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Research Article
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WHAT DO NURSES WORKING IN PRIMARY HEALTH CARE SERVICES KNOW ABOUT MEDICAL WASTE MANAGEMENT?

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Abstract: With the increase in population, the need for health services also uprises the production of medical waste. Nurses have important responsibilities in the management of medical waste with great risks for human and environmental health. The search was conducted as a descriptive study in order to evaluate the know ledge level of nurses working in primary health care units about medical waste. The research was conducted with nurses (N=80) working in primary health care units in a province in Türkiye/Central Anatolia Region, between January 5 and February 5, 2020, actively working, not on leave/report and volunteering to participate in the search (n=75). The data of the study were collected with the "Medical Waste Information Level Determination Form". The form consisted of three parts, including socio-demographic characteristics, separation of waste types, and knowledge level of medical waste use, and 49 questions. In the results of the study, the mean score of nurses' knowledge of sorting waste types was 9.9±2.7 (min: 3, max:15 points), while the mean of medical waste use knowledge score was 19.2±2.7 (min:10, max:23 points).In order to meet the knowledge need of nurses, it should be ensured that the level of knowledge is determined, the practices in the field are supervised and developed, and in-service trainings should be provided within this scope.

Keywords: Medical waste, Nursing, Primary health care, Knowledge

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1. Introduction

Human health and the environment are faced with many threats with the innovations that have emerged with the increasing number of population and developing technology worldwide. In particular, the demand for health services has increased with the population, and the management of waste products has also become an important problem (Windfeld and Brooks, 2015). The word "waste" means substances that are used in places such as hospitals, homes, factories, that emerge at all stages from production to consumption and are no longer useful to the user (Turkish Language Association, 2023). According to the World Health Organization, "Medical waste", on the other hand, refers to body fluids and secretions, including blood and blood products, and all kinds of waste, tissue and organ parts contaminated with them (WHO, 2015). On the authority of the data of European Union countries, the average daily amount of medical waste per person is 2.82 kg (Cerrahoğlu and Kılıçaslan, 2019). As stated by the "Medical Waste Control Regulation" published in the Official Gazette dated 25.01.2017 and numbered 29959, wastes originating from health institutions are classified as domestic waste, hazardous waste, radioactive waste and medical waste. Infectious, pathological and penetrating wastes are included in the scope of medical waste (Medical Waste Control Regulation, 2017).

Primary health care services are at the center of the health care system (Ayhan Başer et al., 2015). Effective delivery of primary health care services not only reduces the disease burden of the society, but also enables our secondary and tertiary treatment institutions to provide better and higher quality health services and health education. Various types of waste occur in these institutions, which form the basis of health services (Matos et al., 2018). Institutions in Primary Health Care Services are classified as health institutions that produce moderate amount of waste with medical wastes from these types of waste (Medical Waste Control Regulation, 2005). In these institutions that provide continuous service, medical waste management is of great importance in terms of the sustainability of the service.

Waste generated during health care activities is much more important than any other type of waste. Because medical wastes carry a high risk of infection and injury. If medical wastes are not managed well, they show permanent properties in water and soil and disrupt the ecological balance (Bariya et al., 2017). Incorrect

practices in the on-site separation of medical wastes affect the country's economy negatively (Verma et al., 2008). For this reason, it is necessary that all personnel working in health institutions have received the necessary training in this regard. Nurses, who are in direct contact with the patient, assume primary roles in treatment and care practices, and make up the majority of health professionals working in health care centers, have important duties (Mir et al., 2013; Matos et al., 2018; Sürme and Maraş, 2022).

For nurses, improper separation of medical wastes may result in infectious diseases or occupational accidents (Pandit et al., 2005). Increasing the level of knowledge about medical waste, which has serious risks, is important in terms of environmental health, public health, prevention of nosocomial infections, providing a safe working environment, preventing stab wounds, ensuring appropriate recycling and successful management of medical waste. Therefore, nurses need to update their knowledge and skills in managing medical waste over time (Jadhav et al., 2015; Gayathri and Kumaravel, 2018; Toluk et al., 2021). The reason why this study was conducted is to determine the knowledge level of nurses working in Primary Health Care Units about medical waste.

1.1. Research Questions

What is the knowledge level of nurses working in primary health care units about medical waste?

Do the sociodemographic characteristics of nurses working in primary health care units affect their level of knowledge about medical waste?

2. Materials and Methods

2.1. Purpose and Type of Research

The research was carried out as a descriptive study in order to determine the knowledge level of nurses working in primary health care units in a province in Türkiye/Central Anatolia Region about medical waste.

2.2. Research Population and Sample

The study population of the research consisted of nurses (N=80) working in the Primary Health Care Units in a province located in Türkiye/Central Anatolia Region between January 5 and February 5, 2020 (The population number in the study was obtained from the Provincial Health Directorate Public Health Services Unit). The sample of the study consisted of 75 nurses who were active on the specified dates, were not on leave/reported and volunteered to participate in the research. (Response rate 93.75%)

2.3. Data Collection Tools

In the study, the data were collected with the "Medical Waste Information Level Determination Form" prepared by the researchers, using the relevant literature (Doğan and Göktaş, 2017; Medical Waste Control Regulation, 2017; Turan et al., 2019; Ulutaşdemir et al., 2020). In the research, the items in the measurement tool were presented to the opinion of 8 experts who were thought to have knowledge of the scope of the research. Experts were asked to evaluate the results in line with the Laswhe technique to calculate the content validity index. In line with the suggestions from experts, the content validity rate was found to be above 0.78 and necessary adjustments were made. The form consists of three parts. In the first part, there are nine socio-demographic questions about the age, gender, educational status, working year, unit of work, knowledge of the waste regulation and the problems experienced by the nurses regarding medical waste. In the second part, 15 items of waste materials were listed and they were asked to mark the correct one among the "red bag", "cutting tool box", "black bag" and "blue bag" options used to separate these materials. In the third part, the knowledge level of nurses about the use of medical waste was evaluated with 25 propositions. Nurses were asked to tick one of the options "true", "false" and "I don't know" for each proposition. In the whole form, each correct answer was scored as "1", each wrong, I don't know and blank answer was scored as "0"; the highest score that can be obtained from the second part is 15, the lowest score is 0; The highest score that can be obtained from the third section was determined as 25 and the lowest score as 0.

2.4. Application of Data Collection Tools

In order to evaluate the comprehensibility of the data collection tool, a pre-application was made with eight nurses on January 4, 2020, and since there was no change in the form after the pre-application, these nurses were included in the sample. The form was applied by the researchers by face-to-face interview method in the unit where the nurses work. It took approximately eight minutes to fill out the form.

2.5. Data Analysis

While evaluating the findings obtained in the study, IBM SPSS Statistics 22.0 (IBM SPSS, Türkiye) program was used for statistical analysis. Data were summarized as number, percentage, mean and standard deviation. Shapiro-Wilk test was performed for the normal distribution, and kurtosis and skewness were evaluated. In the comparison of the groups, t test and one-way ANOVA were used in independent groups. Tukey test was used to evaluate the different group. The predictors of correct answer numbers were evaluated by multiple regression analysis Enter model. The assumptions for this model were revised and the categorical variables were recorded as 0 and 1.

3. Results

Of the nurses participating in the study, 86.7% were women and 34.7% had a bachelor's degree. While the rate of employees working in primary health care services for 1-5 years is 45.3%, 53.3% of them have 11 years or more working years in nursing, and 60.0% work in a family health center. While 45.3% of the participants are aware of the regulation on the control of medical waste, 41.3% of them partially know this regulation. The rate of those who have problems in the disposal of medical wastes is 12.0%, and those who have partial

problems are 17.3%. Lack of information and inability to reach the medical waste bag quickly are cited as the source of the problem.

When the sorting of waste types is evaluated, the three highest correct answers of the participants about the type of medical waste bag to be disposed of are “scalpel, suture needle” (90.7%), “tools and materials that have come into contact with the blood and secretions of the patient” (86.7%), “papers contaminated with the patient's blood” (84.6%). The lowest three correct answers were related to “doctor and nurse office waste” (42.7%), “uncontaminated serum bottles” (53.3%) and “finished hand disinfectant boxes” (53.3%). The mean score of the answers given by the participants to the level of knowledge of sorting waste types is 9.9±2.7(min:3-max:15) (Table 1).

Table 2 shows the correct answer rate for each question. The questions with the lowest percentage of correct answers respectively were “the thickness of the medical waste bag should be 150 microns” (4.0%), “all expired drugs should be thrown into the medical waste box” (16.0%) and “the mouth of the sharps and piercing tool boxes should be closed and placed in plastic bags colored blue” (24%). A significant part of the group accepted these false statements as true and gave a false answer. The mean score of the answers given by the participants to the level of knowledge of medical waste use is 19.2±2.7 (min: 10-max: 23) (Table 2).

When the relationship between the level of knowledge of waste types separation and the mean score of socio-demographic characteristics is evaluated, there is no significant difference in terms of gender, working years as a nurse, working unit, having knowledge about the regulation of medical waste control and having problems in the disposal of medical wastes. (P>0.05).The mean number of correct answers of the nurses who graduated from Health Vocational High School was lower than those of associate and undergraduate degrees, and the mean of correct answers of the nurses with 5 years or less working years in primary care was higher than the nurses with longer working hours (P<0.05). There was no significant difference between the mean medical waste use knowledge score and sociodemographic characteristics (P>0.05) (Table 3).

Table 1. Distribution of nurses’ responses to statements regarding sorting waste materials

Statements	True		False/ I don't know	
	n	%	n	%
Scalpel, suture needle**	68	90.7	7	9.3
Tools and materials that have come into contact with the blood and secretions of the patient*	65	86.7	10	13.3
Papers contaminated with the patient's blood*	63	84.0	12	16.0
Food waste***	60	80.0	15	20.0
Abeslang in contact with the patient*	58	77.3	17	22.7
Intravenous solution, intracath and syringe needles**	58	77.3	17	22.7
Broken bulb tips**	51	68.0	24	32.0
Pet water bottle****	49	65.3	26	34.7
Metal beverage cans****	48	64.0	27	36.0
Packaging of disposable materials used****	44	58.7	31	41.3
Paper coffee cup****	42	56.0	33	44.0
Uncontaminated serum bottles****	40	53.3	35	46.7
Finished hand disinfectant boxes****	40	53.3	35	46.7
Uncontaminated glass hollow syrup bottles****	35	46.7	40	53.3
Doctor and nurse office waste****	32	42.7	43	57.3
Mean values of the responses	Mean(SD) 9.9(2.7)		(Min-Max) (3-15)	

Wastes marked with(*) should be thrown in to red bags, xastes marked with(**) should be thrown in to sharp object boxes, wastes marked with(***) should be thrown in to black bags, wastes marked with(****) should be thrown in to blue bags, SD= standard deviation.

Table 2. Distribution of nurses' responses to statements regarding using medical waste

Statements	True		False/ I don't know	
	n	%	n	%
All wastes that have come into contact with the blood and secretions of the patients are medical wastes.	74	98.7	1	1.3
The following statement should be present on medical waste bags: "Warning Medical Waste"	72	96.0	3	4.0
Medical waste bags should not be full.*	70	93.3	5	6.7
Wastes that have been thrown into a waste bag should never be taken out again.	70	93.3	5	6.7
Medical wastes can also be carried by hand without a container.*	69	92.0	6	8.0
Sharp objects that are not thrown in a suitable bag pose risk.	69	92.0	6	8.0
Medical wastes and domestic wastes are not carried together with the same vehicle.	68	90.7	7	9.3
Sorting waste with bare hands poses risk.	68	90.7	7	9.3
The carrier of medical waste should wear orange colored long sleeved overalls.	67	89.3	8	10.7
The carrier of medical waste should have an education about medical wastes.	67	89.3	8	10.7
Medical waste bag should be compressed from the top in order to have more waste.*	66	88.0	9	12.0
Sponge that is used for medical dressing is disposed in a domestic waste after the prosedure.*	64	85.3	11	14.7
The carrier of medical waste should use bonnet, mask, gloves, kneepads and boots as protective equipment.	64	85.3	11	14.7
Lids of the medical waste containers should be open.*	63	84.0	12	16.0
It is not mandatory that medical waste bags have "International Biohazard" symbol on them.*	63	84.0	12	16.0
Medical waste bags should be renewed everytime when wastes are collected.	63	84.0	12	16.0
Only nurses working at the unit have the responsibility of medical wastes in primary healthcare services.*	61	81.3	14	18.7
Sharp object boxes should be filled to a maximum level of ¾.	58	77.3	17	22.7
Injector packages are also medical waste together with the injector.*	54	72.0	21	28.0
Disposing needles with caps closed after using the injector poses risk.	53	24.0	22	29.3
Primary healthcare services generate moderate amount of waste.	41	54.7	34	45.3
Injector should be thrown into the sharp object box together with the needle after using.*	27	36.0	48	64.0
The sharps should be placed in blue plastic bags after they are filled.*	18	24.0	57	76.0
All expired medicines should be thrown into the medical waste box.*	12	16.0	63	84.0
The thickness of the medical waste bag should be 150 microns.*	3	4.0	72	96.0
Mean values of the responses	Mean(SD) 19.2(2.7)		(Min-Max) (10-23)	

Statement smarked with (*) indicate wrong statements, SD= standard deviation.

Table 3. Distribution of nurses' knowledge levels regarding sorting waste materials and using medical waste according to socio-demographic features

	Knowledge Level Regarding Sorting Waste Materials		Knowledge Level Regarding Using Medical Waste	
	Mean (SD)	Test and P value	Mean (SD)	Test and P value
Gender				
Female	9.98(2.6)	t=0.090	19.42(2.5)	t=1.637
Male	9.90(3.4)	P=0.928	17.90(3.6)	P=0.106
Education status				
Health vocational high school	8.91(2.9)		18.91(2.6)	
Associate degree	10.91(2.6)	t=3.372	18.68(3.4)	t=1.404
Bachelor's /Postgraduate degree	10.10(2.3)	P=0.040	19.89(2.1)	P=0.252

Table 3. Distribution of nurses' knowledge levels regarding sorting waste materials and using medical waste according to socio-demographic features (continue)

	Knowledge Level Regarding Sorting Waste Materials		Knowledge Level Regarding Using Medical Waste	
	Mean (SD)	Test and P value	Mean (SD)	Test and P value
Clinical experience (in years)				
≤ 5	11.00(2.4)	t=6.942	19.20(2.7)	t=0.003
6-10	9.26(2.6)	P=0.002	19.26(2.4)	P=0.997
≥ 11	8.57(2.6)		19.20(3.1)	
Nursingexperience (in years)				
≤ 5	10.63(2.8)	t=0.968	19.86(1.6)	t=2.517
6-10	9.92(2.4)	P=0.385	17.76(3.3)	P=0.088
≥ 11	9.62(2.7)		19.33(2.9)	
Department				
Family health center	9.66(2.8)	t=-1.190	19.45(2.1)	t=0.896
Other*	10.43(2.5)	P=0.238	18.86(3.5)	P=0.373
Knowledge about "Directive on MedicalWaste Control"				
Yes	10.23(3.2)	t=0.752	19.11(2.9)	t=-0.281
Partly/No	9.75(2.2)	P=0.455	19.30(2.6)	P=0.780
Havingtroublesaboutdisposingmedicalwaste				
Partly /Yes	10.63(3.1)	t=1.357	18.63(3.2)	t=-1.176
No	9.69(2.5)	P=0.179	19.46(2.5)	P=0.243

* Public health laboratories, Emergency health services stations, Home care units, SD= standard deviation.

4. Discussion

Medical wastes interact directly or indirectly with the environment and people from the moment they are produced. Medical wastes that are not collected and disposed of in accordance with the rules can become a problem that negatively affects the environment and human health (Çalıs and Arkan, 2014). It is important to determine the awareness of nurses, who are among the primary health care providers that form the basis of the health system of the countries.

In our study, the rate of those who had problems with the disposal of medical wastes was 12.0%, while those who had problems partially were 17.3%. The majority of the nurses stated that the source of the problem was the lack of knowledge and the inability to reach the medical waste bag quickly. In the study titled medical waste management by Yazgan et al. (2014) indicated that the lack of information and workload at the highest rates are seen as the reasons for the problems in medical waste. In line with the similar results we have seen in the studies, it is thought that the problems experienced are that the unit-oriented and practical waste management training is insufficient and the locations where the waste bins are located in the units are not updated.

In our study, the mean score of knowledge level of nurses in sorting waste types was 9.9±2.7 out of 15 points. In the study conducted by Doğan and Göktaş (2017) on nursing students, the mean knowledge level was found to be 7.22±1.86 out of 10 points, similar to our study. In the study carried out by Saharma et al. (2020) with medical, dental and nursing students, the correct answer rate of nurses to questions about the sorting of medical waste types was 39%.Studies on this subject in the literature show that the level of knowledge of health personnel about medical waste has increased after training (Kwakye et al., 2011; Sharma et al., 2020).

When the medical waste knowledge level of the participants in our study was evaluated, the three highest correct answers to which type of medical waste bag to dispose of the existing waste were respectively "scalpel, suture needle" (90.7%), "tools and materials that came into contact with the blood and secretions of the patient" (86.7%), "papers contaminated with the patient's blood" (84.6%). The lowest three correct answers were related to "doctor and nurse office waste" (42.7%), "uncontaminated serum bottles" (53.3%) and "finished hand disinfectant boxes" (53.3%). As can be seen from the results of our research, it was determined that while nurses' correct response rates for medical and sharps wastes in sorting waste types were high, the correct response rates for packaging waste were low. In the study conducted by Çalıkoğlu and Aras (2019) with 467 nurses, they determined that the participants (76.0%) had less knowledge about which type of medical bag the packaging wastes should be put into. In another study conducted by Malini and Eshwar (2015) with healthcare professionals, it was determined that 50% of the participants had insufficient knowledge about the sorting of hospital wastes according to colors. In terms of the management of sharps waste, it was determined in the study of Azuike et al. (2015) that 72% of healthcare workers apply separation into yellow plastic waste bins of sharps. All these studies are similar to our studies. These results we obtained may suggest that routine and frequently performed applications in primary health care services increase the correct response rates, and there

are deficiencies in the separation of wastes in less applied practices.

In our study, the mean score of nurses' medical waste use knowledge level was found to be 19.2±2.7 over 25 points. In the study conducted by Saharma et al. (2020) on healthcare workers, it was found that the level of knowledge about medical waste was low in 62.33% of nurses (12 points out of 28 points and below were considered low).

While 45.3% of the participants in our study stated that they had knowledge about the regulation on the control of medical waste, the questions with the lowest percentage of correct answers to the statements about the use of medical waste were "the thickness of the medical waste bag should be 150 microns" (4.0%), "all expired medicines should be thrown into the medical waste box" (16.0%) and "the sharps should be placed in blue plastic bags after they are filled" (24%). However, the correct information about these three statements is contained in the Regulation on Control of Medical Wastes (Medical Waste Control Regulation, 2017). In the study of Turan et al. (2019) on nursing students, the rate of knowing the points to be considered in the collection of cutting waste separately from the source was 55.3%.As similar to our study, the study of Moreira and Günther (2016) on the evaluation of waste management in primary health care services stated that the doubts experienced by nurses about where to dispose of expired medicines were high, and information brochures and warning cards were suggested for this. Medicines, vaccines and serums that have expired or are no longer used, their packaging is damaged, spilled and contaminated are classified as pharmaceutical waste (Medical Waste Control Regulation, 2017).

While the rate of knowing the necessity of having an international biohazard emblem on medical waste bags was 84% in the present study, it was found to be 85.4% in the study conducted by Uzunlulu et al. (2022) with healthcare professionals, and 68% in the study conducted by Saharma et al. (2020) with nurses, both of which had similar reports to the present study. In their study, Turan et al. (2019) reported that the rate of knowing the international biohazard emblem by nursing students was lower (54.1%). We think that this may be due to the fact that working nurses do more medical practice than students and that their awareness increases at the same time.

It was found that while nurses who graduated from Health Vocational High School have a lower knowledge level of separating waste types compared to associate and undergraduate graduates, the mean score of knowledge level of separating waste types of nurses with a working year of 5 years or less in their institution is higher than the nurses with longer working hours. Both theoretical and practical training received during associate and undergraduate education can be regarded as an important factor in the high number of correct answers. It is thought that why their correct numbers are high is because nurses who have worked in the institution for the last 5 years or less are in the group with undergraduate and graduate education, have just graduated, and receive orientation training when they are new to the institution.

5. Conclusion

It has been observed that the level of knowledge of nurses working in primary health care services about the separation and use of medical wastes is insufficient. It has been determined that there is incomplete and incorrect information about the Medical Waste Control Regulation and the separation of medical wastes. It is very important for both human and environmental health to support the subject with in-service trainings within the institution and to ensure the continuity of education, and to provide practical training as well as theoretical knowledge. In the in-service trainings, it is thought that it will be beneficial to support education with innovative learning approaches used together with developing technology, to distribute information brochures and to hang reminder posters on the walls of the institution. We expect nursing students to gain awareness about medical waste and its management when they start their professional lives and to reflect this in their practices. Therefore, in order to develop knowledge, attitudes and behaviors, it is recommended to include these subjects more in nursing curricula and to allocate sufficient financial resources for medical waste management.

Limitations

The research is limited to nurses working in Primary Health Care Units in a province in Türkiye/Central Anatolia Region and the results can be generalized to these nurses. For this reason, it is recommended to repeat the study with different sample groups.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	G.G.	E.P.K.	N.Ü.D.
C	40	30	30
D	40	30	30
S	40	30	30
DCP	50	50	
DAI	40	30	30
L	40	30	30
W	40	30	30
CR	40	30	30
SR	40	30	30

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Approval/Informed Consent

In order to conduct the study, written permission was obtained from the Non-Interventional Clinical Ethics Committee of Kırıkkale University (Date: 04.09.2019 Number: 14) and the Provincial Health Directorate (46743357-799), and informed consent was obtained from the patients who agreed to participate in the study. The research was conducted in accordance with the Principles of the Declaration of Helsinki.

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LIVED EXPERIENCES, EMOTIONAL AND PSYCHOLOGICAL NEEDS OF COVID-19 EMERGENCY SERVICE NURSES: A QUALITATIVE STUDY

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Abstract: Nurses, who play an important role during the COVID-19 pandemic, are exposed to emotional and psychological stress due to unforeseen risks. The aim of this study was to investigate the experiences of nurses who are at the forefront in the emergency department, where COVID-19 suspected cases are first encountered, and to analyze their emotional and psychological needs in the light of Alderfer's Existence-Relationship-Growth theory. Data were collected from 20 May to 15 June 2020 in Muğla, Türkiye. 10 nurses working in the COVID-19 emergency department constituted the study sample. The descriptive phenomenological study was planned according to the qualitative research paradigm, based on the Consolidated Qualitative Research Reporting Criteria checklist. The interviews were conducted face-to-face and analyzed using Colaizzi's seven-step method. As a result of the analysis of the data, when the psychological needs of clinical nurses were evaluated in terms of Existence-Relatedness-Growth theory, it was determined that their health and safety needs were priority and they needed respect and understanding in their relationships. The life experiences of nurses working in the emergency room, under two main themes as "patient care process experiences" and "feelings", and their emotional and psychological needs under three themes as "need to exist", "need to establish relationship" and "need to develop" gathered under. During the COVID-19 pandemic, it was determined that the existence, relationship, and growth needs of emergency nurses were affected by each other.

Keywords: Covid-19, Nurse, Emotional needs, Psychological needs, ERG theory

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1. Introduction

The emergence of a new form of coronavirus (SARS-CoV-2) in Wuhan in December 2019 became a mixed and rapidly developing global public health problem as of March 9, 2020, with the report of COVID-19 cases spreading around the world (Gao et al., 2020; Huang et al., 2020; Li et al., 2020; WHO, 2020; Zhu et al., 2020). COVID-19, declared a pandemic by the World Health Organization (WHO), is a highly contagious disease that also affects Türkiye (Tekin and Görgülü, 2018). Clinical nurses battling COVID-19 work under intense stress and depend on current information to protect their health, safety and interpersonal relationships (Jiang et al., 2020; The State Council of China, 2020). On the basis of Maslow's hierarchy of needs, Alderfer suggested the Existence-Relatedness-Growth (ERG) theory of human needs (Yin and Zeng, 2020). In this context, Alderfer's theory is based on Maslow's Human Needs Hierarchy and reduces Maslow's five-step pyramid of needs to three (Caulton, 2012). People have three basic needs, according to this theory: the need for existence, relatedness, growth, and development (Erdogan et al., 2015).

This approach is Clayton Alderfer's motivational approach in which Maslow adapts the physiological needs, the need for security, belonging-love, status-dignity, and self-realization in Maslow's hierarchy of needs to people working in business life. According to the ERG theory, the needs of an employee are addressed in three basic categories (Tekin and Görgülü, 2018). These:

Existence needs are the needs that are directed to the physical needs that are located at the lowest level. Physiological it covers the needs and protection and security requirements. An employee can meet these requirements with the remuneration he receives, the opportunities provided by the institution where he works, a free working environment, occupational health, and safety.

Relationship needs corresponds to the needs for love and

belonging contained in Maslow's hierarchy of needs. In other words, the need for a relationship covers the individual's relationships with other people, satisfaction that will satisfy the needs for emotional support, respect, recognition and belonging. These requirements can be met with colleagues and social relationships in the work environment, and with friends and family outside of work.

Development needs correspond to the need for self-realization contained in Maslow's hierarchy of needs theory. Development needs also include requirements such as success and responsibility for the advancement of individuals (Tekin and Görgülü, 2018; Wang et al., 2021).

ERG theory appears to have a more flexible structure than Maslow's hierarchy of needs, where family structure and individual action are important variables such as education, environment, and culture. It is important to know the situations of individuals/groups who encounter a particular disease or event, their reactions to these events, and the belief, attitude, behavior, motivation, and emotional aspect behind what happened (Erdogan et al., 2015).

This study aims at investigating the life experiences of nurses who are at the forefront of the emergency department, where suspected cases are first met in the extraordinary COVID-19 pandemic, and at analyzing their emotional and psychological needs in the light of the Existence-Relatedness-Growth theory. Research questions are presented below;

- What are the emotional and psychological requirements of Covid-19 emergency nurses?
- What are the factors affecting the emotional and psychological requirements of Covid-19 emergency nurses?

2. Materials and Methods

The authors adopted the Consolidated Criteria for Reporting Qualitative Research in this review (Tong et al., 2007).

Individuals' everyday life experiences, as well as the meanings of these experiences as perceived by those who live them, are defined in descriptive phenomenology (Husserl, 1961). A descriptive phenomenological methodology was used to capture of the meaning of the lived experiences of nurses in COVID-19 emergency service. This method was chosen because it offers first-hand information about a phenomenon, such as the expertise and perspective of medical professionals on a phenomenon or event that is less well known (Sandelowski, 2010).

2.1. Research Place

This research was conducted in a Training and Research Hospital in the Aegean region of Türkiye between 20 May-15 June 2020. A COVID-19 emergency room was created in this hospital, which only accepts COVID-19 patients during the pandemic and employs 20 nurses. The COVID-19 emergency room has a separate entrance from other emergency services. Nurses work in 24-hour shifts, with 5 nurses per shift.

2.2. Research Sample

COVID-19 emergency that cared for COVID-19 patients made up the study's sample. The most critical determinant in the descriptive phenomenological pattern of choosing research groups is that the selected participants must have personally observed the phenomenon under investigation in all its aspects (Kackin et al., 2021). Nurses had to be over the age of 18 and operate in the COVID-19 emergency department to be included in this report. A purposive sampling method was used to determine the study sample. Data saturation in qualitative research was considered when deciding the number of nurses for the study, and data saturation was reached with 10 nurses (n=10).

2.3. Data Collection Tools

The data was obtained using a Questionnaire form based on the literature. The form consists of two parts. The first part contains nine questions regarding the participants' age, gender, marital status, number of children, educational status, years in the profession, how long they have worked in the emergency department, the way they work, and whether they have received any training on COVID-19. In the second part, the "Semi-structured interview form" consisting of seven questions was used to determine the views and practices of nurses regarding their life experiences, and emotional and psychological needs for working in the COVID-19 emergency service.

2.4. Semi-Structured Interview Form

a) Could you tell us about your experiences with the care of patients you admitted with suspicion of COVID-19?

b) How do you feel when caring for patients you have admitted with suspicion of COVID-19?

c) What do you need the most during this period when we are fighting the COVID-19 pandemic?

d) What are you doing individually to protect yourself from COVID-19 disease?

e) How has the COVID-19 pandemic affected your relationships with your family, social relationship with colleagues?

f) What do you know about COVID-19 disease and the new coronavirus?

g) What are your expectations from your superiors, colleagues, family, and society during the fight against the COVID-19 pandemic?

2.5. Data Collection Process

The data was collected with the face-to-face interview technique. Before beginning the data collection process, a pilot interview was performed with three nurses working in the COVID-19 emergency department. The nurses included in the pilot interviews were not included in the study sample. With this pre-application, the

necessary corrections were made by ensuring the comprehensibility of the questions. Verbal and written consent of the participants was obtained and afterwards, an in-depth interview was carried out and recorded. There were variances in the duration of the interviews due to differences in experiences and personal characteristics yet, the interviews lasted around 15 minutes (min: 11minutes; max: 23 minutes). Care was taken to maintain the planned duration of the semi-structured interview, until the data saturation was achieved. During the interviews, some explanations were made on the points where the participants were limited in answering the questions or where they misunderstood the questions. The nurses' break room was used to conduct the interviews in a quiet and comfortable environment. Protective equipment, masks and visors were used, and social distance was observed during the interview.

2.6. Information on the Validity and Reliability of the Study

Prolonged involvement is the best way to build credibility in a qualitative study. The researcher who interviewed the participants works in the unit where the research was conducted. For this reason, due to the mutual trust required in obtaining correct information, accurate and complete information has been received. Member checking was obtained by asking the participants whether the findings that emerged after the themes created reflected their own thoughts. After the interpretation of the results, a peer debriefing was made by the researcher, who was an expert from the study team. Researcher triangulation was used to ensure dependability in qualitative studies. There are multiple researchers involved in the analysis, and interpretation of data. In terms of transferability, the researchers made a thorough effort to include the current study setting and the perspectives of the participants.

2.7. Statistical Analysis

Transcription was done on the voice recordings obtained from the interviews. Then, the consistency between the voice recordings and the transcripts was checked. The data was then coded by the researchers. Following the independent coding of the first three transcripts, a meeting was held to reach a consensus on the coding, and themes were extracted from the results. The data was analyzed using the MAXQDA 20.0 statistical software package and the Colaizzi (1978) phenomenological analysis steps (Colaizzi, 1978).

The following steps were followed in this process:

- The transcripts were read in detail several times and some brief notes were kept to grasp and clarify the intended meanings, experienced feelings, and the needs attributed to a theme.
- Important statements directly associated with a theme were selected.
- These important statements were checked and statements including similar meanings were formulated.
- These meanings were arranged according to categories, themes, and subthemes.
- The results were integrated into rich and extensive life experiences.
- The basic conceptual structure of the phenomenon in question was then defined.
- Another meeting was held with the participants and the results were finalized; their experiences and needs were carefully compared with the observed results.

An expert and an experienced academic outside of the researchers of this study investigated the obtained themes and codes and they detected an overlap in the results.

This study reveals many overarching powers. The interviews were conducted face-to-face by the interviewer, who is also an emergency nurse, due to the protection precautions introduced within the framework of the pandemic. Pilot interviews were used to improve both the interview form and the interview process before the actual interviews.

3. Results

The results are presented in two sections. While the first section focuses on the nurses' personal and professional characteristics, the second section focuses on the themes that emerged from the data:

According to data analysis, the life experiences of COVID-19 emergency nurses were gathered under two main themes as "patient care experiences" and "feelings", and their emotional and psychological needs under the three main themes of "existence", "relatedness", and "growth". The categories, codes and sample quotations identified for each theme are presented in Table 1.

3.1. Findings on the Individual and Professional Characteristics of Nurses

The mean age of the 10 nurses that participated was 39.7 ± 7.52. Of the nurses, 7 were women, 8 were married and 4 had an associate degree. While 6 of the nurses had worked in the profession for 16 years or more, 5 had worked in the emergency department for 6-10 years. All the participating nurses had received training on COVID-19. All the nurses stated that they did not receive psychological support during this process and that there was no need for it.

Tablo 1. Themes, categories, codes and quotations identified in interviews with nurses

Theme	Subtheme	Codes	Quotations
Lived Experiences	Patient care experiences	Fulfilling the treatment request	N2: First, we check the patient's vitals. We first put on protective equipment. Then we send the patient to a lung tomography. ...Since the relatives of the patient are not present, we must meet his/her every need.
		Using protected equipment	N5: First, I help the patient to relax psychologically. I inform the patient about why he/she is here and how the process will continue. I provide protective equipment while paying attention to his/her privacy.
		Meeting the requirements of patients	N10: ...We do not let in the patient's relatives. We meet their every need. We deliver the patient to the clinic safely on a covered stretcher.
	Feelings	fear of infection, sadness, anxiety/worry, empathy	N4: I mostly feel both sadness and anxiety. I feel that I will get infected but I do not think it will come to that after wearing all the necessary protective equipment. I felt more anxious in the beginning because I did not know what we were battling against. Our anxiety decreased as we became more aware and our algorithms developed. But sadness is at the maximum level because nobody wants to get sick. I approach patients with empathy.
			N7: Of course, we get anxious when approaching the patient. Even though we take the necessary precautions we are afraid to get sick. I can imagine myself in the patient's place and feel empathy.
			N10: We are afraid and hesitant to approach the patient. But we do our job, nonetheless. The fear has decreased now in comparison to when it all started. I do not feel sad, I think I have lost my feelings.
	Existence	to protect health is a basic requirement	N7: "I want us fully equipped. The masks are not easy-to-use and comfortable. We need more equipment.";
			N8: "I observe personal hygiene. Before and after contact with the patient, I wash my hands with soap and water or clean them with a disinfectant. I wear a mask outside, and only go out when necessary";
			N5: "I first observe my own hygiene. I wash my hands often. I provide my own isolation at home."
Emotional and Psychological Needs (According to ERG Theory)			In addition, the nurses also stated that the use of protective equipment and meeting safety requirements can reduce the requirements for health needs.
			N5: "I need protective equipment the most. Because if I am safe, the patient will also be safe."
	Relatedness	community respect and understanding	N1: "We do not expect a lot of attention, because this is our duty and we have to do it but they can be understanding and respectful to us. I cannot hug or kiss my children. I believe I need to maintain my distance to be protected.; I cannot meet up with my friends. Outside they see us like COVID-19 patients. They are afraid of us."
			N2: "We are not able to see our friends, I miss them, and I need them."; N4: "There is a distance between me and my family especially after my shifts. Everybody took 2-3 steps back as if they had seen a monster. Psychologically, the fear and sadness were too much at first, but the increased awareness and shaping of the process made me feel better. I observe my hygiene and wash my hands often. I maintain social distance in my social life".

Tablo 1. Themes, categories, codes and quotations identified in interviews with nurses (continuing)

Theme	Subtheme	Codes	Quotations
Emotional and Psychological Needs (According to ERG Theory)	Relatedness	community respect and understanding	N6: I think that my colleagues and I are more stressed than before. The equipment we use is very difficult for us, it is bad for us to breathe in our own carbon dioxide. We have the need for fresh air; I take food supplements, I try to consume more fruits and vegetables, and I pay more attention to myself.; I want my superiors to increase equipment support. I want to work with quality equipment. As part of the COVID emergency department, we feel like we have been pushed away from the other units...., I do not expect anything from my family, but I feel like they are expecting something from me. Because the person who works in an infectious environment and can bring the infection home is also me. I am afraid that I will carry the virus home. N8: "We need respect the most. We ask society to respect us. We want them to know that we are also just human. When they see us outside, they look think that we are sick because we are health personnel." In addition, the nurses stated that they were psychologically negatively affected by the themes of "decrease in social relationships" and "need for love". N10: "I need my family the most in this process... I cannot see them because of the pandemic and being alone negatively affects my psychology; I cannot do any social activities, I cannot go out, I am always at home, and I cannot spend time with my friends. They are not with me because of the epidemic. Being alone affects the psychology negatively."
	Growth	The lack of knowledge about the new coronavirus Information need	N1: This disease is a lung and respiratory disease."; N3: "We know that it is transmitted through inhalation."; N4: "I know that it affects the respiratory tract, causes lung damage, and is transmitted through droplets. We want our superiors to approach us with a little more understanding. We do not want them to put psychological pressure on us. We want them to be a little more generous with equipment." N6: I think that my colleagues and I are more stressed than before. The equipment we use is very difficult for us, it is bad for us to breathe in our own carbon dioxide. We have the need for fresh air.; I take food supplements, I try to consume more fruits and vegetables, and I pay more attention to myself.; I want my superiors to increase equipment support. I want to work with quality equipment. As part of the COVID emergency department, we feel like we have been pushed away from the other units, I do not expect anything from my family, but I feel like they are expecting something from me. Because the person who works in an infectious environment and can bring the infection home is also me. I am afraid that I will carry the virus home. N7: "It is a respiratory disease that is easily spread. A deadly disease that affects all ages." N10: "This disease that originated in Wuhan, China, is a deadly and damned disease. There is nothing to do now. Protection is important; it is like a very heavy flu. It affects those with chronic diseases more."

4. Discussion

The commencement of the COVID-19 pandemic exposes nurses to several difficulties, including insufficient resources, a lack of personal protective equipment, a rise in the number of patients, a shortage of human resources, an unprepared health system, and a vicious cycle. These difficulties put nurses through physical and emotional strains as well as complicated ethical dilemmas (Catton, 2020). The Existence-Relatedness-Growth hypothesis was used to analyze the psychological needs of nurses caring for COVID-19 patients. It was found that the need for existence, relatedness and growth were present at the same time in nurses and were all affected by one another. This is also in line with the Existence-Relatedness-Growth principle, which states that a person may have multiple needs at the same time (Yin and Zeng, 2020). The interviews showed that nurses had different levels of needs. As the Existence-Relatedness-Growth theory states, "Even if a person's basic needs for life and connectedness aren't completely met, they may work to fulfill their desire for development."

Patients' care quality was harmed, and ethical dilemmas emerged, according to the nurses, as working conditions worsened and routines changed during the pandemic. Similarly, Sun et al., reported that the nurses' working hours and workload increased 1.5 to 2 times due to the COVID-19 pandemic (Sun et al., 2020). Liu et al. reported that healthcare workers should be informed about infection prevention and control, and hospitals should provide safe working environments (Liu et al., 2020). Giving information about the right personal protective equipment, organizing working hours and setting reasonable shift times to protect nurses from heavy workloads, informing them about ethical dilemmas that may arise, and personal and team success can be enhanced by using constructive words and efficient communication strategies (Adams and Walls, 2020; Kackin et al., 2021; Vincent and Creteur, 2020). Personal protective equipment is being provided and distributed by government agencies and hospital administrators to meet safety requirements (Yin and Zeng, 2020). As a result, nurses would be able to satisfy health and safety standards by using personal protective equipment in a scientific and appropriate manner.

The stress brought on by the disease's unknown nature, the fear of contracting it, and the potential for spreading it to others drove nurses to withhold basic care and even consider quitting their positions. None of the staff who experienced SARS-CoV could ever forget about the risks of this highly contagious disease and caring for afflicted coworkers (Wu et al., 2009). Numerous studies have demonstrated that nurses may experience psychological stress due to the spread of an epidemic disease. Intense mental strains placed on nurses caring for COVID-19 patients in emergency service expose them to considerable psychological injury (Park and Park, 2020; See et al., 2018). Domestic discomfort can result from the prevalence of behavioral issues in nurses, such as irritability, aggression, and other maladaptive behaviors, as well as from their families' anxiety and concern, and generally worse quality interpersonal interactions in the family. In addition to being concerned about their patients' health, contagious illness nurses are often anxious about spreading the sickness to their loved ones (Lam and Hung, 2013). The nurses who had children and elderly family members taking immunosuppressive drugs were the most concerned (Koh et al., 2012; Lam and Hung, 2013).

The interviews showed that because COVID-19 is contagious, nurses are compelled to live apart from their families while providing care for patients. In the current study, the nurses reported to feeling anxious about being apart from their parents and kids as well as concerned about the chance of spreading the illness to their loved ones. This conclusion was in line with those of other, comparable research (Wong et al., 2005). Nurses demonstrated a high sense of responsibility by choosing to stay with patients and endure the physical exhaustion of demanding shifts and prolonged use of personal protective equipment out of a spirit of service and a sense of duty, despite their fear of contracting the infection and their worry about spreading it to their loved ones. The clinical implications of nurses' wellbeing for the standard of nursing-relevant outcomes are significant. As Lee and colleagues have emphasized, coping mechanisms and psychological health had a direct impact on safety attitudes, which in turn affected nurses' practice environments (Arcadi et al., 2021; Lee et al., 2019; Ruiz-Fernández et al., 2020; Sun et al., 2020; Wong et al., 2012; Yin and Zeng, 2020). Providing community support to healthcare professionals with the help of nurse managers and psychological experts as well as establishing psychological support platforms to help cope psychologically, may contribute to meeting the needs of nurses and better maintain their mental health. In return to the decrease in face-to-face communication during the pandemic, the nurses need for love and interpersonal relationships may be increased with colleagues who encourage each other.

The interviews showed that the nurses needed information. This is in line with the Existence-Relatedness-Growth theory's principle of "disappointment-regression," which states that when higher-level needs are not met, lower-level needs can be used instead. The need to advocate for continuing professional development in EDs and further nursing specialties development are evident, given the extraordinary worldwide health emergency caused by the novel coronavirus disease. Our findings mirror existing knowledge regarding the importance of continuing professional development for nursing and its impact on clinical practice, especially within grossly overwhelmed areas of such as emergency service (Scammell, 2018; Huang et al., 2020).

Under the direction of the Centers for Disease Control and Prevention and the National Health Commission on

COVID-19 Prevention and Control, education will aid in the reduction of psychological panic and insecurity brought on by a lack of knowledge (Tekin and Görgülü, 2018).

5. Conclusion

This study determined that the emergency nurses' need for existence, relatedness and growth have all affected each other during this extraordinary COVID-19 pandemic. While existential needs mainly reflect health and safety needs, relatedness needs mainly consist of interpersonal and growth needs of primary information needs. Burnout may occur if excessive workload is put on nurses during the pandemic. Therefore, more studies that address the underlying causes and levels of burnout in nurses should be conducted. Interventions should be planned to reduce burnout and help nurses to handle problems more effectively. For example, psychological skills trainings can be organised, psychological and social support can be provided, working hours can be arranged to regulate the psychological state of nurses. Additionally, more importance should be placed on the need of nurses to protect their own health. Quantitative and descriptive studies including larger samples will provide scientific evidence concerning this issue. Organizing training programs for healthcare professionals who provide service in different areas will also make important contribution to maintaining an effective and qualitative service.

The negative experiences of nurses regarding the care of patients with coronavirus disease 2019 should be considered. Sensitive policy programs should be established to protect nurses from the coronavirus disease pandemic and to ensure they can safely perform their professional practice. Identifying and satisfying the emotional and psychological needs of nurses who have the greatest interaction with patients would enhance their supportive roles in the team and caregiver responsibilities in the therapeutic environment. Meeting the needs of nurses is critical to preserving mental health and controlling COVID-19. Nurse leaders should be aware of the barriers to meeting their nurses' emotional and psychological needs.

Limitations

The results of this study cannot be applied to other contexts or healthcare providers due to the inherent limitations of qualitative research. Participants in this study were limited to the emergency unit of a university hospital in a province of Türkiye. Since a qualitative design was applied in the study, the sample size was limited and since the interviews were conducted over a short period of time, no precise or generalizable results could be reached. Another limitation of our study is that the interviews lasted an average of 15 minutes due to the COVID-19 isolation measures, the intensity of the emergency department and the low number of nurses working in a single shift.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	C.Ç.	F.B.G.	İ.S.	İ.Ç.
C	25	25	25	25
D	30	30	20	20
S	50			50
DCP	50		50	
DAI	25	25	25	25
L	35	35	30	
W	25	25	25	25
CR	25	25	25	25
SR	40	20	20	20
PM	30	30	15	25

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

Conflict of Interest

The authors declared that there is no conflict of interest.

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Ethical Approval/Informed Consent

The study was approved by the Human Research Ethics Committee (approval date: 07 May, 2020, protocol code: 200120/62). Permission was also received from the General Directorate Scientific Research Studies Board attached to the Republic of Türkiye Ministry of Health. Permission was obtained for the study from the institution where the research was conducted. The participants were told of the research at the outset of the interviews, and their written and verbal consent was obtained. Attention was paid to the confidentiality principle while collecting and storing the participants' information. For this purpose, al descriptive information was encoded and anonymized during transcription. Research and publication ethics were followed in the writing of the article.

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Research Article
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EPIDEMIOLOGICAL DATA OF PATIENTS CONSULTED TO PHYSICAL THERAPY CLINIC INTHE 2023 KAHRAMANMARAŞ EARTHQUAKE

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Abstract: On February 6, 2023, 7.8-magnitude earthquake occurred in Kahramanmaraş, Türkiye. This earthquake was one of the most devastating disasters to hit Türkiye, resulting in an official death count of over 45,000. In this study, we aimed to determine the injury patterns of the patients who were consulted to the physical therapy and rehabilitation clinic after the Kahramanmaraş earthquake, and to ensure that their physicians were better prepared for possible earthquakes. Our study was completed between February and June 2023. All patients, male and female, who had earthquake-related injuries and were consulted to the physical therapy unit were included. Discharged patients were screened retrospectively. Inpatients were investigated prospectively. A total of 220 patients were included in the study. The patients were examined in terms of age, gender, date of application, pain score, time under the dent, complaint at admission, additional disease, type of injury, and treatment applied. Statistical analyzes were performed using SPSS version 22.0 software. The most frequently affected age group was 15-30 years old. The most common complaints were pain, limitation of movement and difficulty in walking. The most common surgical procedures are fasciotomy, internal fixation, and amputation. The most commonly injured limbs are the lower extremities. The most common level of amputation was transtibial amputation. After the earthquake, patients need physical therapy and rehabilitation. The knowledge and experience of the physicians of the relevant branches about the frequently observed injury patterns should be increased. This study is generally in line with most other studies reporting the epidemiology of injury after earthquakes. However, there is no standardization among the studies. Therefore, standardization in reporting earthquake injuries is necessary for evidence-based response policy planning after natural disasters.

Keywords: Earthquake, Kahramanmaraş, Injury prevention

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1. Introduction

On February 6, 2023, an earthquake with a magnitude of 7.8 occurred in the province of Kahramanmaraş in Türkiye. About 9 hours later, another 7.6 magnitude earthquake occurred. The earthquake was the most severe earthquake in more than 80 years in Türkiye. This earthquake was one of the most catastrophic disasters to hit Türkiye and unfortunately resulted in extensive damage. According to the Disaster and Emergency Management Presidency (AFAD), as of March 6, 2023, the Kahramanmaraş earthquake pair resulted in an official death count of over 45,000 in Türkiye, with the total death count exceeding 52,000, including Syria. 105,000 people were injured. Caused 170,000 buildings to be severely damaged or destroyed (Dal Zilio and Ampuero, 2023; Kanwal, 2023). More than 1,000 aftershocks happened, some of which were greater than 6 (Ergani et al., 2023).

Looking at past earthquakes, more than 281 earthquakes occurred in 58 countries between 1996 and 2005. Similar to the numerical data in the 2023 Kahramanmaraş earthquake, the number of injured in these earthquakes is 3 times more than the dead. Immediate effective medical attention can significantly affect injury patterns and death rates in earthquakes (Lechat, 1979; Lechat, 1990; Guha-Sapir and Vos, 2010).

The quality of life of people after the earthquake is significantly affected. In particular, adequate and correct management of the damage caused by trauma on the human body is very important to reduce disability. Epidemiological information about the injury pattern from past earthquakes is crucial for preparedness and effective response to potential earthquakes in regions where resources are scarce. Thanks to the epidemiological data obtained from post-earthquake injury patterns, hospitals can be prepared for possible earthquakes, and disability and mortality can be reduced. Although many earthquake victims suffer injuries that require treatment, there are large gaps in knowledge

regarding the epidemiology of earthquakes. It is essential to evaluate the data collected after the earthquake in the planning phase of the health demands of the earthquake area (Kanwal, 2023). Epidemiological studies on earthquakes guide the planning and organization of health services for hospitals located in and around the earthquake area. By knowing the injury patterns that will occur after the earthquake, the effectiveness of the early and specific treatments to be applied to the earthquake victims can be increased significantly. In this way, complications, disability and mortality rates that may occur in future natural disasters can be reduced. The aim of this study is to record the injury patterns and treatments of the patients who were consulted to the physical therapy and rehabilitation clinic after the 2023 Kahramanmaraş earthquake in our country, which is an earthquake zone, and to ensure that the physical therapy physicians meet the possible earthquakes in a more knowledgeable, experienced and prepared manner.

2. Materials and Methods

In this study, the study population consists of earthquake survivors who were consulted to the physical therapy unit, who applied to Kayseri City Education and Research Hospital after the 2023 Kahramanmaraş earthquake. All age group patients, male and female, who had earthquake-related injuries and were consulted to the physical therapy unit were included in our study. Our study included both earthquake survivors who were consulted before the study (their files were scanned retrospectively) and newly registered patients (by obtaining voluntary consent form signatures). A total of 220 patients who were hospitalized due to injury and illness due to the 2023 Kahramanmaraş earthquake and were consulted to the physical therapy unit were examined.

The patients were examined in terms of age, gender, date of application, pain score (VAS), time under the dent, complaint at admission, additional disease, type of injury, and treatment applied. Statistical analyzes were performed using SPSS version 22.0 software. For normally distributed variables, mean and standard deviation (mean ± SD) were used. Median and minimum-maximum values were used for variables that did not show normal distribution.

3. Results

In terms of age and gender distribution, 117 (53.2%) women and 103 (46.8%) men were examined in our study. The number of pediatric patients was 43 (19.5%), and the number of patients over 65 years old was 23 (10.4%). The mean age of our patients was 34.62±19.37. According to the age distribution of the patients, the most affected group was between the ages of 15-30. The most common presenting complaint in our patients was pain. The distribution of patients' pain levels is presented in Figure 1. The most common complaint after pain was limitation of movement and gait disturbance. The injury patterns and frequency of our patients are presented in Figure 2.

Our patients were questioned in terms of their comorbidities. 16 (7.3%) had diabetes mellitus, 4 (1.8%) had coronary artery disease, and 1 (0.5%) had asthma. The mean time spent under the dent was 22.19 hours (Figure 3). Skin integrity was impaired in 39.5% of our patients, sensory disturbances in 37.7%, and limitations in joint range of motion at 47.3%.

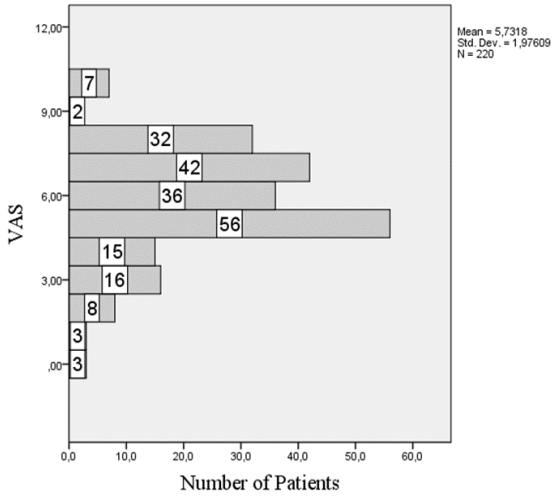

Figure 1. Distribution of pain levels of our patients.

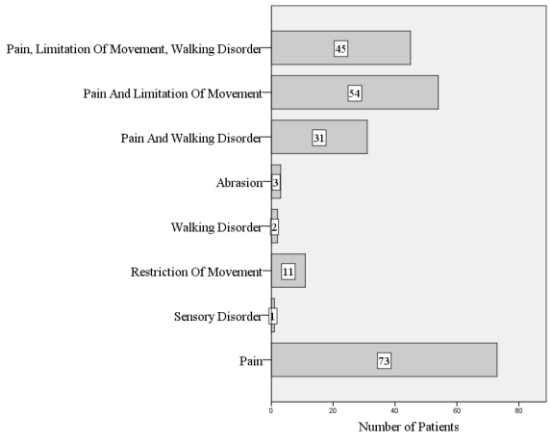

Figure 2. Injury patterns and frequency of our patients.

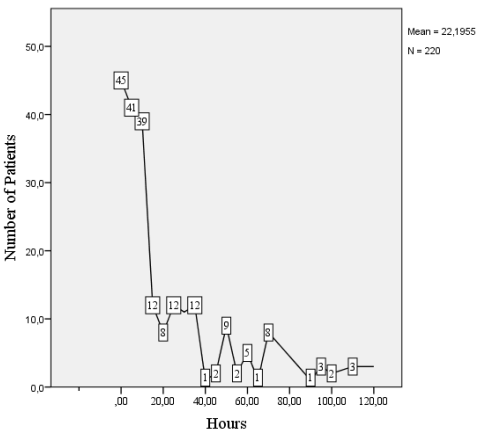

Figure 3. Distribution of patients according to the time under the dent.

When we examine our patients in terms of the type of treatment applied after the earthquake; 69 patients (31.4%) were followed up conservatively. Fasciotomy in 47 patients (21.4%), spinal posterior instrumentation in 11 patients (5%), amputation in 29 patients (13.2%), internal fixation in 57 patients (25.9%), external fixation in 4 patients (1.8%), 3 patients (1.4%) underwent closed reduction (Figure 4).

In our study, 40 (18.2%) of 220 patients examined had compartment syndrome, and the most common complaints were paresthesia, pain, and pallor. According to the body part injured after the earthquake; the most common extremity injury was observed in 83.2% (183 patients). Of the extremities, the legs were most commonly affected. Trunk injury was observed in 34 (15.5%) patients, and head injury was observed in 1 (0.5%) patient. Of the patients with trunk injuries, 13 (5.9%) injuries were to the spine, 11 (5%) to the costa, 10 (4.5%) to the abdomen. When we look at the distribution of patients who underwent amputation; the most common type of amputation was transtibial amputation. The distribution of patients undergoing amputation according to the level of amputation is presented in Figure 5.

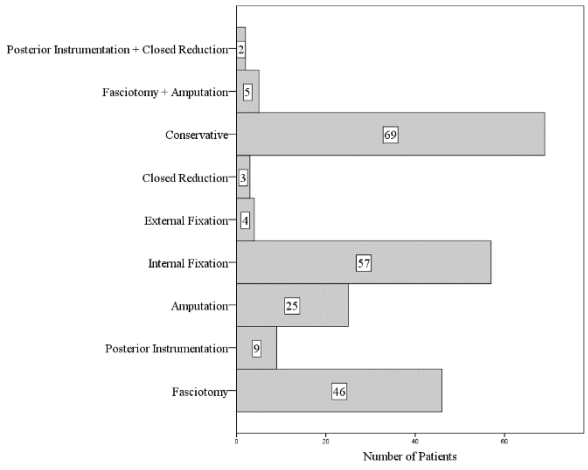

Figure 4. Distribution of patients according to the type of operation performed.

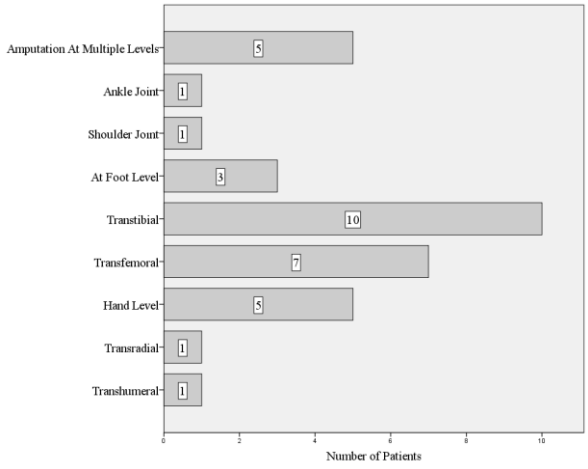

Figure 5. Distribution of patients by amputation level.

4. Discussion

In our study, the age group most frequently affected by the earthquake was between the ages of 15-30. The most common complaints were pain, limitation of movement and difficulty in walking. At least one third of our patients were accompanied by deterioration of skin integrity, sensory disturbances, and limitation of joint range of motion. Most of the patients were removed from the dent in the first 24 hours. The most common surgical procedures was fasciotomy, internal fixation, and amputation. The most frequently injured limb was the lower extremities. In relation to this, amputation, fasciotomy and internal fixation were most frequently applied to the lower extremity. The most common level of amputation was transtibial amputation.

When we look at natural disasters around the world, 552 earthquakes have occurred in the last 20 years, accounting for 8% of all disasters. Although earthquakes have a low percentage of the total number of disasters worldwide, they are among the deadliest events that can cause megadisasters that kill tens to thousands of people (Mavrouli et al., 2023).

The destructive power and consequences of earthquakes can be very catastrophic. Therefore, taking the necessary precautions can reduce the number of injured and dead. In a study, it was shown that mortality can be significantly reduced by effective intervention, especially in the first 6 hours after an earthquake. Therefore, a comprehensive plan should be made for coordinated work and effective intervention after the disaster. In every disaster, it is very important to identify patients in need of treatment and refer them to medical institutions that are not affected by the earthquake. In this systematic order, approximately 90% of patients who receive care within the first 24 hours survive (Haynes et al., 1992; Emami et al., 2005).

After a severe earthquake, the local health system may not be able to keep up with the increased demand, causing overcrowding of hospitals and consequent problems in the health system. Hospitals located further away from disaster areas after natural disasters have an important role in supporting the injured. With the preparation of these hospitals for the earthquake, better health care can be provided to the injured patients coming from the earthquake area. To provide better treatment services in hospitals adjacent to the earthquake zone, the organization that will meet the needs of the earthquake zone is of great importance. Evaluation of the data collected after the earthquake is essential for a successful earthquake preparation organization. Kayseri City Education and Research Hospital, for which we are planning this study, is a large health complex adjacent to earthquake zones. In our study, the injury characteristics of earthquake survivors were examined. Thanks to these examinations, adequate medical equipment can be made available in hospitals for the common type of injury. Increasing the knowledge and experience of doctors and health workers regarding

intervention to observe injury patterns could ensure that they are preparing for a possible disaster.

In our study, injury was most common in the lower extremity. Similarly, the lower extremities were most frequently injured in the 1999 earthquake in the Sea of Marmara in Türkiye, the Barakott earthquake in Pakistan, the Bam earthquake in Iran, and the Wenchuan earthquake in China. Serious injuries such as head, chest, abdomen and crush syndrome were observed less frequently (Emami et al., 2005; Bai and Liu, 2009; Yang et al., 2009). However, the frequency of complications such as crush injury, multiple fractures, head, spine, pelvis and abdomen injuries, rhabdomyolysis, acute kidney failure and death in a larger area increases in patients who cannot be removed from the dent in the early hours (Emami et al., 2005).

In our study population, the percentage of pediatric patients was 19.5%, and the percentage of patients over the age of 65 was 10.4%. In a study conducted after the 2008 Wenchuan earthquake, 15% of the patients who applied were children and 15% were over 65 years old (Yang et al., 2009). The reason why the patient population was younger in our study may be due to the intense migration of the Kahramanmaraş earthquake region and the higher fertility potential in this region. Although in our study, similar to the study of Naghi et al. in 2003 Iran Bam earthquake, slightly female gender was dominant (female/male:1.1); other post-earthquake studies had slight male predominance (Emami et al., 2005; Naghi et al., 2005; Bozkurt et al., 2007). The mean age of the patients in our study was 34.6 years. In many post-earthquake epidemiological studies, the mean age ranged from 30-40 (Emami et al., 2005; Sarı et al., 2023). These data show that our study is not very different from the literature.

Due to the existence of various forms of bending and stretching of the body parts in the earthquake, the characteristics of the injured areas during the earthquake are extremely complex. The dermal abrasion healed with a simple dressing, and the fractures were successfully treated with closed reduction. It can occur in patients who require fasciotomy and amputation or who die due to acute renal failure or multi-organ injury. Soft tissue and extremity injuries are the most common type of injury observed in earthquakes and are an important cause of morbidity. Crush injuries and fractures occur mostly in the lower and upper extremities in earthquakes (Gonzalez, 2005; Yang et al., 2009). Therefore, compartment syndrome and fasciotomy operations are frequently observed with crush injury in earthquakes.

Compartment syndrome is a painful condition caused by increased pressure within the closed osteofascial space. It can be both acute and chronic. Acute compartment syndrome is a condition that may require emergency surgery, and soft tissue necrosis and permanent disability can occur if pressure is not rapidly reduced (Via et al., 2015). It can even result in death (Schwartz et al., 1989). Compartment syndrome is associated with high mortality and emergency diagnosis and treatment are very important. Fasciotomy performed in compartment syndrome can be life-saving and prevent some of the serious and dangerous complications (Duman et al., 2003). In our hospital, we frequently encountered patients who underwent fasciotomy and amputation after the earthquake. Of the 220 earthquake survivors we evaluated, 59 (26.8%) had fasciotomy and 33 (15%) had amputation. According to another study conducted in the earthquake region after the 2023 Türkiye Kahramanmaraş earthquake, 338 patients were examined. Of these, 47 (13%) underwent fasciotomy and 39 (12%) underwent amputation (Akkaya et al., 2023). In our study, fasciotomy and amputation rates were higher than in this study. We think that this is due to the fact that our hospital is not located in the earthquake zone, but because it is a large hospital close to the earthquake zone, patients who stay under the collapse for a longer time, are more risky and have more severe injuries are referred to our hospital from the earthquake zone. In one study, it was reported that the risk of amputation increased by 8.8 times in earthquake victims who were removed from the dent more than 23 hours later (Bingol et al., 2023). This shows the importance of the relationship between prognosis and recovery time in earthquake victims. Early recovery is very important for a more successful treatment management in future disasters.

5. Conclusion

The knowledge and experience of physiatrists and other health workers regarding frequently observed injury patterns after earthquakes should be increased. This study is generally coherent with most other studies reporting the epidemiology of injury after earthquakes. However, there is no standardization among the studies. Therefore, standardization in reporting earthquake injuries is necessary for evidence-based response policy planning after natural disasters.

Limitation

The distribution of patients to many hospitals has reduced the burden of hospitals in the earthquake area. But this made it difficult to conduct epidemiological research. This was because the patients had studied were transported to too many hospitals to allow the sample to be representative of the entire population.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	A.G.	M.K.	H.T.Ç	F.G.Ü.D.
C			80	20
D	50		50	
S	20	60		20
DCP	50	50		
DAI	100			
L	50	50		
W	50			50
CR			50	50
SR	100			
PM	50		50	
FA		40	30	30

C= concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no conflict of interest.

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Ethical Approval/Informed Consent

All the study protocols were approved by ethics committee of Kayseri City Education and Research Hospital (approval date: April 25, 2023, protocol code: 830).

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FACTORS ASSOCIATED WITH SCREEN ADDICTION IN ADULTS: A PROSPECTIVE STUDY

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Abstract: Screen addiction is a common public health problem that causes significant harm to both individuals and society. This study's primary purpose is to examine the factors associated with screen addiction and to propose a sustainable solution to screen addiction. This research was conducted on staff who work at Cukurova University. Phone addiction, internet addiction and physical activity level were evaluated with Smartphone Addiction Scale-Short Form (SAS-SF), Internet Addiction Scale (IAS), and International Physical Activity Survey Short Form (IPAQ-SF), consecutively. Craniovertebral angle was measured with a goniometer and shoulder protraction was measured with a tape measure. The study group consisted of 189 individuals (111 women and 78 men). The mean age was 44.15 ± 11.25 years (min: 23, max: 60). The addiction level was determined to be higher in the sedentary individuals. Phone and internet addiction is statistically higher in sedentary individuals than in individuals with sports habits ($P<0.05$). While internet addiction is associated with age, body mass index, sports year, sports frequency, sports duration, back pain, shoulder protraction angle, severe activity level, moderate activity level, and sitting activity; phone addiction was found to be associated with age, sleep duration, sports year, sports frequency, sports duration, back pain, severe activity level, moderate activity level, and sitting activity ($P<0.05$). Sleep duration is especially negatively affected by phone addiction ($P<0.01$; $r=-0.23$). Internet addiction was found to be more related to postural problems ($P<0.01$; $r=0.024$). Consequently, sports habits are a crucial factor in preventing screen addiction. Which sports branches will be more effective for addicted individuals and what motivating activities should be done to direct working individuals to sports will require further study.

Keywords: Addiction, Physical activity, Sport, Mobile phone use, Internet addiction disorder

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1. Introduction

In the last decade, screen addiction has grown tremendously because of active working lives, long working hours, and effortless and easily accessible leisure activities. This situation has become a current health problem that concerns everyone due to its many negative effects, both physical and mental (Thompson, 2015). Although screen addiction is a public health problem, most of the studies in the literature are on adolescents and school-age individuals. There is not enough evidence for adults in active working life. The facts that screen addiction in adults is different from adolescents in many ways. For adults in active working life, it is sometimes an obligation rather than an addiction. Lack of options for leisure activities and difficulty in accessing physical activity trigger this obligation (Chau et al., 2012). Adults in working life often cannot spare time for physical activity and sports. Many adults use the internet and telephone in their free time activities to cope with the problems arising from intense working hours, an intensely competitive environment, and the stress of life (Haahr et al., 2007). There are studies on the negative effects of screen addiction in adolescents. These are the frequently mentioned negative effects such as postural problems and psychological problems (Sahu et al., 2019). Long-term phone and internet use affects the cervical region, especially. It generally causes deterioration in spine biomechanics and posture for adolescents and children. Also, it can cause fatigue and pain in the muscles that stabilize the spine (Betsch et al., 2021). This study aims to compare the internet and phone addiction levels of individuals who do and do not do sports. Another aim of the study is to examine the relationship between internet and phone addiction and cervical posture, sleep duration, and physical activity level.

2. Materials and Methods

2.1. Design

A survey research design was applied, using a non-probability convenience sampling technique. Data collection took place between January 2023 and August 2023. The Helsinki Declaration's guiding principles were followed during the study's execution. Written and verbal

consent was obtained from the participants just before starting the study.

2.2. Sample Size

G*Power 3.1.9.4 computed the required sample size. software. The Spearman Correlation coefficient (r) was calculated to determine the effect size of the significant results. To analyse the significance of the difference in the outcomes between the groups, the Mann-Whitney U test was conducted. To determine the effect size of the significance, eta-square (n^2) values were calculated. The predicted sample of 180 participants was adequate for a statistical power of %85 and a level of %5 considering the duration of the study.

2.3. Participants

Academic, administrative, and service personnel working at Çukurova University conducted the study. Individuals included in the study are divided into two groups, including those who regularly participate in the sports services provided by Çukurova University and those who do not. Individuals aged between 20 and 65 were included in the study. Individuals with an orthopedic, neurological, or oncological disease that would affect posture were excluded from the study. To form a homogeneous group, individuals who were single and had less than a university education were excluded from the study.

2.4. Measurements and Instruments

To determine the general descriptive characteristics of individuals, the following characteristics were asked respectively.

Body weight: The subjects were asked about their body weight and recorded in kilograms (kg).

Height: Subjects were asked about their height in centimeters (cm) has been recorded.

Body Mass Index (BMI): Using the formula body weight / height^2 (kg/m^2) has been calculated. A BMI ≤ 18.5 kg/m^2 is underweight, a BMI of 18.6-24.9 kg/m^2 is normal, a BMI of 25.0-29.9 kg/m^2 is defined as overweight, and a BMI ≥ 30.0 kg/m^2 is defined as obese. Daily sitting time and sleep hours were calculated and recorded in minutes. The frequency and duration of the sport performed, back pain severity and duration, addiction score, and physical activity score were calculated and recorded as numerical variables.

2.5. Smartphone Addiction Scale-Short Form (SAS-SF)

SAS-SF is a scale developed by Haug et al. to measure the risk of smartphone addiction, consisting of 10 items, and is evaluated with a six-point Likert scale (Haug et al., 2015). Scale scores vary between 10 and 60. It is evaluated that as the score obtained from the test increases, the risk of addiction increases (Evren et al., 2018; Noyan et al., 2015).

2.6. Internet Addiction Scale (IAS)

It is a scale consisting of 35 items and was developed by Günüç in 2008 to measure internet addiction and usage characteristics. The scale is a five-point Likert type, and the scale items are scored from 5 to 1. Scale scores vary between 35-175. Higher scores indicate greater addiction severity (Kayri and Gunuc, 2008).

2.7. International Physical Activity Survey Short Form (IPAQ-SF)

Between 1997 and 1998, the International Consensus Group developed four long and four short forms of the IPAQ instruments (Craig et al., 2003). In this study, the short form was used. The IPAQ was used to assess physical activity levels. A score in MET minutes is obtained from the calculations on the scale. In addition to scoring, categorical scoring can be done with the numerical data obtained (Saglam et al., 2010).

2.7.1. Craniovertebral angle

The craniovertebral angle is formed by the union of the horizontal line drawn from the 7th cervical vertebra and the line drawn from the 7th cervical vertebra to the tragus. Craniovertebral angles provide information about the position of the lower cervical region. In a study conducted on young adults, the average craniovertebral angle was found to be 53.6 degrees. This angle was evaluated with the help of a goniometer (Tudini et al., 2022). If this angle falls below 50 degrees, it indicates that the head position has shifted forward (Piekartz, 2015).

2.7.2. Shoulder protraction

The acromion wall distance will be evaluated with the help of a tape measure while standing upright. Participants will be in a standing position with feet shoulder-width apart, arms fixed at the side of the body, neutral upper body posture (without any postural correction that the patient feels comfortable with), and head facing forward (Temprom et al., 2019).

2.8. Statistical Analysis

The data obtained during the research process was analyzed with Jamovi 0.9.4.0 and SPSS 25 software. The suitability of the variables to a normal distribution was evaluated using visual (histograms and probability graphs) and analytical methods (Kolmogorov-Smirnov and Shapiro-Wilk tests). It was determined that the data was not normally distributed. Qualitative variables are defined with numbers and percentages. The statistical significance level for all analyses was determined to be 5% ($P<0.05$). SPSS for Windows version 22 software was used for statistical analysis. Demographic data were evaluated with descriptive analysis and presented as the mean (mean) ± standard deviation (SD). The relationship was analyzed using the Spearman correlation analysis test. The Mann-Whitney U test was used for group comparisons. Cases where the P value was below 0.05 were considered statistically significant results.

3. Results

The study group consisted of 189 individuals (111 women and 78 men). The mean age was 44.15 ± 11.25 (min: 23-max: 60). The individuals' body mass index was 26.31 ± 4.18 (min 20-max 34). In terms of homogeneous data distribution of the study; 8 individuals who were primary school graduates, 5 single individuals, and 1 individual with advanced stage cervical disc herniation

were excluded from the study. Since all individuals participating in the study are married, university graduates and public employees, no additional demographic data tables are provided. 106 active sports individuals participated in the study. 83 individuals were sedentary individuals who did not do sports. Factors related to screen addiction were examined in two distinct categories: phone and internet addiction. Internet addiction was associated with age, body mass index, sports year, sports frequency, sports duration, back pain, shoulder protraction angle, vigorous activity level, moderate activity level and sitting activity (P<0.05), (r=-0.34; r=0.40; r=-0.31; -0.52;r=0.26;r=-0.28;r=0,28 respectively), (Table 1, Table 2). It was also not found to be associated with sleep duration, head and neck position, or general physical activity level (P>0.05), (r=0.01; r=0.03; r=-0.00 respectively), (Table 1, Table 2). Phone addiction was associated with age, sleep duration, sports year, sports frequency, sports duration, back pain, vigorous activity level, moderate activity level and sitting activity (P<0.05),(r=-0.53;r=-0.23;r=-0.26;r=-0.28;r=0.28;r=0.43;r=-0.41;r=0.41 respectively). It also was not found to be associated with body mass index, head and neck location, shoulder protraction and general physical activity level (P>0.05, r=0.08; r=-0.13;r=0.30; r=-0.02) (Table 1, Table 2).

There was a significant difference between individuals who do and do not do sports in terms of internet and phone addiction (P<0.01), Table 3. According to the results of the analysis made by coding individuals as dependent and independent according to the scale cut-off values: According to the results of the chi-square analysis, there was a statistically significant relationship between sports activity and internet addiction (P<0.001).

Table 1. Factors associated with phone and internet addiction (n=189)

		Age(year)	BMI (kg/m²)	Sleep time (hour)	Sports year	Sport frequency	Sports duration (hour)	Back pain (cm)
Internet addiction	Correlation Coefficient	-0.34	0.40	0.01	-0.31	-0.52	0.26	0.26
	p	<0.01	P<0.01	0.86	P<0.01	P<0.01	P<0.01	P<0.01
Phone addiction	Correlation Coefficient	-0.53	0.08	-0.23	-0.26	-0.28	0.28	0.43
	P	0.00	0.25	0.00	0.00	0.00	0.00	0.00*

P= statistical significance level of Spearman correlation analyse test. SD= standard deviation; BMI= body mass index, P*<0.05, n= number.

Table 2. Relationship between phone and internet addiction and posture and physical activity (n=189)

		Cranio-vertebral angle (degree)	Acromion-wall distance (cm)	Physical activity score	Severe activity (hour)	Moderate activity (hour)	Walking time (hour)	Sitting time (hour)
Internet addiction	Correlation Coefficient	0.03	0.24	-0.00	-0.15	-0.28	-0.01	0.28
	P	0.59	P<0.01*	0.94	0.03	P<0.01*	0.82	P<0.01*
Phone addiction	Correlation Coefficient	-0.13	0.30	-0.02	-0.41	-0.41	0.08	0.53
	P	0.07	0.68	0.76	P<0.01*	P<0.01*	0.23	P<0.01*

P= statistical significance level of Spearman correlation analyse test, p*<0.05, n=number.

Table 3. Comparison of screen exposure in individuals who do and do not do sports

			n	Mean	SD	Median	Percentile 25	Percentile 75	p
Do you do sports?	Yes	IA	106	56.58	14.37	53.00	42.00	73.00	<0.001
	No	IA	83	91.08	43.28	88.00	54.00	109.00	
Do you do sports?	Yes	SA	106	21.27	14.14	18.00	10.00	21.00	<0.001
	No	SA	83	27.51	14.87	27.00	13.00	32.00	

P= statistical significance level of Mann Whitney U Test, n= number, SD= standard deviation, IA= internet addiction, SA= smartphone addiction.

While the rate of people who were addicted to the internet among those who do sports is .9 %, the rate of those who were addicted to the internet among those who do not do sports is 42.2 % (Table 4). According to the results of the chi-square analysis, there was a statistically significant relationship between sports activity and phone addiction (P= 0.032). While the rate of people who were addicted to their phones among those who do sports is 17.9 %, the rate of people who were addicted to their phones among those who do not do sports is 31.3 % (Table 4).

Table 4. Percentage distribution of screen addiction in individuals who do and do not do sports

			Do you do sports?		Total	p
			Yes	No		
Internet addiction	Yes	N	1	35	36	0.00*
		%	0.9 %	42.2 %	19.0 %	
	No	N	105	48	153	
		%	99.1 %	57.8 %	81.0 %	
Total		N	106	83	189	
		%	100.0 %	100.0 %	100.0 %	
Phone addiction	Yes	N	19	26	45	0.03*
		%	17.9 %	31.3 %	23.8 %	
	No	N	87	57	144	
		%	82.1 %	68.7 %	76.2 %	
Total		N	106	106	83	
		%	100.0 %	100.0 %	100.0 %	

P= statistical significance level of Pearson Chi-Square, n= number, P*<0.05.

4. Discussion

The results of the current study demonstrate that the rate of internet addiction and mobile phone addiction is significantly lower in individuals who do sports. Thus, the idea that sports could be a cure for screen addiction was supported. In this study, smartphone and internet addiction were investigated in individuals who do and do not do sports, and the possible effects of internet addiction were examined. Most of the studies in the literature have been conducted on young and adolescent individuals. There are not enough studies on actively working individuals. For working individuals, access to physical activity is more difficult.

Working adults spend approximately one-third to half of their workday sitting (Chau et al., 2010). Married adults also spend most of their free time sitting for hours (e.g., watching TV) (Chau et al., 2012). Screen addiction has been associated with poor posture (Kee et al., 2016). The factors that may contribute to screen exposure are examined, it has been reported that factors such as age, gender, lack of self-control, stress, and depression are effective (Chen et al., 2022). Long-term phone and internet use and lack of physical activity can lead to musculoskeletal problems and soft tissue injuries. These negative effects include postural disorders of the spine; forward head, thoracic kyphosis, scoliosis, increased lumbar lordosis, kypholordosis and flat back postures (Piekartz, 2015). The spine is a whole; angular deviation in one curvature results in another curvature (Torkamani et al., 2023). The ideal position of the head and neck is achieved with minimum effort on the muscles. In ideal head posture, the external auditory canal and acromioclavicular joint are in the same vertical plane and there is normal anterior concavity in the neck. The posture in which the head tilts forward causes flexion of the lower cervical spine and a general deterioration in spinal biomechanics and posture. Long-term phone and internet use can cause fatigue in the muscles that stabilize the spine and negatively affect body posture.

Head placement and shoulder position have been found associated with screen addiction. In addition to postural problems, screen addiction has also been associated with individuals' depression, anxiety level, emotional state, and sleep duration (Salvi and Battin, 2018). In the present study, sleep duration was found to be related to phone addiction, while cervical biomechanics was found to be related to internet addiction. Many studies in the literature have similarly found a relationship between phone addiction and sleep quality (Ibrahim et al., 2018; Tahir et al., 2021). However, most of the studies are related to children and young people. It is recommended that children and adolescents be directed to physical activity and sports. It has been reported in the literature that screen addiction is higher among physically inactive adolescents who do not participate in any sports. Physical activity is recommended as a treatment for internet addiction in school children (Azam et al., 2020).There is not enough evidence in this field on working adults. Although occupational sedentary periods vary by status among public personnel, there is not enough information regarding sedentary behavior outside of work. The present study found that high sitting time and low activity level were associated with screen addiction (Chau et al., 2012). The important thing in screen addiction rehabilitation is to ensure sustainability in sports. For physical activity to become sustainable,

sports areas that can be easily accessed by individuals working in workplaces should be created. Businesses for employees can create and develop various physical activity areas and organize various organizations. Developing special exercise programs for employees and creating physical activity areas will prevent screen addiction. Simply put, a common use area can be created with a treadmill and a bicycle ergometer that employees can use.

5. Conclusion

This study will provide evidence for the effects of screen addiction on adult individuals. Also, finding a permanent solution to the negative effects of screen addiction is important for public health. Examining the relationship in a multifaceted way between individuals' sports habits, physical activity levels and screen exposure may offer a solution to improve the negative effects of screen addiction and ensure that this improvement is permanent. Sport and physical activity may provide a sustainable solution to the negative effects of screen addiction. As a result, screen addiction is almost non-existent in individuals who do sports. Playing sports and physical activity accessible to working individuals will be a healthy alternative to screen consumption for adults. Screen addiction has also been associated with low physical activity, poor posture, and back pain. Another result obtained from the study is that sleep duration is affected by phone addiction. Strength of the study is that it was conducted in a demographically homogeneous group. The fact that all individuals participating in sports in the study benefited from the sports opportunities of Çukurova University eliminated the effect of different branches. Since the addiction rate was found to be quite low in individuals who do sports in our study, no conclusion could be made as to whether sports can eliminate the negative effects of screen addiction on cervical biomechanics. Examining the effects of sports on addicted individuals in future studies will contribute to the literature.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	A.G.	G.İ.
C	50	50
D	50	50
S	50	50
DCP	50	50
DAI	70	30
L	70	30
W	100	
CR	50	50
SR	70	30
PM	50	50

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Approval/Informed Consent

The authors confirm that the ethical policies of the journal, as noted on the journal's author guidelines page, have been adhered to. The experimental procedures were approved by the Tarsus University Non-Invasive Clinical Research Ethics Committee (approval date: 18 January, 2023, protocol code: 2023/01).

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Review
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WOMEN'S HEALTH AND REPRODUCTIVE HEALTH NEEDS OF LESBIAN INDIVIDUALS IN TÜRKİYE

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Abstract: Health is a basic right that all individuals have from birth. The World Health Organization defines reproductive health as a state of complete mental, physical, social well-being, and not merely the absence of disease or impotence, in all matters relating to the reproductive system, its functions, and processes. Reproductive health services include the freedom to have children, fertility, adolescent sexuality, unwanted pregnancies, unhealthy abortions, maternal and infant mortality, related disabilities, HIV/AIDS, and sexually transmitted diseases. LGBTQI+ includes different gender identities, and sexual orientations including lesbian, gay, bisexual, transgender, queer, and intersex. Gender is assigned at birth, based on chromosomal, hormonal, physical, or anatomical characteristics. However, sexual orientation is defined as the gender to which one's sexual impulses are oriented or the ongoing emotional, romantic, and sexual attraction to an individual of a particular gender. These groups face important existential problems, especially in developing, traditional lifestyle predominate countries or in Muslim countries like Türkiye. STDs and HIV/AIDS are among the diseases that can be treated in the lesbian population through expanded RHS. General gynecological, breast cancer should also be considered in protecting, and improving lesbian individual's health. This study draws attention to women's health problems in Türkiye, including breast cancer and other gynecological health problems, as well as reproductive health problems of lesbian individuals. It aims to share LGBTI+ health care problems and in this context, to emphasize the women's health and reproductive health needs of midwives and nurses, lesbian individuals in Türkiye, which are generally practiced as a female profession in Türkiye.

Keywords: Lesbian, Women health, Bisexual, Cancer

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1. Introduction

As a fundamental human right that all individuals have from birth, health must be protected and guaranteed by the state (UNFPA, 2022). In this context, the importance of providing reproductive health services to the whole society through basic health services was emphasized in the action plan presented at the Fourth World Conference on Women held in Beijing in 1995 and adopted by 179 countries, including Türkiye (Beijing Declaration and Plan of Action, 1995). The World Health Organization (WHO) defines reproductive health as a state of complete mental, physical, and social well-being, and not merely the absence of disease or impotence, in all matters relating to the reproductive system, its functions, and processes (WHO, 2006). When people's reproductive health needs are not met, they are deprived of the right to make important decisions about their bodies and their futures. This negatively affects the well-being of individuals, their families, and future generations (UNFPA, 2022). In general, reproductive health services include the freedom to have children, fertility, adolescent sexuality, unwanted pregnancies, unhealthy abortions, maternal and infant mortality, related disabilities, HIV/AIDS, and sexually transmitted diseases (Yıldırım, 2018).

The group defined as LGBTQI+ includes different gender identities and sexual orientations including lesbian, gay, bisexual, transgender, queer, and intersex (Çelik and Erciyes, 2021). Among all the economic, social, cultural, and legal characteristics of the society of these groups, the term gender identity refers to the deepest sense of an individual's gender. Gender is assigned by a doctor at birth, usually based on chromosomal, hormonal, physical, or anatomical characteristics (Onur et al., 2020). Sexual orientation, on the other hand, is defined as the gender to which one's sexual impulses are oriented or the ongoing emotional, romantic, and sexual attraction to an individual of a particular gender (Kaos, 2015). In this sense, it is known that individuals with different sexual orientations face an important existential problem, especially in developing countries where traditional lifestyles predominate or in countries like Türkiye where a significant portion of the society is Muslim (Amnesty International, 2019). While STDs and HIV/AIDS are among the diseases that can be treated in the lesbian population through expanded reproductive health

services, general gynecological cancers, and breast cancer should also be considered in protecting and improving the health of lesbian individuals.

This study aims to share LGBTQI+ health service problems at the international level by drawing attention to the reproductive health problems of lesbian individuals in Türkiye, as well as women's health problems including breast cancer and other gynecological health problems, and in this context to emphasize the role of midwives and nurses, which are generally practiced as women's professions in Türkiye, in protecting and promoting the health of lesbian individuals.

2. Sexual Trends and Percentage of Lesbian Individuals in Türkiye and the World

The Turkish Language Association (TDK) defines the word lesbian as women who are attracted to their same-sex and includes the term under the concept of "homosexuality" (TDK, 2020). With the introduction of the concepts of sexual orientation and gender identity, LGBTQI+ (lesbian, gay, bisexual, transgender, queer, and intersex) individuals have also become more visible in society. According to the University of California - Los Angeles (UCLA) Williams Institute, School of Law's LGBT Data and Demographics 2019, approximately 5.1% of women in the U.S. identify as LGBT. According to the results of studies conducted in Canada (2005), Australia (2005), the United Kingdom (2009-2010), and Norway (2010), the percentages of LGBTQI+ people were reported to be 1.9%, 2.1%, 1.5%, and 1.2%, respectively. Since LGBTQI+ individuals face the death penalty and imprisonment in the United Arab Emirates, Qatar, Saudi Arabia, Yemen, Bangladesh, and Afghanistan, there is no official data available in the Middle Eastern countries (Gates, 2011, TUICAKADEMİ, 2021).

In Türkiye, which has a significant percentage of the Muslim population and is defined as a bridge between Europe and Asia, the prevalence of all sexual orientations, including lesbian individuals, cannot be expressed since LGBTQI+ individuals cannot openly express their sexual orientation due to the pressures they face in society (Bilgiç and Şahin Hotun, 2017). In the basic population and demographic data of the Turkish Statistical Institute (TSI), individuals are only grouped according to their biological sex (male/female). Sexual orientation or gender identity is not included in the statistics provided by the Turkish Statistical Institute (Council of Europe, 2011). According to a study conducted with LGBTQI+ people living in Türkiye, Türkiye is one of the countries where LGBTQI+ people feel oppressed (Yılmaz, 2020). The conditions for LGBTQI+ people in Türkiye are not good compared to many other countries in the world. The prevailing perspective in Türkiye rejects any sexual orientation other than heterosexuality (Orta and Camgöz, 2018).

48 and 50 of the Constitution of the Republic of Türkiye. Its articles also guaranteed the right to freedom of work and contract, working conditions and rest, and stipulated that no one could be employed in unsuitable jobs based on age, gender and power. In addition, Article 70 of the Constitution. In the article, it is stated that everyone has the right to enter the public service under the heading of entry into the service and that "no discrimination other than the qualifications required by the duty" can be observed in the service. Finally, Article 90 of the Constitution. In its article, it is stated that "In disputes that may arise due to the fact that international treaties and laws on fundamental rights and freedoms that have been duly enacted contain different provisions on the same subject, the provisions of international treaties shall prevail" and the supremacy of international treaties, including the prohibition of discrimination, over national law has been revealed (Constitution of the Republic of Türkiye, 1982). However, there is no reference in the Constitution to the issue of discrimination, sexual orientation and gender identity. Today, violence against homosexuals exists in approximately 70 countries around the world, including Türkiye. Some of these countries are known to have the death penalty for consensual homosexual intercourse (Amnesty International, 2019).

3. Health Rights of Lesbian Individuals in Türkiye

The Universal Declaration of Human Rights states that all human beings are born free and equal in dignity and rights and that everyone should be able to enjoy their rights without distinction of any kind, such as race, color, sex, language, religion, political or other opinions, national or social origin, property, birth or other status (Sağlam, 2019). According to the Patient Rights Regulation No. 23420, published in the Official Gazette of Türkiye on August 1, 1998, which was prepared following the solidarity rights of human rights in Türkiye, individuals have the right to benefit from health care services, the right to receive information about their health status, the right to protect patient rights, the right to obtain the patient's consent in medical interventions, the right to benefit from services such as security and the fulfillment of religious obligations (TR. Regulation on Patients' Rights, 2017). Contrary to all these legal provisions, prejudice, and discriminatory practices against LGBTQI+ people negatively affect their access to and use of health services, leading them to be considered a disadvantaged group. Under the laws, health inequalities against lesbians, homophobia, and heterosexism should be prevented as soon as possible and the necessary care and treatment should be provided without interruption.

4. Lesbian Health Problems and Access to Health Services

Lesbian individuals face several challenges in accessing health care, including social, political, and economic barriers. Their risky health behaviors are explained by documented social and political barriers to health care, including experiences of discrimination, stigma, and homophobia as a minority group victimized and abused by society (Gregg, 2018, Smalley et al., 2018). The Centers for Disease Control and Prevention's (CDC) Healthy People initiative first categorized sexual minority women as a separate population in terms of health in 2010 but created a separate topic area for LGBTQI+ health in Healthy People in 2020.

In Türkiye, homophobia is reflected not only in society but also among health professionals (Amnesty International Türkiye Report, 2011). Ignoring the health problems of lesbian people, humiliation by health professionals, discriminatory discourses about gender or sexuality, and the feeling of marginalization make LGBTQI+ people feel insecure and afraid of being stigmatized. As a result, they avoid screening and testing for human immunodeficiency virus (HIV), sexually transmitted infections, and reproductive health screenings (Fuzzell et al., 2016; Heard, 2020; Tadele, 2019). Furthermore, Stewart and Reilly (2017) reported that after lesbian individuals disclosed their sexual orientation to health professionals, they continued to be treated as heterosexuals and that nurses and midwives ignored same-sex partners, did not talk to their partners, or questioned the presence of their partners in the health care setting.

Considering the studies conducted in Türkiye on this issue, the study by Taşkın et al. (2020) reported that 42.5% of lesbian, gay, bisexual, and transgender people had problems receiving sexual and reproductive health services and 77.8% of those who had problems reported that the attitudes of health care professionals were discriminatory or negative. The study conducted by Karataş and Buzlu (2018) reported that transgender people experienced negative attitudes due to unethical behavior, lack of knowledge, and discriminatory attitudes of healthcare professionals. The study conducted by Yılmaz and Göçmen (2015), which included 2875 individuals who identified themselves as LGBTQI+ in Türkiye, reported that 50.3% of participants did not know where and how to access sexual health services, 7.6% did not seek treatment or delayed treatment due to fear of discrimination, 43.2% had suicidal thoughts at least once in their life, and 23.9% needed mental health services but could not access these services due to cost concerns. According to the results of a study conducted by Filiz Ak et al. (2013), 33% of lesbian and bisexual women who participated in the study had a family physician, but 80% of them did not discuss their health problems with their family physician, and 79% did not share their sexual orientation with any physician (Ak et al., 2013). The main reasons for the current situation include the lack of adequate counseling and treatment services for lesbian individuals due to the lack of emphasis on sexual orientation and gender identity in medical education in Türkiye and heterosexist follow-up in primary health care centers (CETAD, 2007; Ak et al., 2013). The study conducted by Göçmen and Yılmaz (2017) reported that many LGBTQI+ participants did not seek treatment or postponed their treatment due to fear of discrimination, they could not seek mental health services due to lack of health insurance and high costs, they did not have sufficient information on how to access sexual health services, and they considered health professionals' perception of LGBTQI+ as a disease as a fundamental barrier to accessing health services. In the study conducted by Keleş et al. (2020), participants reported that their rights were ignored during treatment, they were exposed to the negative behavior of healthcare professionals and other employees, physicians intentionally delayed treatment or interrupted treatment without reason, and medical procedures were initiated without obtaining informed consent.

As a result, it can be seen that LGBTQI+ people in Türkiye do not have access to adequate information about their health problems, have problems accessing health services, and do not receive quality and reliable health services as a result of being exposed to humiliating behaviors during the health care process.

5. Sexually Transmitted Infections in Lesbian Individuals

The term "sexually transmitted infection" (STI) refers to a pathogen that causes infection through sexual contact, while the term "sexually transmitted disease" refers to a known disease that develops from an infection. Physicians and other healthcare professionals play a critical role in the prevention and treatment of STIs. Five main strategies are used to prevent and treat STIs:

1. Accurate risk assessment and education and counseling of at-risk individuals on how to prevent STIs, through changes in sexual behavior and the use of recommended preventive services,
2. Pre-exposure vaccination for vaccine preventable STIs,
3. Identification of people with asymptomatic infection and people with STI-related symptoms,
4. Effective diagnosis, treatment, counseling, and follow-up of people infected with STIs,
5. Evaluation, treatment, and counseling of sex partners of individuals infected with STIs (CDC, 2020).

Infections such as bacterial vaginosis, trichomoniasis, genital herpes, human papillomavirus (HPV), hepatitis A, syphilis, and HIV are also found in lesbian individuals (Bilgiç and Şahin Hotun, 2017). In the study conducted by Paschen-Wolff et al. (2020), it was reported that 60.7% of lesbian individuals did not receive any information about

STIs and AIDS from a health professional, and among those who received available information, 70.6% received information from LGBT organizations, 50.9% from brochures and leaflets, 39.9% from friends, and 31.6% from family members and the Internet.

The Sexual and Reproductive Health Analysis Report in Türkiye (2021) reported that although half of the LGBTI+ participants need sexual and reproductive health services, they postpone seeking health services due to the fear of discrimination and stigma they will experience while seeking health services, that they seek alternative ways instead of visiting a health professional, that there should be LGBTQI+ friendly health facilities, and that LGBTQI+ people want to receive information, counseling, and training without the need to hide themselves (Esin et al., 2021).

HPV can be transmitted through skin-to-skin contact, and sexual transmission of HPV is likely to occur among lesbian individuals (Workowski et al., 2021). In their study, Reiter and McRee (2017) highlighted that approximately 50% of lesbian individuals were infected with at least one HPV type, and approximately 40% were infected with at least one oncogenic type. Therefore, lesbian individuals are at risk for cervical cancer. All women, regardless of sexual orientation, should be routinely screened for cervical cancer, and HPV vaccination should be offered to young adult lesbians according to recommendations (CDC, 2020).

There is limited knowledge about the transmission of syphilis, a bacterial STI, between female partners. The disease has been reported to be transmitted between female sex partners, possibly through oral sex. Bacterial vaginosis (BV) is sexually transmitted between lesbian individuals. Evidence supports the association of sexual behaviors such as having a new partner, having a partner with BV, and the association of BV with oral and anal sex (CDC, 2011). In the study by Koumans et al. (2007), the prevalence of bacterial vaginosis was reported to be 45.2% in lesbian individuals and 28.8% in heterosexual individuals.

Lesbian individuals with an active sexual life are at risk of contracting bacterial, viral, and protozoal STIs from their current or former partners, and it should not be assumed that they are at low or no risk of STIs (CDC 2011; Yıldırım, 2018; Taşkın et al., 2020). In line with all these data, quality and holistic health care is possible with the elimination of inequalities in health care, counseling on vital screenings, and health care plans made by healthcare professionals who avoid homophobic behaviors.

6. Female Cancers in Lesbian Individuals

All women, regardless of sexual orientation, are at risk for cervical and breast cancer. According to the review of studies on LGBTQI+, the major health problems of lesbian individuals include polycystic ovary syndrome, irregular menstruation, hysterectomy, mental and physical problems related to the transition to parenthood, breast, and gynecological cancers, maladaptive substance use, obesity, sexually transmitted infections (Imborek et al., 2017; Wingo, 2018). It is reported that the prevalence of HPV in Europe and the United States of America (USA) varies from 12.9% to 86.0%, and the total prevalence of HPV is 49.1% (Skoulakis et al., 2019). According to the 2019 Turkish report on HPV and HPV-related diseases by the Catalan Institute of Oncology and the International Agency for Research on Cancer, the prevalence of HPV types 16 and 18 in Türkiye varies between 4.2% and 67.6% (Akalın, 2022).

Cervical cancer is more expensive to treat than other gynecological cancers. Therefore, the likelihood of positive physical and psychological outcomes can be increased through early diagnosis and treatment that limits the progression of the disease (Curmi et al., 2016). Risk factors for cervical cancer in lesbian individuals include smoking, nulliparity, alcohol consumption, and obesity (Boehmer et al., 2012, Waterman and Voss, 2015). According to the literature, lesbian individuals have low fertility rates, high rates of maladaptive substance use (drugs, alcohol, and tobacco products), and obesity compared to heterosexual women (Roxburgh et al., 2016; Deacon and Mooney-Somers, 2017).

The American Cancer Society (ACS) cervical cancer screening guidelines recommend that all women, regardless of sexual orientation, should have a Pap smear at age 25 and a primary HPV test every 5 years, and if a primary HPV test is not available, a co-test combining the HPV test with a Papanicolaou (Pap) test every 5 years or a Pap smear alone every 3 years (American Cancer Society, 2019). Research indicates that healthcare professionals have problems informing lesbians about STDs and that lesbian individuals do not need a Pap smear test because they are not sexually active with men (Björkman and Malterud, 2009; Waterman and Voss, 2015). However, HPV is transmitted through direct skin-to-skin and genital-to-genital contact. More than 99% of cervical cancer cases are associated with the long-term consequences of HPV infection (Cubie and Cuschieri, 2013). Studies have shown that lesbian individuals are less likely to participate in Pap smear screening than heterosexual women and are less informed than heterosexual women about the benefits of Pap smear tests and screening periods (Tracy et al., 2013; Bilgiç and Şahin Hotun, 2017). A study conducted among lesbian and bisexual women in Türkiye reported that 66% of the women had ever had a gynecological examination, 58% had ever had a Pap test, 43% regularly checked their breasts themselves, and 87% of women aged 40 and older did not have regular mammograms (Ak et al., 2013).

Breast cancer is the most commonly diagnosed cancer in women. According to the California Health Interview Surveys, the prevalence of breast cancer does not differ significantly by sexual orientation, with a prevalence of 20.6% for heterosexuals and 17.8% for lesbian

individuals (Quinn et al., 2015). For women at average risk, the lifetime risk of developing breast cancer is 7.8% and the mortality rate is 2.3%. Early diagnosis is very important in the treatment of breast cancer (Ceyhan et al., 2022).

In breast cancer screening, physical examination methods such as breast self-examination (BSE), clinical breast examination (CBE), and mammography imaging methods are used (Directorate General of Public Health, 2022). Studies conducted in Türkiye have reported that breast cancer screening rates are quite low (Nacar, 2018; Aslaner, 2019; Ceyhan, 2022). According to the 2017 cancer data from the Ministry of Health in Türkiye, 47.7% of women with cancer in Türkiye had breast cancer, and 11% of these cases were advanced-stage cancers, and it was reported that a total of 19211 women were diagnosed with breast cancer in one year (Ministry of Health, 2017). The data on breast cancer among lesbian individuals in Türkiye is unknown, as gender identity is considered male/female in the 2017 cancer report of Türkiye.

It has been reported that lesbian individuals have a higher prevalence of biological and behavioral risk factors compared to heterosexual women and are at higher risk for breast cancer (Williams et al., 2020). The risk factors for breast cancer in lesbian individuals were reported to be lack of routine health screening, nulliparity, less use of oral contraceptives, alcohol use, smoking, obesity, breast binding, and family history of breast cancer. According to the results of the study, lesbian individuals were less likely to have mammography and gynecological examinations compared to heterosexual individuals. Considering all these findings, lesbian individuals are at high risk for breast cancer.

7. The Role of Midwives and Nurses in the Health Problems of Lesbian Individuals

In Türkiye, midwifery and nursing are generally female professions. Although the number of male nurses has increased in recent years, the midwifery profession is exclusively female. There are some studies on the improvement and expansion of health services for lesbian people and on the evaluation of the attitudes of health professionals. At this point, social prejudices are seen as affecting health professionals (Taşkın et al., 2020). However, identifying the health care needs of lesbian individuals and the personal and systemic problems they face from a female perspective is important to optimize the provision of health care services and thus protect and improve the health of lesbian individuals as a fundamental human right. In this regard, it is the responsibility of healthcare professionals to provide quality care and the necessary follow-up, screening, and treatment in reproductive health, gynecological cancers, and breast cancer that are necessary for lesbian individuals to lead healthy life. In Türkiye, midwives and nurses work in primary health care centers where outpatient clinic services are provided along with preventive health care services as well as therapeutic hospital-based health care services (Ak, 2013). Therefore, they are among the most important health professionals who can reach all community groups at every stage of the health system. In this regard, the practices to be carried out are listed below;

- Emphasis should be placed on gender and health issues.
- LGBTQI+ issues should be addressed as part of professional development.
- The health needs of lesbian people should be seen as part of primary health care.
- A third box (female/male/transgender) should be added to the forms used.
- The terminology used should respect the sexual orientation of individuals.
- Stigmatizing and marginalizing discourses should be avoided in communication.
- Special training and certification should be obtained for providing health care to lesbian individuals.
- Special clinics should be established in health care facilities and active counseling should be provided in these centers.
- Disparities in health care should be eliminated.
- The necessary attitudes and behaviors towards lesbians should be practiced within the framework of the following five main strategies for the prevention and control of STIs.
- Periodic age-specific check-ups should be continued for LGBTQI+ individuals.
- Lesbian individuals should be informed about health services through mass media.
- Detailed information about screening and follow-up (cervical cancer screening, pap smear, oncology screening, mammography) should be provided in clear language.
- Individuals' health status should be routinely monitored.
- Their dietary habits should be improved.

In interviews with lesbian individuals, a detailed medical history should be taken, and risk assessment should be performed accordingly (Ak, 2013; Malone et al., 2019; Taşkın et al., 2020).

In conclusion, necessary health policies should be established to eliminate health inequalities and human rights violations of lesbian individuals who cannot/do not seek treatment due to discriminatory discourses, heteronormative assumptions, heterosexism, homophobic insults, and inadequate information in the provision of health services.

Author Contributions

The percentage of the author(s) contributions is presented below. All authors reviewed and approved the final version of the manuscript.

	D.G.	E.D.
C	50	50
D	100	
S	50	50
DCP	50	50
DAI	50	50
L	50	50
W	50	50
CR	50	50
SR	50	50
PM	50	50

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

Conflict of Interest

The authors declare that there is no conflict of interest.

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