were higher than those without chronic diseases.

Anxiety level (p = 0.000), depression level (p = 0.001) and intention to go to hospital (p = 0.000) of the participants who encountered COVID-19 patients were found to be higher than those who did not encounter COVID-19 patients. It was observed that those with a relative of COVID-19 patients had higher levels of anxiety (p = 0.000) and depression (p = 0.001) than those who did not have a relative of COVID-19. It was understood from the participants that the anxiety level (p = 0.002) and the intention to go to the hospital (p = 0.002) of those who had the COVID-19 test were higher than those who did not have the COVID-19 test. There are eight people among the participants who has a positive COVID-19 test. It was found that these people had higher anxiety, depression and intention to go to the hospital (p = 0,000) compared to the other 57 people who had a negative COVID-19 test.

DISCUSSION

It is stated that, on average, 60% of physically healthy individuals experience health anxiety in any period of their lives and 45% of them are neurotic and the rest are completely normal (Şendağ, 1989). The prevalence of anxiety disorder in the general population is around 5% and it increases up to 10% with old age (Eroğlu et al, 2012). On the other hand, the rate of depression in the general population has been determined to be between 3.6-8.5% (Kaya and Kaya., 2007). In the literature, it has been stated that the rate of coexistence of these two diseases is high, one triggers the other and generally develops due to common causes.

In this study, the level of anxiety in individuals was found to be mild 21%, moderate 8.6%, severe 4.9%, and 34.5% in total. As can be seen, the pandemic increased the anxiety level in individuals 4-7 times. In this study, the level of depression in individuals was found to be mild 24.1%, moderate 16.4%, severe 7.5% and total 48%. Pandemic increased the level of depression in individuals approximately 6-12 times. In this study, it was seen that anxiety and depression were seen together in individuals and they were consistent with the literature.

In a study investigating the effect of the COVID-19 pandemic on individuals in Turkey in 62% of respondents stated that their worry on health-related concerns has increased and, 53.5% stated increased doubts about the symptoms of the disease (Karataş, 2020).

In a study conducted in Bangladesh during the pandemic period, it was observed that 59.7% of the participants suffered from stress symptoms. (Banna et al., 2020) In other studies conducted in China and Europe, the levels of stress, anxiety and depression seen in individuals have increased since the COVID-19 outbreak. (Ozamiz-Etxebarria et al., 2020; Altena et al., 2020; Asmundson and Taylor, 2020; Qiu et al., 2020)

In this study, the data of similar studies given above are supported by the fact that 34.5% of the individuals had mild, moderate and severe anxiety symptoms, and 48% had depression symptoms.

In the studies conducted by Man et al. (2003) in Hong-Kong, Chen et al. (2004) in Taiwan, and Heiber and Lou (2006) in Toronto, the finding that the number of hospital admissions decreased during the SARS epidemic, the intention of this study to go to hospital coincides with the findings of this study. Individuals do not want to go to the hospital during the COVID-19 outbreak. It can be said that this attitude will reduce the number of hospital admissions.

CONCLUSION AND RECOMMENDATIONS

In this study, it was found that approximately one third (34.5%) of the individuals had symptoms of anxiety and nearly half (48%) of them had depression symptoms during the pandemic process. Individuals stated that they could go to the hospital only when they had a serious illness (3.49) or emergencies (3.6).

It is understood that there is a strong linear relationship between anxiety and depression. However, it was understood that the increase in the anxiety and depression levels of the individuals affects the "intention to go to the hospital" linearly at a very small level.

In order to prevent acute health problems and chronic patients from being harmed, individuals should be provided to benefit from health services when needed. Otherwise, while trying to be protected from COVID-19, it will be possible to suffer from postponed health problems. Disrupting the control and treatment of chronic patients will cause their disease to progress. Individuals and the health system will bear serious health risks. When tackling COVID-19, other health problems and patients should not be forgotten.

The COVID-19 pandemic must be assessed holistically with other health problems and the power of the health system. For this, pandemic hospitals should be determined, announced to the public, and pandemic patients should be looked after in these determined centers, taking into account the number of hospitals in residential areas and their bed conditions. Uninterrupted service of other hospitals and health facilities to other patient groups should be protected. In addition, practices should be made to reduce the social stress associated with the pandemic in order to control the level of anxiety and depression in individuals.

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Review Article

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CORONAVIRUS COVID-19 (SARS-COV-2 INFECTION) PROTECTION METHODS

Çiğdem Müge HAYLI[1]
Senanur CAN[2]
Mehmet Zeki AVCI[3]

ABSTRACT

In this review, it is ready to prevent new coronavirus outbreaks and access to information, which is a very important public health problem, to identify vital preventive practices and effective approaches to alert the public about non-scientific measures presented with information. Avoiding using wrong information to prevent disease and to fight epidemic. Accordingly, it is necessary to obtain information from the Ministry of Health and health personnel. Disclosure should be avoided. Experts on the topic are the most accurate information that it is important to apply correct measures against the disease. It should be recalled.

Keywords: COVID-19, Coronavirus outbreak, prevention.

A R T I C L E I N F O

[1]Lecturer, Cyprus Science University, Faculty of Health Sciences, Department of Nursing Program, Kyrenia, TRNC, Koç University of Health Sciences, Institute of Child Health and Nursing PhD student Istanbul, Turkey. cigdemhayli@csu.edu.tr

Orcid Number: https://orcid.org/0000-0001-7630-9619

[2]Private Yesevi Vocational and Technical Anatolian High School, Eskişehir, Turkey. senanurc@hotmail.com

Orcid Number: https://orcid.org/0000-0001-7248-3812

[3]Cyprus Science University, Dean of Faculty of Health Sciences, Kyrenia, TRNC. mehmetavci@csu.edu.tr,

Orcid Number: https://orcid.org/0000-0001-6614-9447

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1. INTRODUCTION

Coronaviruses (Covid-19) are common in the community, such as the common cold. Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), It is a type of virus that causes serious problems (Rodrigo and et.al., 2016). SARS-CoV was previously the first international health emergency of the 21st century in 2003, previouslyemerged as an unknown virus, causing hundreds of people to die (Zhou and et.al., 2019). About 10 years later, from the Coronavirus family, previously in humans or animals. MERS-CoV, the existence of which has not been shown, is the first time in September 2012 in humans in Saudi Arabia defined; but then, in fact, the first cases in April 2012 in Jordan Zarqa. It turned out to be seen in the hospital (WHO, 2020).

On December 31, 2019, the World Health Organization (WHO) China Country Office, Wuhan, Hubei province of China reported cases of pneumonia of unknown etiology. Another factor on January 7, 2020. It was first described as a new Coronavirus (2019-nCoV) that has not been detected in humans. Later, the name of 2019-nCoV disease was accepted as COVID-19, the virus was transferred to SARS CoV. It is named as SARS-CoV-2 because of its close resemblance (Chan and et.al., 2003).

Coronaviruses are single-chain, positive-polar, enveloped RNA viruses. Positive polarity they do not contain RNA-dependent RNA polymerase enzymes because they encode the enzyme. They have rodlike extensions on their surfaces. These protrusions in Latin Based on the meaning of "corona", that is, "crown", these viruses are called Coronavirus (Figure 1).

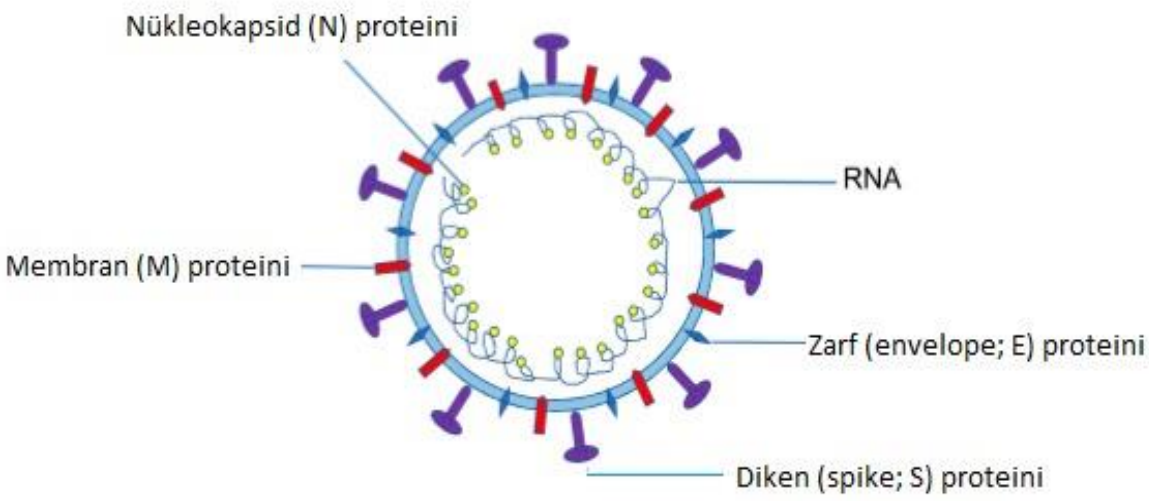

Figure1. Schematic structure of Coronavirus (Zhou et.al., 2019)

Disease spectrum caused by Coronavirus in humans is more acute than simple colds can vary up to respiratory syndrome. Various in humans and animals with respiratory, enteric, hepatic, nephrotic and neurological involvements can cause tables (WHO, 2020).

In this review, society is a very important public health problem; It is written for the purpose of defining coronavirus epidemic prevention and ways of protection.

2. EPIDEMIOLOGY

Pneumonia of unknown etiology on 31 December 2019 in Wuhan City, Hubei Province, China cases have been reported. Vuhan South China Seafood City Market, south of Vuhan (a whole sale fish and livestock market selling different animal species)

It is stated that in cases, fever, dyspnea and radiological bilateral lung pneumonic findings consistent with the infiltration were detected According to the COVID-19 report, death cases are generally advanced or associated systemic disease (hypertension, diabetes, cardiovascular disease, cancer, chronic lung diseases individuals with other immunosuppressive conditions (Young and et.al, 2020).

The first major case was reported on January 13, 2020, 61-year-old Chinese woman in Thailand. As the number of countries reporting importe cases increased steadily in the coming

days, February. At the end of the year, countries with domestic transmission started to emerge. As of the beginning of March 2020. While the pace of the epidemic slowed down in China, COVID-19 cases in Iran, the Republic of Korea (South Korea) and Italy and related deaths are increasing rapidly. The factor of the pneumonia cluster detected on December 31, 2019 is still on January 7, 2020 (Sağlık Bakanlığı, 2020).

It was first described as a new Coronavirus that has not been detected in humans. After this date the number of patients has increased rapidly, and illness has been observed in healthcare professionals. Disease from human spread rapidly due to its human contagion. The first COVID-19 case in our country was detected on March 11, 2020 (Backer and et.al., 2019).

3. SOURCE AND WAYS OF TRANSMISSION

It has not been clarified yet. The origin of COVID is still under investigation. Data available, Huanan Seafood Wholesale. It refers to wild animals sold illegally in the Sales Market. The disease is transmitted mainly through droplets. Also, coughing of sick individuals after contact with the hands of other people to the droplets that they emerge through sneezing. It is transmitted by bringing hands to the mouth, nose, or eye mucosa and touching it. Viruses can be detected in respiratory secretions of asymptomatic individuals, but the main transmission is from sick individuals (WHO, 2020).

When the epidemiological characteristics of the cases in China are examined, the average incubation period of 5-6 days. In some cases where it is 6 days (2-14 days), it has been observed that it may extend up to 14 days. The infectious time of COVID-19 is not exactly known. 1-2 from the symptomatic period it is thought that it started the day before and ended with the disappearance of the symptoms (WHO, 2019).

Coronaviruses are generally viruses that are not very resistant to the external environment. Ambient humidity and temperature, the amount of organic matter that it is expelled, the texture of the surface it contaminates (WHO, 2019). There is a life span depending on the factors.

Generally on inanimate surfaces. It is considered to lose its activity within a few hours. Activity on inanimate surfaces. While interpreting the duration, the duration of the contact is not only the continuity of the activity of the virus. It should also be remembered that it is important (Centers for Disease Control and Prevention, 2019).

4. PROTECTION METHODS

There is no vaccine yet developed against the virus. Most of prevention the important way is not to be exposed to the virus (Halk Sağlığı Genel Müdürlüğü, 2020). According to available evidence, the COVID-19 (SARS-cov-2 Infectıon) virus is human. It is transmitted by droplet and contact· Effective methods of transmission routes hands are often washed with soap and water for at least 20 seconds (WHO, 2020). Hand wash hand very effective in killing viruses that are likely to exist (Centers for Disease Control and Prevention, 2020).

Especially in public areas washing hands is very important when found or in contact with other people. Water and use of hand disinfectants containing at least 60% alcohol in cases where soap is not available recommended (Uptodate patient Education, 2020). Hands can easily mediate the transport of the virus. Like face, eyes, mouth contact with organs can cause the virus to enter the body and develop the disease. Coughs, closing the mouth with a handkerchief while sneezing and throwing the handkerchief in the trash, in cases where there is no handkerchief It is necessary to close it with the inside of the elbow (WHO, 2020).

It is important to make them close and avoid close contacts in the society (Halk Sağlığı Genel Müdürlüğü, 2020). Possible crowded areas should be avoided and should not be traveled unlessnecessary (Uptodate patient Education, 2020). One another effective measure is the regular cleaning and disinfection of frequently contacted surfaces. It is unsubstituted. In areas where contact is very frequent, such as tables, door handles, lighting buttonscare should be taken to clean. Bleached water can be used for cleaning. If alcoholic solutions are used, it should be ensured that they contain at least 70% alcohol (Halk Sağlığı Genel Müdürlüğü, 2020).

Environment attention should be paid to cleanliness, transportation means should be frequently ventilated, common surfaces must be disinfected (WHO, 2020).

Especially people traveling from countries where the disease is located for 14 days. If they stay in their homes and have symptoms, they may contact the nearest health institution with a mask their application is of great importance (WHO, 2020). Patients, especially with other people or wearing a medical mask when going to a health facility[18]. Wearing a mask of the virus. Although it may limit its spread, it is not an effective method when used alone (WHO, 2020). Hand must be combined with hygiene and other measures.If there is an individual with COVID-19 at home the patient's being in a separate room from other residents, wearing a medical mask and cleaning rules care is recommended. Patients' laundry at 60-90 degrees in a separate machine wash. Also, no disinfection is required. Medical masks single is used and needs to be replaced as soon as it is moistened (Halk Sağlığı Uzmanları Derneği, 2020).

Effective protection methods for health workers to ensure control at the source. To create an isolation environment for patients diagnosed or suspicious at the beginning and people entering this environment the number comes to restrict (Halk Sağlığı Genel Müdürlüğü, 2020). Medical mask when healthcare workers enter patient rooms must use. The use of N95 mask is tracheal aspiration, which leads to aerosol formation. It is necessary during procedures such as bronchoscopy (Halk Sağlığı Genel Müdürlüğü, 2020).

Wearing gloves in public areas is not an adequate measure. Your hands regularly washing is much more effective. Contact of the hands with the face during the use of gloves can cause. With the use of gloves, the perception of hygiene in the person increases the risky behaviors may cause. Regular washing of the nose with salt water or the use of vinegar is there is no evidence that it protects (WHO, 2020). Garlic may have some antimicrobial properties and it is a healthy food. However, eating garlic from the current outbreak protects people. There is no

evidence. Eating raw or undercooked products should be avoided (Sun and et.al., 2020; Centers for Disease Control and Prevention, 2019).

Head there is no scientific evidence for foods thought to strengthen immunity, such as trotting soup. There is no need for nutritional supplements or vitamin supplements to strengthen the immune system. The most effective methods are balanced nutrition, physical exercise and healthy sleep patterns. Enough rest is one of the effective measures recommended in disease prevention (Halk Sağlığı Genel Müdürlüğü, 2020).

Hydroxychloroquine used in the treatment of malaria in viral load of patients in COVID-19 There are studies showing that it reduces the inclusion of patients' treatment algorithms began. However, no evidence of the benefits of prophylactic use of this drug. Therefore, the drug is used before the disease without the advice of a physician not suitable (Türk Klinik Mikrobiyoloji ve Hastalıkları Derneği, 2020).

5. CONCLUSIONS

It is very important to stay away from false information in preventing disease and combating epidemic.Out of panic environment due to missing information and evidence-based approaches orsSpeculative suggestions made to provide are far from scientific and such explanations in society it causes more harm than good. Accordingly, people who are not experts in the subject making unreliable statements should be avoided. The most accurate information on the subject It should be borne in mind that it will be given by competent experts in its field. Against disease that the precautions to be taken are simple and clear, it is important to apply the correct measures. It should be noted that.

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