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Investigation of The Pain and Muscle Strength of Individuals with Sacroiliac Joint Dysfunction and Its Effect on Postural Stability

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ABSTRACT

Sacroiliac joint dysfunction (SIJD) is created by repetitive stresses and is ligaments and muscles cause compressive and elastic forces. Muscles ligaments and joints are mechanoreceptors and retains stability and bearings of the body movements and sense proprioception. However, there is little research investigating the relationship between SIJD and balance. Our aim was investigating the pain and muscle strength of individuals with SIJD and the effect of SIJD on static/dynamic balance.

20 subjects with SIJD and 20 subjects without SIJD (control group-CG) were evaluated by standing flexion, sitting flexion. In addition to sociodemographic features, visual analog scale (VAS) was used for pain assessment. Manuel Muscle Testing (MMT) was used for assessing strength of rectus abdominis and lumbar extensors. Static balance was evaluated by single leg stance test (SLST) with open and closed eyes. Dynamic balance was evaluated by Prokin PK200.

For statistical analysis SPSS program was used. There were significant difference in static balance of the lower extremities without visual feedback between subjects with SIJD and CG ($p<0.05$). There was no difference in dynamic balance values between two groups. There was a significant difference in mean rectus abdominis strength value between SIJD group and CG. There were negative correlations between rectus abdominis and lumbar extensors MMT values of SIJD group and VAS values which mean while the rectus abdominis muscle/lumbar extensor muscle strength increases, pain decreases at night.

The results suggest that strengthening of rectus abdominis is considered as a treatment option for pain related to SIJD. In our opinion, all trunk stabilizer muscles should be strengthened and additional procedures may be required for management of dynamic balance disturbances in SIJD.

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INTRODUCTION

The altered position of the sacroiliac joint surfaces, which is caused by recurrent stressors and is sustained by compressive and elastic forces of the ligaments and muscles, is known as sacroiliac joint dysfunction. Sacroiliac joint dysfunction is associated with altered biomechanical characteristics, neurological compression, and muscular spasms. In other words, the biomechanics of the sacroiliac joint will be altered, and the motor control and load transfer functions will adjust the joint's new biomechanics. [1].

A number of clinical disorders, including as high-velocity trauma, degenerative arthritis, inflamatory arthropathy, infection, and moderate impact exercise, can lead to Sacroiliac joint (SIJ) dysfunction. Automobile collisions and falls that cause SIJ ligamentous strains, hidden fractures, or pelvic ring injuries are examples of high-velocity trauma. When someone has systemic symptoms, inflamatory arthropathies should be taken into consideration. SIJ dysfunction is frequently caused by moderate exercise, such as jogging or lifting, in people without systemic signs. Prior spinal fusion, scoliosis, and leg length disparity are a few examples of secondary problems that should be taken into account. [2]. Instability results from any system in the lumbosacral and pelvic area losing its ability to function normally. Although gross SIJ instability is uncommon, patients with recurrent SIJD frequently have microinstability [3]. Subluxation, which denotes severe SI joint instability, is quite uncommon in the general athletic population [4]. On the other hand, because it frequently results in chronic pain syndromes, microinstability must be managed in conjunction with these intricate pain manifestations [3].

About 15% of chronic low back pain can be attributed to the sacroiliac joint, which is a potential source of low back and lower extremities discomfort [5]. Additionally, in cases of sacroilitis and sacroiliac dysfunction, the SIJ may be the source of pain [6, 7].

The balance problems is a demanding issue for SIJD patients. The afferent and/or efferent physiologic processes that regulate balance may be compromised in low back pain patients [8]. One's stride and daily activities involving sight, hearing, vestibular system, proprioceptive sense, position awareness, muscular force, and cognition all depend on functional balance [9]. The integration of information about body movement detected by the somatosensory system in the central nervous system and the appropriate response of the musculoskeletal system results in postural control [9]. Mechanoreceptors in muscles, ligaments, and joints feel proprioception, which maintains the body's stability and bearings throughout both static and dynamic motions [9]. The purpose of this study was to investigate the effect of sacroiliac joint dysfunction on static or dynamic balance.

MATERIAL AND METHOD

Forty volunteers (31 women and 9 men) participated in this study. Participants were between the ages of 18 and 25 years (20.92 ± 1.71 years). The study was carried out in the Physiotherapy and Rehabilitation Department of the School of Health Science at Yeditepe University. The non-invasive ethics committee of Istanbul Medipol University approved the study's procedure. Prior to participating in this study, participants provided written, informed consent. While the control group (n=20) had no sacroiliac joint problems, 20 participants had sacroiliac joint problems. The inclusion criteris were having no musculoskeletal injury or surgery history in the six months before the study, being volunteer to participate.

The exclusion criteria of the study were:

- Had a musculoskeletal injury history in the six months before the study.
- Had a neurological or specific orthopedical problem
- Had a previous surgery in the six months before the study.

A structured assessment paper with the study's objectives and the surveys that would be utilized for evaluation was given to each participant. Participants' sociodemographic characteristics were assessed using a questionnaire. A visual analog scale (VAS) was used to assess the low back pain. The existence of sacroiliac dysfunction was determined by standing flexion test (STFT) and sitting flexion test (SIFT). The participants were told to maintain a standing stance with their feet parallel to their bodies and their upper limbs beside them while not rotating their bodies in any way. The tester stood behind the subject, placed both hands on the iliac crests laterally, and used her thumbs to locate the posterior superior iliac spines (PSISs). The thumb tips' pads were positioned on the PSISs' lower obliquity. The participants were then asked to slowly perform maximum back flexion while keeping their knees extended and beginning the movement in the neck area. The test was ruled negative if the PSISs moved symmetrically, or positive if one side moved more than the other in the cranial direction [10,11,12,13]

The SIFT test is similar to the STFT, but the individuals start from a sitting position. The participants were told to sit upright in a height-adjustable seat with their feet flat on the floor in parallel with no angle of rotation, their knees and hips at shoulder width, and their knees and hips flexed to about 90 degrees. During palpating the PSISs, the assessor was in the same position as when doing the STFT. The next step was to have the participants put their hands behind their heads, stretch their backs as much as possible, starting in the cervical region, and slowly do so [10, 11,13].

The lumbar extensors and abdominal muscles were tested using the Manuel Muscle Testing (MMT) technique. A single leg stance test (SLST) was used to

assess static balance. Eyes were opened and closed while a SLST was conducted. Participants were standing on one leg while flexing the other. On the chest, the arms are crossed. They were instructed to wait for 60 seconds in this position. The Prokin PK 200 device (Figure-1) assessed the participants' dynamic balance while they were standing on bipedal and unipedal feet (right and left foot). Center of Pressure (COP) perimeter length, medium speed, which is measured in displacement, and the percentage of the area (AGP) covered by the Center of Pressure were all evaluated. The screen has a circle and a coordinated system. As the test is being conducted, the physiotherapist gives the subject the following instructions: "Please keep the indicator as close to the center of the circle as feasible." The outcomes could be favorable or unfavorable. Positive results in the anteroposterior (AP) and Mediolateral (ML) measurements indicate that the patient is primarily leaning to the right and anteriorly, respectively. On the other hand, negative values in the AP and ML measures indicate that the patient is leaning posteriorly and onto her left foot, respectively.

Figure 1: The Prokin PK 200 device

Spss22.0 statistical software was used for analysis. Results were expressed in the format of mean±sd . The normality of the distribution of the continuous variables was determined using the Shapiro-Wilk test.Pearson correlation test was used for measuring the strength of the linear relationship between two variables. Mann-Whitney U test and Wilcoxon rank-sum test were used to test for differences between two independent groups . The Pearson correlation coefficient was used for measuring lineer correlation. The Independent Samples t Test was used to compare two sample means to determine whether the population means are significantly different.

For all tests, statistical significance was set at an α level of < 0.05 (2-tailed).

RESULTS

Age, body weight, height, and body mass index of the subject's mean value and standard deviation were shown in (Table 1). Participants were 20.92 ± 1.71 years old. The control group's mean age was 21.2 ± 1.54 years, whereas the age of the subjects with sacroiliac dysfunctions was 20.65 ± 1.87 years. The demographics information of two groups did not differ significantly (p>0.05).

Table 1. Distribution of average age, height, weight, and the BMI values

	Control Group (n=20) MEAN±SD(MIN-MAX)	Sacroiliac joint dysfunction (n=20) MEAN±SD (MIN-MAX)	p value
Age(years)	21.2 ± 1.54 (19-24)	20.65+1.87(18-25)	0.317
Height(cm)	1.68 ± 0.097 (1.5-1.93)	1.704+0.08(1.59-1.85)	0.463
Weight(kg)	58.48 ± 10.02 (41-87)	62.15+10.21(47-83)	0.259
BMI(kg/m^2)	20.55 ± 1.54(19-24)	21.27+2.17(18.11-26.35)	0.313

Muscle strength of lower extremity muscles and abdominal and lumbar extensors were evaluated. The mean abdominal muscle strength values of subjects with sacroiliac dysfunctions was 4,75 ±0.55 and the average abdominal muscle strength values of control group was 5±0. There was a significant difference in mean abdominal muscle strength values between the two groups (p<0.05). There were no significant difference between two groups in mean lumbal extensor strength and VAS values.

Table 2. Manual muscle testing values of abdominals, lumbar extensors and visual analog scale value of low back pain

	Sij Dysfunction	Control Group (No Dysfunction)	p value	
Rectus Abdominis	4.75 ± 0.55 (3-5)	5± 0 (5-5)	**p=0.03 ***	z=-2.08
Lumbal Extensors	4.9 ± 0.3 (4-5)	4.75± 0.44 (4-5)	p=0.21	z=-1.23
Visual analog scale	1.15±1.69 (0-6)	0.9±1.44 (0-4)	p=0.5	u=178.5

In adition, there was no correlation between abdominal muscle strength values (subjects with sacroiliac joint dysfunctions) and The Prokin PK 200 device mediolateral or anterior posterior postural sways and area gap percentage. There were significant positive correlations between abdominal muscle strength values (subjects with sacroiliac joint dysfunctions) and Prokin medspeed, perilength measurements (p<0.05) which means if the abdominal muscle strength increases, perilength measurements and medium speed of displacement during balance will increase, so dynamic balance will worsen.

Table 3. Correlation between muscle strength test values (subjects with sacroiliac joint dysfunctions) and Prokin (bipedal) dynamic balance values

Correlation Coefficient (r)	Muscle Strength Test (subjects with sacroiliac joint dysfunctions)															
	Rectus Abdominis		Lumbar ext.		Right Hip Extension		Left Hip Extension		Right Hip Ext.Rot.		Left Hip Ext.Rot		Right Hip Int.rot.		Left Hip Int.Rot.	
	(r)	p	(r)	p	(r)	p	(r)	p	(r)	p	(r)	p	(r)	p	(r)	p
Prokin Bipedal PL(º)	**0.61****	**0.004**	0.33	0.15	0.06	0.80	-0.05	0.82	0.33	0.14	-0.10	0.64	-0.37	0.1	0.33	0.14
Prokin Bipedal AGP(%)	0.24	0.30	-0.06	0.78	0.21	0.35	-0.14	0.55	0.25	0.27	-0.13	0.58	-0.37	0.1	0.25	0.27
Prokin Bipedal MS (º/sec)	**0.61****	**0.004**	0.33	0.15	0.06	0.80	-0.05	0.82	0.33	0.14	-0.10	0.64	-0.37	0.1	0.33	0.14
Prokin Bipedal AP (º)	-0.10	0.66	-0.17	0.45	-0.20	0.93	0.01	0.94	0.21	0.35	-0.26	0.26	-0.13	0.55	0.21	0.35
Prokin Bipedal ML(º)	0.32	0.16	0.23	0.31	0.08	0.73	-0.02	0.91	0.37	0.1	-0.36	0.11	-0.17	0.45	0.37	0.1

Ext: Extension, Ext. Rot: external rotation, Int. Rot : Internal Rotation, PL: Posterolateral, AGP: Area Gap Percentage , MS: Medium Speed, AP: Anteroposterior, ML, Mediolateral

Back pain was evaluated by visual analog scale. The average visual analog scale (VAS) scores of subjects with sacroiliac dysfunctions was 1.15±1.69 and the mean scores of control group was 0.9±1.44. Individuals who have sacroiliac dysfunctions feel more pain than control group on mean but, it is not statistically significance ($p > 0.05$)(Table 4). In addition, there was a negative correlation between rectus abdominis muscle strenght tests' values of subjects with sacroiliac joint dysfunction and visual analog scale values. Also, there was a negative correlation between lumbar extensor muscle strength tests' values of subjects with sacroiliac joint dysfunction and visual analog scale which means if the abdominal muscle or lumbar extensor muscle strength increases, pain will decreases ($p<0.01$)

Table 4. Correlation between visual analog scale and trunk muscle strength values

Correlation coefficient(r)	Sacroiliac Joint Dysfunction				Control Group			
	Abdominal		Lumbar extensors		Abdominal		Lumbar extensors	
	(r)	p	(r)	p	(r)	p	(r)	p
VAS (Visual analog scale)	**-0.637****	**0.003**	**-0.647****	**0.002**	0	1	-0.124	0.60

There were significant differences in single leg stance test values without visual feedback. There was a significant difference in static balance of the left lower extremity without visual feedback between the subjects with sacroiliac joint dysfunction and the control group and there was another difference in static balance of the right lower extremity without visual feedback between these two groups ($p<0.05$).

DISCUSSION

Sacroiliac joint dysfunction (SIJD) which occurs occurring in 16–30% of patients is a common cause of, low back pain (14) . Individuals with SIJD have a lower quality of life, and they frequently complain of discomfort, disability, and activity restrictions [15,16,17]. The Balance is an important component for activities of daily living, and there are still lack of evidence about the effect of SIJD and balance. The purpose of this study was to investigate the effect of SIJD on balance.

In their systematic review Cranacher et al concluded that core strength training and/or Pilates exercise training can be used as an adjunct or even alternative to traditional balance and/or resistance training programs for old adults [18]. . In their study Hlaing mentioned tahat despite the fact that both workouts for strengthening and stabilizing the core reduce pain, stabilizing the core is more effective than strengthening [19] . Low back pain , which is known to be brought on by SIJ instability, can alter the motor control strategy. It is also mentioned as one of the reasons why chronic low back pain's motor control changes [20].

The majority of studies have shown a relation between weak trunk extensors and chronic low back pain (CLBP) [21,22,23]. However, Descarreaux et al. [24] reported no discernible difference in trunk muscle strength between CLBP patients and healthy controls. Our study found a negative correlation between trunk muscle strength and the visual analog pain scale and a negative correlation between lumbar extensor muscle strength and the visual analog pain scale.

The transversus abdominis, in particular, possesses transversely orientated muscle fibers that have been demonstrated in one study to dramatically reduce the

laxity of the sacroiliac joints [25]. Similar to that, we discovered in this study that there was a significant

Table 5. Static and dynamic balance values according to sacroiliac joint dysfunction

			Sacroiliac Joint Dysfunction Group	Control group	p value	
Static Balance Results	Eyes Open	Right *(sec)*	59.8±0.52(58-60)	59.9±0.3(59-60)	0.6	z= -0.51
		Left *(sec)*	59.8 ±0.48(58-60)	59.8 ±0.48(58-60)	1	z=0
	Eyes closed	Right *(sec)*	23.9±17.1(5-60)	35.79±18.58(9-60)	**0.04***	t =-2.1
		Left *(sec)*	17.86±13.71(6-60)	33.57±20.81(5-60)	**0.01***	z=-2.4
Dynamic Balance Results	Bipedal Position	PL(º)	224.65±67.5(127.74-386.13)	233.27±66.37(102.97-333.27)	0.68	t =-0.4
		Agp (%)	6.5± 8.35(-8.13-24.69)	6.55± 10.34(-8.49-31.37)	0.98	t= -0.01
		MS(º/sec)	7.48± 2.25(4.26-12.87)	7.77± 2.21(3.43-11.11)	0.68	t= -0.4
		AP(º)	0.49±1.27(-1.39-3.27)	0.95±1.24(-0.93-3.68)	0.26	t= -1.1
		ML(º)	0.88±1.62(-4.78-2.92)	1.49±0.86(0.16-3.72)	0.14	t = -1.47
	Unipedal Position (Right)	PL(º)	234.9±53.22(169.79-349.84)	20.39±60.24(102.87-332.27)	0.08	t=1.75
		Agp (%)	-0.34±6.4(-6.39-19.64)	-3.19±4.47(-8.72-9.11)	0.11	t= 1.62
		MS(º/sec)	7.83± 1.77(5.66-11.66)	6.78± 2.00(3.43-11.08)	0.08	t=1.75
		AP(º)	0.55±0.74(-1.11-1.46)	0.68±0.7(-0.6-1.94)	0.56	t= -0.57
		ML(º)	1.7±1.0(-1.14-3.49)	1.59±0.93(-0.13-3.12)	0.72	t=0.35
	Unipedal Position (Left)	PL(º)	198.87±48.2(118.23-301.08)	197.17±39.33(133.16-282.96)	0.9	t= 0.12
		Agp (%)	-3.28±3.55(-8.44-5.43)	-4.10± 3.48(-9.28-4.01)	0.46	t= 0.73
		MS(º/sec)	6.55±1.50(3.94-10.04)	6.57± 1.31(4.44-9.43)	0.96	t =-0.03
		AP(º)	0.75±1.04(-1.02-2.61)	0.84±0.74(-0.89-2.16)	0.74	t =-0.52
		ML(º)	0.72± 1.14(-1.78-2.36)	0.66±0.93(-1.67-2.16)	0.85	t=0.18

difference in mean abdominal muscle strength between participants with and without sacroiliac joint impairment . Additionally, there is a positive correlation between abdominal muscle strength and Prokin medspeed and perilength measurements in particular . If abdominal muscle strength increases, perilength measurements and medspeed of displacement during balance will also increase, which could lead to a worsening of dynamic balance.

Either there was a significant difference in mean abdominal muscle strength across participants according to sacroiliac joint dysfunction or there was a significant relation between abdominal muscle strength and prokin medspeed and perilength measures. Despite these sorts of effects, there was no discernible difference between the two groups in terms of prokin perilength and medspeed measures. The anterior tibialis initiates muscular activity in response to backward instability, which is followed by the quadriceps and abdominal muscles since we did not make any evaluation collection strategies use[16]. A person's center of mass can be brought into a stable posture by compansating motions at the ankle during silent stance and minor disturbances [26].

We cannot conclude that abdominal muscle strength has an absolute effect on dynamic balance in participants with SI joint dysfunction and more research is required. Although abdominal muscle strength increased in direct proportion to the increase of perimeter length and medspeed, it has no relationship with the direction of the postural sway.

Although abdominal and lumbar extensor muscle training reduces discomfort, it also leads to an increase in medspeed of displacement and perilength measurement during dynamic balance evaluation, suggesting that dynamic balance may deteriorate as a result of abdominal muscle strengthening. Our belief is that it is preferable to strengthen not just the abdominal muscles but also the lumbar extensors and other stabilizator muscles if the clinician's goal is to increase dynamic balance.

Nies and Sinnott [27] reported that compared to healthy adults, those with low back pain exhibited more postural sway and were less likely to maintain their postural stability when standing on one foot with their eyes closed. Furthermore, Mientjes and Frank [28] observed that doing activities that required the loss of vision significantly enhanced medial/lateral instability in individuals with persistent low back pain, particularly when combined with increased task complexity.

We can conclude from the assessment of the literature that while many studies have looked at the relation between postural control and low back pain, there is little data to support a link between static and dynamic balance control and sacroiliac joint dysfunctions. With our findings, we so hoped to contribute to the existing body of literature. Our findings show that participants with sacroiliac joint dysfunction and the other subjects have substantially altered static balance of the left and right lower limbs without visual feedback. However the sample size of our study was very little, which is a constraint.

CONCLUSION

This study demonstrated that the single left leg stance without visual feedback is found significantly different between the participants with/without sacroiliac joint dysfunction. In contrast, it is not obvious to see

relationship between postural control and sacroiliac joint dysfunction. When manual muscle strength values are compared between the two groups and there was a significant difference in the abdominal muscle strength of subjects ($p<0.05$). Moreover, there is a negative correlation between abdominal muscle strength of subjects' with sacroiliac joint dysfunction and visual analog scale values at night. Based on our study results and literature review, strengthening of abdominal muscle is considered as a treatment option of pain relief. In our opinion all trunk stabilizator muscles should be strengthened and additional procedures may be required for management of dynamic balance disturbances in sacroiliac joint dysfunction.

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The authors declare that they have no conflict of interest.
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Examining The Relationship Between E-Health Literacy and Rational Drug Use: A Study on University Students

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ABSTRACT

It is desired to provide rapid access to health information on the Internet and to determine the relationship between rational drug use that affects people's quality of life. In this study, it is aimed to examine the relationship between e-health literacy and rational drug use in university students.

In line with the purpose of the research; The sample of the study consisted of 541 people determined by simple random sampling method among the students continuing their education at the university, and the data were collected by applying a face-to-face questionnaire.

In the study, "Personal Information Form", "E-Health Literacy Scale" and "Rational Drug Use Scale" were used. The data were analyzed with the SPSS program. In addition, as an analysis method, it was determined that the data were normally distributed; t test, ANOVA and pearson correlation analyzes were applied in independent groups. 541 students participated in the research.

As a result of the research, it was determined that there is a positive and significant relationship between the level of e-health literacy and rational drug use. It is predicted that as the level of e-health literacy increases, the level of rational drug use will increase.

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1. INTRODUCTION

Health literacy is an important and positive concept that we encounter not only to apply for the service needed, but also to protect from disease and improve the level of health. Since we are in the age of technology, e-health literacy, which means that this is done through electronic devices, is a method we use quite often today. Thanks to e-health literacy, which means the ability to read, understand, and use health-related information with the help of technological tools, individuals can be ensured to correctly understand the physician's instructions, the current health mechanism, and the time to apply for support to the institution (Taş & Akış, 2016).

Medicines, which are chemical components applied to patients or patients who are worried about being sick for protection purposes, have an important role in the health system. It has a life-saving function when applied in the right dose, at the right time, to the right patient. At the same time, it is one of the most important resources that health workers use to perform their duties. However, in the wrong setting, sometimes there can be consequences that lead to irreversible problems, even the death of the patient. That's why the "rational" of the chemicals mentioned is one of the most important details in order to achieve the goal (Şantaş & Demirgil, 2017).

The relationship between e-health literacy and rational drug use is an important research topic in today's digital age. University students often need more awareness and access to information on health-related issues, as they lead a young and active lifestyle. E-health literacy refers to the ability to access, evaluate and correctly use health-related information through the internet and other digital resources. Rational drug use, on the other hand, means that individuals have accurate information about drugs, use drugs correctly, and monitor their side effects and possible interactions. Therefore, examining the relationship between e-health literacy and rational drug use is an important step to ensure that university students make the most of health services and to prevent potential problems in drug use.

This research was planned to examine the relationship between university students' e-health literacy and rational drug use. In the research, firstly, the concepts between e-health literacy and rational drug use are explained. The data obtained within the scope of the research were analyzed, discussed, and interpreted.

1.1. E-health literacy

The rapid technological changes and transformations in the developing world have made mobile technology an intense part of our lives. The health sector has also been seriously affected by these transformations, and new formations have been experienced in the sector. The internet is now a very powerful platform for us to access not only important and rare health information but also health information on the other side of the world instantly (Orhan et al., 2020). In this context, e-health has become a part of our lives in both language and practice since the 2000s. We only need to have heard or seen it to access all the published information about a concept. In order to reach it, it is just at our fingertips to be curious and to search the internet search page with a few letters or words to access a lot of true or false information (Toygar, 2018).

The World Health Organization (WHO) defines e-health as "the use of information and communication technology for health." E-health is seen as a way of increasing quality, capacity, efficiency, and access to health services and information for all parties receiving and providing health services. Therefore, it has the potential to improve health (Camerini & Schulz, 2012; Neter & Brainin, 2012; Norgaard et al., 2015). The common point of scientific definitions of this concept is "e-health," or the transmission of health information on health-related issues through information and communication technologies, including prevention, monitoring, diagnosis and treatment of diseases, and management of health. These technologies add a new dimension to patient-physician communication and increase patient cooperation. This good and advanced doctor-patient relationship is important in terms of reaching the optimum level of health under current conditions. The patient, who feels that he is a part of the treatment and that his responsibilities and cooperation are important, is motivated towards recovery and contributes to this process in a very important and positive way (Eysenbach, 2001; Kılıç, 2017; Mackert et al., 2014).

E-health literacy is expressed as the ability to benefit from the information obtained by searching, reaching, comprehending, and interpreting information about health from technological tools in order to examine or solve any health problem. E-health literacy; It is a whole consisting of six components: health, information, computer, scientific, traditional and media literacy (Norman & Skinner, 2006). Computer literacy covers a variety of abilities, ranging from the basic knowledge and skills of using computers to being able to use social media. Information literacy is the ability to identify information needs, access, evaluate, and use information. Media literacy is the ability to distinguish, interpret, evaluate, classify, and make sense of visual and auditory information. Scientific literacy is the ability to understand, evaluate, and interpret health-related research findings within the context of logic. Personal literacy skills are needed to make personal decisions. Individuals should be able to have scientific literacy in order to be able to think and make decisions in a healthy and reasonable way when they are alone with the treatment of diseases and problems related to their own health and to use the right of informed consent (Yılmaz et al., 2020).

The primary goal of e-health literacy is to increase the level of health by making use of information tools on issues within the scope of health. The advantages of e-

health applications are: to increase the level of accessibility to health services; to provide new perspectives in the provision of these services; to provide complete, accurate, and fast collection of patient information; to help people with chronic diseases fight these diseases; to make appointments and be treated without any time or place limit; and to reduce the costs to be incurred (Özer et al., 2020).

Thanks to e-health literacy, individuals can get information about drug doses in general, possible indications and contraindications of the drug, delivery methods, information about the interventions made in the hospital or the health results, what the ideal numbers are for vital signs, what the extreme values can mean, the closest access to a health care provider, and information about the possible consequences of certain habits (Deniz, 2020). Health literacy, which is not practiced in sufficient quantity, also has some important negative consequences. Not having sufficient health information, not giving sufficient importance to preventive health services, lack of access and use of health services, application errors in managing the disease and taking medication, the patient's inability to comply with the treatment as required, and even the increase in mortality and morbidity are some of the important health problems (Coşkun & Bebiş, 2015).

1.2. Rational drug use

They are products made of biological, chemical, and herbal ingredients used for the purpose of protection, treatment, and health promotion from drug diseases. In order for these products to provide the expected benefit, they must be used at the right dose, in the right amount, and at the right time. Rational drug use is a planning, implementation, and follow-up cycle that allows drug treatment to be carried out effectively, safely, and economically. In other words, it is the process of providing the reasons for use by ensuring that it is taken in the required dose, at the required time and in the required amount so that individuals can reach the benefit they expect from the drug (Özçelikay, 2001).

This process is a systematic and holistic one that includes determining the patient's complaint, defining the treatment goals, choosing the one that has proven to be effective and reliable among the alternatives, prescribing it according to the patient's characteristics, and starting use with clear and clear recommendations, closely monitoring and controlling the processes and results (Akıcı et al., 2002). WHO has made various recommendations for the dissemination of this process. Establishment of a national multi-disciplinary organization for simultaneous drug administration and use policies, preparation of essential drugs list, preparation of clinical guidelines, establishment of drug committees in regions, pharmacotherapy training for the problems experienced in medical school before graduation, obtaining objective information about drugs, supervision, administration Some of the recommendations are to establish feedback and feedback mechanisms, to make the necessary expenditures by the government to ensure that personnel and drugs are always available, to regularly train individuals on drugs, to prevent inappropriate financial incentives, and to implement an appropriate legal regulation (Aydın & Gelal, 2012).

When this process is not followed, irrational drug use, which is an extremely wasteful and harmful process, occurs. When drugs are consumed irrationally, they do not provide the benefit that the patient expects or needs, and they become a burden for the country's economy by causing unnecessary consumption of drugs produced in limited quantities. Some examples of unreasonable use of a drug are: taking drugs more than necessary; not paying attention to the time and dose of the drug; acting against the doctor's recommendations; acting according to the patient's own preference for the time of use; being impatient for the expected benefit; taking the drug with other drugs; and inappropriate and unnecessary antibiotic use (Ekenler & Koçoğlu, 2016). Reasons for irrational use include lack of knowledge or skills, unlimited availability of drugs, overworked healthcare personnel, and the incentive to profit from improper promotion and sale of drugs. Rational use of drugs can encourage inappropriate and excessive patient demand. In addition, due to the lack of drug stocks and the loss of the patient's trust in the health system, it may lead to a decrease in supply and attendance rates and the formation of drug use habits that are difficult to correct (World Health Organization, 2002).

Rational drug use has a great role to play in improving individual and public health. Use of a qualified rational drug requires suitable conditions, adequate infrastructure support, and a well-equipped workforce. In this context, important duties fall on the patient to whom the treatment is administered, the physician who prescribes the drug, the nurse who administers the drug, and the pharmacist who ensures the preservation and distribution of the drug under appropriate conditions. Effective communication between those concerned can ensure a healthier use of the drug as well as prevent many possible problems from occurring. It can also help everyone gain sensitivity and understand the importance of rational drug use (Ulupınar & Akıcı, 2015).

2. MATERIALS AND METHODS

2.1. Purpose of the research

In this study, it was planned to examine the relationship between e-health literacy and rational drug use in university students.

2.2. Population and sample

The research consists of students who are continuing their educational activities at Hatay Mustafa Kemal University Vocational School of Health Services. In all departments, the scale questions were applied to the patients face-to-face and through volunteers, using the

simple sample method without selection. The research data showed that 1300 students registered in vocational schools continued their educational activities during the research conducted between November 15, 2012 and January 12, 2013. In our research, where we accept the universe as 1300, it was found that it was sufficient to reach 384 students when the sample calculation was made in the 95 percent confidence interval (Yazıcıoğlu & Erdoğan, 2004). It is assumed that this number exceeds the minimum number of 384 samples, which is the minimum number to be reached, and that it is more representative of the population as it approaches the population with the number of 542 reached. 542 students were reached between the dates given. It was concluded that this number was sufficient as a sample.

2.3. Data Collection Tools

In order to collect data for the study, the "Personal Information Form," "E-Health Literacy Scale," and "Rational Drug Use Scale" were used.

The Personal Information Form; it consists of expressions aimed at determining the age, gender, chronic illness status, constantly used medication status, and time spent on the internet of university students.

E-Health Literacy Scale; "E-Health Literacy Scale" adapted into Turkish by Coşkun and Bebiş (Coşkun & Bebiş, 2015) was used to measure e-health literacy level. The scale consists of 8 items measuring internet attitude and 2 items related to internet use. Expressions related to 8 items measuring internet attitude are rated on a 5-point Likert scale as "1-I strongly disagree, 2-I do not agree, 3-I am undecided, 4-I agree, 5-I strongly agree." The lowest 8 points and the highest 40 points are taken from the scale, and 2 items involving internet use are not included in the scoring. The statements about the scale of these 2 items, which are not included in the scoring, are graded in a 5-point Likert type as "1-Not important, 2-Not important, 3-I am undecided, 4-Important, 5-Very important." A high score on the scale indicates a high level of e-health literacy. In the adaptation of the scale, the Cronbach Alpha reliability value was observed to be 0.780 (Coşkun & Bebiş, 2015). In this study, the cronbach alpha value of the scale was found to be 0.777. This reliability value shows that the E-Health Literacy Scale is quite reliable (Kalaycı, 2017; Munro, 2005).

Rational Drug Use Scale; The "Rational Drug Use Scale" developed by Aktaş and Selvi (Aktaş & Selvi, 2019) was used to measure the level of rational drug use. The scale consists of 15 items. Statements related to the scale are graded in a 5-point Likert type as "1-I strongly disagree, 2-I do not agree, 3-I am undecided, 4-I agree, 5-I strongly agree." The Cronbach Alpha reliability value of the scale was observed to be 0.830 (Aktaş & Selvi, 2019). In this study, the cronbach alpha value of the scale was found to be 0.840. This reliability value shows that the Rational Drug Use Scale is quite reliable (Kalaycı, 2017; Munro, 2005).

2.4. Data collection and analysis

After obtaining the necessary permissions from the scale owners and the ethics committee, the scale questions were carried out on a voluntary basis by face-to-face survey technique in all departments in the vocational school. The data obtained as a result of the applied scales were analyzed through the SPSS program. Frequency and percentage calculations were made in order to determine the demographic and descriptive data of the participants (age, gender, chronic illness status, constantly used drug status, and time spent on the internet).

In order to determine whether there is a significant difference in terms of the e-health literacy and rational drug use of the students participating in the research and the variables of age, gender, department they study, what grade they are in, chronic illness status, constantly used drug status, and time spent on the internet, we determined that the data did not deviate from the normal distribution. t test, ANOVA, and Pearson correlation parametric analyses were applied to independent groups.

3. RESULTS

In the findings part of the research, firstly, the socio-demographic characteristics of the participants from whom data were obtained are included (Table 1).

Table 1. Socio-demographical characteristics of the participants

Demographic features	Options	Number of people (N)	%
Gender	Woman	377	69.6
	Male	165	30.4
Age	18-19 years old	259	47.8
	20-21 years old	229	42.3
	22 years and older	54	10.0
The program you are studying (section)	Anesthesia	49	9.0
	First and Emergency Aid	133	24.5
	Occupational Therapy	39	18.4
	Medical Documentation and Secretarial	99	19.0
	Medical Imaging Techniques	103	10.1

	Medical Laboratory Techniques	55	11.8
	Elderly Care	64	7.2
Class	1st Class	294	54.2
	2nd Class	248	45.8
Chronic illness	Yes	31	5.7
	No	511	94.3
Regular drug use	Yes	37	6.8
	No	505	93.2
Time spent on the internet	0-3 hours	200	36.9
	4-6 hours	267	49.3
	7 hours or more	75	13.8
TOPLAM		**542**	**100.00**

541 students participated in the research, and 69.6% of the people who agreed to participate were female and 30.4% were male. It has been determined that 47.8% of the participants are between the ages of 18-19, 42.3% are between the ages of 20-21, and 10% are between the ages of 22 and over. 9% of the students were Anesthesia, 24.5% First and Emergency Aid, 18.4% Occupational Therapy, 19% Medical Documentation and Secretarial, 10.1% Medical Imaging Techniques, 11.8% Medical Laboratory Techniques and 8.2% are trained in Elderly Care programs. In addition, 54.2% of the students are in the 1st grade and 45.8% are in the 2nd grade. 94.3% of the students stated that they did not have a chronic illness, and 5.7% of them stated that they had a chronic illness. In addition, 93.2% of them did not use a regular drug, while 6.8% of them stated that they used a regular drug. It was determined that 36.9% of the students spent 0-3 hours, 49.3% spent 4-6 hours, and 13.8% spent 7 hours or more on the internet.

According to Tabachnick & Fidell (Tabachnick & Fidell, 2013) the distribution of Skewness and Kurtosis data between "-1.5 and +1.5" indicates that the data do not deviate from the normal distribution. The results of the normality test examination for the scale and its dimensions used in the study are presented in Table 2.

Table 2. Normality test analysis data

	Mean	Standard deviation	Skewness	Kurtosis
E-health literacy	3.56	0.69	-0.328	0.511
Internet usage	3.41	0.81	-0.494	-0.061
Rational drug use	3.16	0.51	0.584	1.101

Considering the data obtained from the participants in Table 2, it was determined that the Skewness and Kurtosis values of the data were distributed between "-1.5 and +1.5," and it was concluded that the data did not deviate from the normal distribution. As a result of this result, it was decided to apply parametric analysis in further analyses.

In order to determine whether there is a statistically significant difference between the socio-demographic characteristics of the participants and the mean scores of e-health literacy and rational drug use, t-test and ANOVA test analysis were performed in groups independent of parametric analysis methods, and the results are presented in Table 3 and Table 4.

Table 3. Results of t-test and anova test analysis in independent groups between demographic characteristics of participants and e-health literacy

Demographic features	Options	N	Mean	Standard deviation	t or F value	p
Gender	Woman	377	3.54	0.66	-1.004	0.316
	Male	165	3.60	0.76		
Age	18-19 years old	259	3.52	0.66	1.251	0.287
	20-21 years old	229	3.69	0.72		
	22 years and older	54	3.56	0.74		
The program you are studying (section)	Anesthesia	49	3.50	0.74	1.942	0.072
	First and Emergency Aid	133	3.56	0.68		
	Occupational Therapy	39	3.44	0.85		
	Medical Documentation and Secretarial	99	3.60	0.64		

	Medical Imaging Techniques	103	3.62	0.76		
	Medical Laboratory Techniques	55	3.33	0.85		
	Elderly Care	64	3.70	0.69		
Class	1st Class	294	3.54	0.69	-1.425	0.116
	2nd Class	248	3.59	0.69		
Chronic illness	Yes	31	3.72	0.75	1.327	0.185
	No	511	3.55	0.69		
Regular drug use	Yes	37	3.70	0.71	1.311	0.190
	No	505	3.55	0.69		
Time spent on the internet	0-3 hours	200	3.56	0.66	0.138	0.871
	4-6 hours	267	3.55	0.73		
	7 hours or more	75	3.53	0.65		

When Table 3 is examined, no statistically significant difference is found between the e-health literacy level of the students participating in the research and the group mean scores of gender, age, the program you are studying (section), class, chronic illness, constantly used drug status, and time spent on the internet (p>0.05).

Table 4. Results of t-test and anova test analysis in independent groups between demographic characteristics of participants and rational drug use

Demographic features	Options	N	Mean	Standard deviation	t or F value	p
Gender	Woman[1]	377	3.14	0.49	-1.535	0.125
	Male[2]	165	3.21	0.55		
Age	18-19 years old[1]	259	3.11	0.29	4.861	**0.008*** **1<3** **2<3**
	20-21 years old[2]	229	3.17	0.35		
	22 years and older[3]	54	3.35	0.82		
The program you are studying (section)	Anesthesia	49	3.08	0.49	1,604	0,144
	First and Emergency Aid	133	3.20	0.51		
	Occupational Therapy	39	3.02	0.34		
	Medical Documentation and Secretarial	99	3.20	0.49		
	Medical Imaging Techniques	103	3.16	0.50		
	Medical Laboratory Techniques	55	3.06	0.55		
	Elderly Care	64	3.25	0.61		
Class	1st Class	294	3,13	0,52	-1.558	0,120
	2nd Class	248	3,20	0,51		
Chronic illness	Yes[1]	31	3.09	0.45	-0.771	0.441
	No[2]	511	3.17	0.52		
Regular drug use	Yes[1]	37	3.15	0.38	-0.184	0.854
	No[2]	505	3.16	0.52		
Time spent on the internet	0-3 hours[1]	200	3.17	0.49	1.043	0.353
	4-6 hours[2]	267	3.13	0.59		
	7 hours or more[3]	75	3.16	0.51		
***p<0.05**						

When Table 4 is examined, a statistically significant difference is determined between the rational drug use of the students participating in the study and their age (p<0.05), while there is no statistically significant difference between the group mean scores for gender, the program you are studying (section), class chronic illness status, constantly used drug status, and time spent on the internet (p>0.05).

Table 5. Results of correlation analysis between e-health literacy and rational drug use

		E-health literacy	Rational drug use
E-health literacy	r	1	.349**
	p		.000
Rational drug use	r	.349**	1
	p	.000	
****p<0.001 N=542**			

As seen in Table 5, a pearson correlation analysis was conducted between the e-health literacy level of the students participating in the study and rational drug use. According to the results of the analysis, it was determined that there is a positive and significant relationship between the level of e-health literacy and rational drug use ($p<0.001$). It is predicted that as the level of e-health literacy increases, the level of rational drug use will increase ($p<0.001$, $r=0.349$).

4. DISCUSSION

In this study, it was planned to examine the relationship between e-health literacy and rational drug use among university students. 541 students participated in the research, and 69.6% of the people who agreed to participate were female and 30.4% were male. It has been determined that 47.8% of the participants are between the ages of 18-19, 42.3% are between the ages of 20-21, and 10% are between the ages of 22 and over. 9% of the students were Anesthesia, 24.5% First and Emergency Aid, 18.4% Occupational Therapy, 19% Medical Documentation and Secretarial, 10.1% Medical Imaging Techniques, 11.8% Medical Laboratory Techniques and 8.2% are trained in Elderly Care programs. In addition, 54.2% of the students are in the 1st grade and 45.8% are in the 2nd grade. 94.3% of the students stated that they did not have a chronic illness, and 5.7% of them stated that they had a chronic illness. In addition, 93.2% of them did not use a regular drug, while 6.8% of them stated that they used a regular drug. It was determined that 36.9% of the students spent 0-3 hours, 49.3% spent 4-6 hours, and 13.8% spent 7 hours or more on the internet.

There was no statistically significant difference between the e-health literacy level of the students participating in the study and the group mean scores of gender, age, the program you are studying (section), class chronic illness, constantly used medication, and time spent on the internet. In the study conducted by Dolu and Durmuş (2023), there was no difference between the variables of gender, age, department and class. In the study conducted by Ma et al. (2023) on students, no difference was found between the variables of gender and the department they studied. In the study conducted by Kasımoğlu, Karakurt, and President (2023), while a difference was found between the variables of the department and class they studied, no difference was found between the variables of age and gender. In the study conducted by Biçer and Altay (2022) on university students, no difference was found between the variables of gender, age, and chronic illness. In the study conducted by Ergün et al. (2019) on students, no difference was found between the variables of gender, age, and chronic illness. In the study conducted by Gül, Demir and Çoşkun (2022), no difference was found between the variables of gender, chronic illness and regular drug use. In the study conducted by Yılmaz et al. (2020) on university students, no difference was found between gender and age variables. In the study conducted by Kaynak et al. (2022) on university students, no difference was found between gender and age variables.

While a statistically significant difference was determined between the rational drug use of the students participating in the study and their age, there was no statistically significant difference between the group mean scores for gender, the program you are studying (section), class chronic illness status, constantly used drug status, and time spent on the internet. Among the age variables, it is observed that the rational use of drugs increases as the age of the individuals increases. This can be explained by the experience they have gained from life and the increase in their level of health literacy. In the study conducted by Aslan et al. (2023), while a difference was found between the variables of the department they studied, no difference was found between the variables of age and class. In the study conducted by Kartal, Karakas and Kapıkıran (2023), a difference was found between the variables of education level, but no difference was found between the variables of age and gender. In the study conducted by Yeşildağ, Ağırbaş, and Yılmaz (2022), a difference was found between the variables of gender and the department they studied, while no difference was found between the variables of class regular drug use. In the study conducted by Arslan and Ergün (2022) on students, a difference was found between gender variables, but no difference was found between the variables of chronic illness status and drug use status. In the study conducted by Akkaya and Koçaşlı (2022) on university students, a difference was found between age and regular drug use, but no difference was found between the variables of gender and chronic illness. In the study conducted by Altun, Türk, and Korkmaz Öner (2022) on university students, no difference was found between the variables of gender and regular drug use. In the study conducted by Özkan and Aca (2020)on university students, while a difference was found between regular drug use status, no difference was found between the variables of age, gender and chronic disease status. In the study conducted by Soysal and Şahin (2020) on university students, no difference was found between age and gender variables.

Correlation analysis was conducted between the e-health literacy level of the students participating in the study and rational drug use. According to the results of the analysis, it was determined that there is a positive and significant relationship between the level of e-health literacy and rational drug use ($p<0.001$). It is predicted that as the level of e-health literacy among students increases, the level of rational drug use will increase ($p<0.001$, $r=0.349$). In the study conducted by Tosun and Hoşgör (2021), it was determined that there is a positive and significant relationship between the level of e-health literacy and rational drug use. In the study conducted by İşler et al. (2022), individuals' health literacy levels were found to be low. However,

irrational drug use behaviors were also common. Eser and Çelik (2022) showed in their study on pregnant women that health literacy affects the knowledge of rational drug use and that as the level of health literacy increases, the level of rational medicine also increases. In another study, it was concluded that individuals with insufficient health literacy could not understand the information given about their diseases and misused asthma medications (Sequeira et al., 2013; Tosun & Hoşgör, 2021). The limited number of studies in the literature on the relationship between the level of e-health literacy and rational drug use can make it difficult to compare the findings of this study in a healthy way. Therefore, it is possible to state that more research is needed on this subject.

5. CONCLUSIONS AND RECOMMENDATIONS

Our research aimed to examine the relationship between e-health literacy and rational drug use among university students. As a result of the research, a direct relationship was determined between e-health literacy and rational drug use. E-health literacy includes people's ability to access, understand, and apply information about health information and services. Rational drug use, on the other hand, involves people using the right drugs in the right doses at the right time and in the right way in accordance with their health status.

As e-health literacy increases, people's ability to access and understand information about health information and services also increases. This makes it easier for people to use the right drugs in the right doses at the right time and in the right way in accordance with their health status and encourages the rational use of drugs. Therefore, there is a positive relationship between e-health literacy and rational drug use.

In order to increase e-health literacy, health literacy and e-health literacy training programs should be expanded to increase people's ability to access and understand information about health information and services. Information about health information and services should be made accessible so that people can easily access information about health information and services.

In order to encourage rational drug use, people should be informed about the use of drugs in order to use the right drugs in the right doses, at the right time and in the right way, in accordance with their health status. It is necessary to increase the ability to access and understand information about health information and services by improving communication between health professionals and pharmaceutical companies.

The use of e-health platforms should be expanded. It is recommended to expand the use of e-health platforms in order to enable people to access and use information and tools about health information and services more easily. These platforms allow people to monitor their health status, remind medication, communicate with doctors, and archive health information. With the implementation of the recommendations as a result of the research, increasing e-health literacy and encouraging rational drug use can be achieved. In this way, people will be able to access, understand and apply information about health information and services more easily. This will contribute to better management of health conditions and a healthy life.

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No
Conflict of Interest
No
Ethical Approval
Before applying the data collection form in the study, ethics committee approval was obtained with the Hatay Mustafa Kemal University Social and Human Sciences Scientific Research and Publication Ethics Committee's decision dated November 2, 2022 and numbered 6.
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The Relationship Between Organizational Commitment and Job Satisfaction in Healthcare Professionals: A Meta-Analysis

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ABSTRACT

This meta-analysis study examined the relationship between organizational commitment and job satisfaction among healthcare professionals. The YÖK Thesis Center database was searched using the keywords "job satisfaction and organizational commitment" between November 19, 2022, and February 3, 2023. The inclusion criteria were (1) being a thesis, (2) examining the relationship between job satisfaction and organizational commitment levels of healthcare professionals in Türkiye, (3) adopting a quantitative research method, and (4) having access to the full text. The literature review yielded 2.998 theses, out of which 22 theses (19 master's theses and three Ph.D. theses), with 5.547 healthcare professionals meeting the inclusion criteria. The correlation effect size was calculated, and the random effect model ($p<0.001$, $I^2=94.408$, $\tau>0.22$) was used to calculate the joint effect size. The results showed a statistically significant correlation between job satisfaction and organizational commitment among healthcare professionals in Türkiye (M: 0.376; 95% CI: 0.286-0.460), and there was no publication bias. The fact that the results did not change when unpublished studies were included in the analysis positively affected the validity and reliability. Future studies should investigate the relationship between organizational commitment and job satisfaction based on different healthcare professional groups.

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1. INTRODUCTION

Job satisfaction and organizational commitment among healthcare professionals contribute to the sustainability of healthcare systems (Wang et al., 2022). Healthcare professionals' perceptions, experiences, emotions, and attitudes toward their work and the conditions of the healthcare institution they work for determine their job satisfaction or dissatisfaction (Reing-Betella et al., 2022). Therefore, job satisfaction stems from the health personnel's perceptions of their work and work environment. Healthcare professionals with high job satisfaction provide quality healthcare services and contribute to the healthcare organization's performance (Cho and Kim, 2022). Organizational commitment refers to the willingness of healthcare professionals to integrate with the health institution they work for, to adopt the values of the health institution, and to remain a member of the health institution. Organizational commitment is influenced by individual work experience, work environment, organizational structure, and job and role-related factors (Sahan and Terzioglu, 2022). Accordingly, job satisfaction is an essential determinant of organizational commitment (Lestari et al., 2022).

Research indicates a positive correlation between job satisfaction and organizational commitment among healthcare professionals (Akanbi and Itiola, 2013; Akyurt et al., 2015; Ergun and Celik, 2015; Hos and Oksay, 2015; Choi and Kim, 2016; Stamouli and Gerbeth, 2021; Cho and Kim, 2022; Kim and Cho, 2022; Reing-Betella et al., 2022; Sahan and Terzioglu, 2022; Wang et al., 2022; Yi et al., 2022). Most of the studies have focused on the relationship between job satisfaction and organizational commitment among nurses and have found that high levels of job satisfaction and organizational commitment positively impact the performance of healthcare institutions and staff. This means that healthcare professionals with high job satisfaction and organizational commitment also experience high staff satisfaction, self-efficacy, psychological health, motivation, job development, quality healthcare, and interpersonal communication. These professionals also experience low job stress and have high participative leadership skills. Furthermore, researchers recommend developing human resources policies that aim to increase the job satisfaction and organizational commitment levels of healthcare staff for sustainability and quality in healthcare institutions (Cho and Kim, 2022; Lestari et al., 2022; Yi et al., 2022). This study aimed to investigate the relationship between job satisfaction and organizational commitment among healthcare professionals.

2. MATERIALS AND METHODS

This study utilized meta-analysis, a method used to combine and integrate the results of previous studies to reach general conclusions (Slough and Tyson, 2022). The primary objective of this study was to investigate the relationship between job satisfaction and organizational commitment among healthcare professionals. The research question addressed by this study was: "Is there a correlation between job satisfaction and organizational commitment among healthcare professionals?

Inclusion and Exclusion Criteria

The YÖK Thesis Center database was searched using the keywords "job satisfaction and organizational commitment" between November 19, 2022, and February 3, 2023. The sample consisted of quantitative full-text theses investigating the relationship between job satisfaction and organizational commitment among healthcare professionals in Türkiye. This study adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA) (Figure 1) (Page et al., 2021).

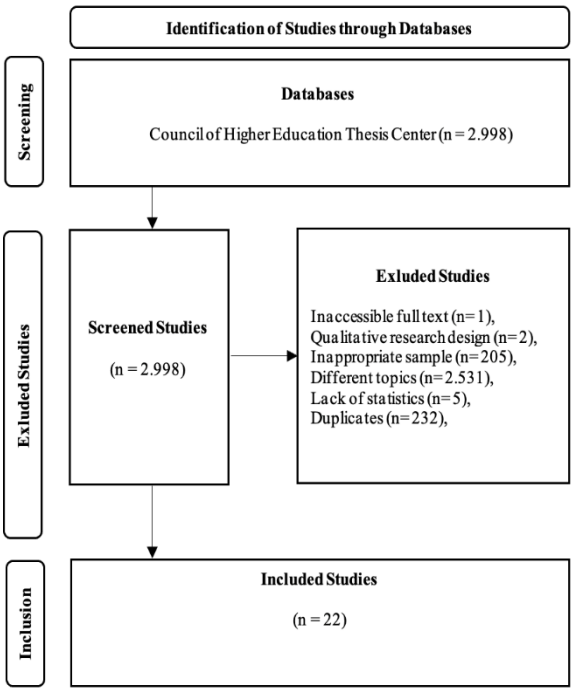

Figure 1. PRISMA Flow Diagram

In the study; determination of research purpose and problem, determination of selection criteria, collection and coding of data, deciding on the effect size criterion, deciding on the model to be used in calculating the common effect size, conducting publication bias analysis, conducting heterogeneity test and reporting the results meta-analysis stages were followed (Levitt et al., 2018). A total of 2.998 thesis studies were examined during the data collection process of the study. During this examination process; inaccessible full text, qualitative research design, inappropriate sample, different topics, lack of statistic and duplicates studies (n=2.976) were not included in the scope of the research. Therefore, the sample consisted of 22 theses (Figure 1). The earliest thesis was conducted in 2010, while the latest was conducted in 2022. The sample consisted of 19 master's theses and three Ph.D. theses with a total of 5.547 healthcare professionals. The results are sample-specific.

Data Analysis

The data were analyzed using the Comprehensive Meta-Analysis (version 3). Since the theses involve a correlation between two variables, the effect size was calculated using the correlation effect size method (Borenstein et al., 2017).

The heterogeneity was statistically significant ($p<0.001$) and high ($I^2>0.75$). There was a between-study variance ($\tau>0.22$) (Table 1). Therefore, the random effect model method was used to calculate the joint effect size (Borenstein et al., 2010).

Rosenthal's and Orwin's fail-safe N, Begg and Mazumdar's rank correlation, Egger regression, and Duval and Tweedie's trim and fill statistical methods were used to determine publication bias. There was no publication bias. When unpublished theses (Duval and Tweedie trim and fill method) were included in the analysis, the results did not change (Table 2), which positively affected the validity of the results (Borentein et al., 2021).

3. RESULTS

There is a positive correlation between job satisfaction and organizational commitment among healthcare professionals (M:0.376; 95% CI:0.286-0.460) (Figure 2, Table 1).

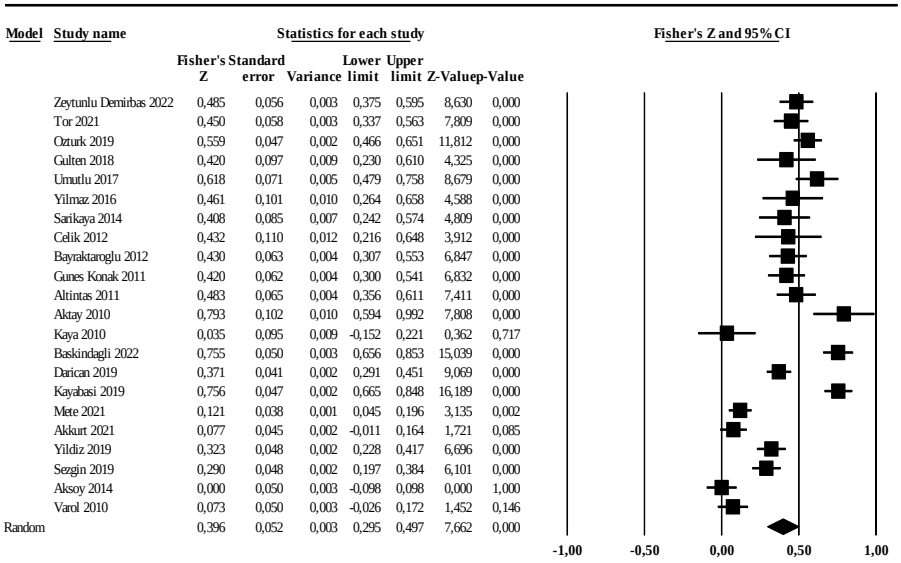

Figure 2. Forest Plot

Table 1. Meta-Analysis Results

k	M	% 95 GA		Z	p	Q	df	p	I^2	τ^2
22	0.376	0.286	0.460	7.662	0.000	375.548	21	0.000	94.408	0.054

k: Number of theses, M: Random effect model, CI: confidence interval, z: normal standard deviation, Q: Cochran's test for homogeneity of variance, df: Degrees of freedom, I^2: Heterogeneity, τ^2: Between-study variance.

There is no publication bias (Table 2, Figure 3). When unpublished theses (Duval and Tweedie trim and fill method) were included in the analysis, the results did not change (Table 2).

Table 2. Publication Bias Analysis Results

Method	Test Result
Rosenthal fail-safe N	5.319*
Orwin's fail-safe N	491*
Begg and Mazumdar rank correlation	0.352**
Egger's regression	0.147**
Duval and Tweedie's trim and fill	4*** (M: 0.311 CI: 0.212-0.405)

*: Test value>5k+10, **: p>0.05, ***: Test value<k.

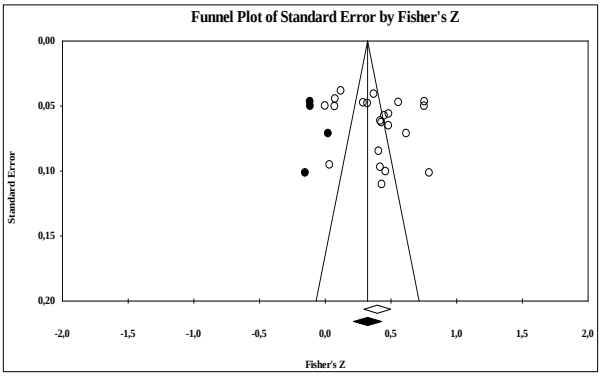

Figure 3. Funnel Graph (Duval and Tweedie trim and fill method)

4. DISCUSSION AND CONCLUSIONS

Through this meta-analysis, we aimed to investigate the relationship between job satisfaction and organizational commitment among healthcare professionals in Türkiye. The study included 19 master's theses and three Ph.D. theses, all of which were quantitative studies with full-text access investigating the relationship between job satisfaction and organizational commitment among healthcare professionals in Türkiye. The sample size included 5.547 healthcare professionals. We used the correlation effect size to calculate the effect size and the random effect model method to calculate the joint effect size.

Our findings reveal a positive relationship between job satisfaction and organizational commitment among healthcare professionals in Türkiye. These findings are consistent with previous meta-analyses that also reported a positive relationship between job satisfaction and organizational commitment (Akanbi and Itiola, 2013; Choi and Kim, 2016; Kim and Cho, 2022). Furthermore, healthcare professionals with high levels of job satisfaction and organizational commitment show better job performance, interpersonal communication, self-efficacy, and motivation, while experiencing lower levels of job stress, absenteeism, and burnout. They also find their job more meaningful and rewarding. These findings suggest that promoting job satisfaction and organizational commitment could contribute to the sustainability of healthcare systems (Wang et al., 2022). For this reason, strategies should be developed to increase the organizational commitment and job satisfaction levels of healthcare professionals in health institutions.

The results suggest that there is no publication bias, and the inclusion of unpublished studies did not alter the positive correlation between job satisfaction and organizational commitment among healthcare professionals. This strengthens the validity and reliability of the study findings. This study suggests that healthcare institutions should develop human resources policies that enhance job satisfaction and organizational commitment among healthcare professionals. Future meta-analyses should also investigate the relationship between job satisfaction and organizational commitment among different health professional groups.

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A Relational Analysis of Violence Inflicted on Healthcare Professionals

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ABSTRACT

This study was carried out to determine the relationship between the intention to commit violence against healthcare professionals, the level of knowledge of patients about their rights and responsibilities, and trust in doctors. The survey method, one of the data collection techniques, was used in the study. The questionnaires were applied to people over 18 who received health care from any hospital in the last year in Turkey. According to the correlation analysis, there is a negative relationship between the intention to commit violence against healthcare professionals and the level of knowledge of patients' rights and responsibilities. In addition, there is a significant negative relationship between the intention to commit violence against healthcare professionals and trust in the doctor. It was concluded that as the level of knowledge about the rights and responsibilities of the patients increased the intention to commit violence against healthcare professionals decreased. It has been observed that as the trust in the doctor increases, the tendency of the patients to use violence disappears.

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1. INTRODUCTION

With the questioning of dogmatic information and the beginning of the age of enlightenment, individuals began to build their own rights. Human rights developed in three periods. While the first period covers the transition period from the empire period to the nation-state, the second period refers to the rights that the working class gained from their attempts against the capital owners after the industrial revolution. In the third period after the Second World War, people adopted the idea that the state could not be stronger than the people with various laws and regulations and that the state existed for the people, which laid the groundwork for the emergence of the concept of human rights. The Second World War has done great harm to humanity, and the right to live has emerged to recover the losses. Patient rights arose due to the decreased confidence in the profession due to war, depending on the right to live (Topal and İspir, 2022).

After the declaration of the Universal Declaration of Human Rights, patients' rights, which was discussed under the title of "human rights", which is a rapidly spreading concept, has become a concept that maintains its popularity in our country as well as in many European countries (Sert, 2004; Süzek et al., 2004). Patient rights are based on fundamental rights, which are expressed as the "right to health" in human rights theory (Hatemi, 2006; Bostan, 2007). According to Özlü (2005), patient rights are the rights that those who benefit from health services have in their interaction with the institution providing the service and the health worker. Since patient rights are a right related to the particular situation of being human, they apply human rights and values to health services. These rights include the rights to be respected as human beings, to obtain approval for medical procedures, to receive the highest level of health care, to be informed, to demand respect for their private life, and to ensure the continuity of care and treatment Özcan, 2010; Oğuz, 1997).

Although governments have constantly worked on patients' rights, patients may be unable to control their emotions because healthcare facilities are places where people feel stressed and depressed. This situation leads to violence against healthcare workers. The decrease in the level of knowledge about the rights and responsibilities of patients is another factor that causes violence against healthcare professionals (Atilla et al., 2012). Health services are based on the demand-delivery relationship. Caregivers need to know, respect, and practice patient rights. It should be remembered that when patients know these rights, they will know how to behave in the face of undesirable situations. Knowing how to act in the face of unpleasant situations will reduce the violence against healthcare workers.

As in many sectors, violence is a significant problem that disrupts the peace of the workers, patients, and society, especially in health institutions, and it is increasing (Taşhan and Çelik, 2014). Violence is the force exerted by the individual against himself and others, resulting in death and physical and mental injuries (Kahriman, 2014; Çamcı and Kutlu 2011, Durak et al., 2014). Violence from patients, relatives, or employees in healthcare institutions is a significant risk factor for healthcare professionals and patients. This risk manifests in threatening behaviors, verbal, physical, sexual assault, neglect, and abuse (Çamcı and Kutlu 2011; Akça, 2014). According to research, 25% of workplace violence is in the health field. 50% of health workers are exposed to violence, and 25-88% have been exposed to physical, verbal, or sexual violence in the last year (Öztürk and Babacan, 2014; Büyükbayram and Okçay, 2013). According to a study conducted in our country, healthcare workers' violence exposure rate varies between 49-91% (Ayrancı et al., 2004). Studies have shown that violence against healthcare workers is on the rise. Therefore, necessary measures should be taken to prevent violence in health (Özcan and Bilgin, 2011).

Many regulations can be made, and necessary legal sanctions can be applied to reduce violence against health personnel. Still, the most crucial role in reducing violence is the improved communication skills of doctors. When a trust-based relationship is built between doctors and patients, acts of violence will be prevented (Bilgin and Diğer, 2020).

Sometimes, individuals may resort to violence in seeking their rights due to insufficient, incomplete, or incorrect information regarding their rights and responsibilities (Taşhan and Çelik, 2014). Another study stated that trust in doctors reduces violence against healthcare workers (Kumar and Betadur, 2019). From this point of view, this research examines the relationship between the intention to commit violence against healthcare professionals, the level of knowledge of patients about their rights and responsibilities, and trust in the doctor.

2. MATERIALS AND METHODS

This part of the study gives information about the purpose and hypotheses of the research, the model of the research, the universe and sample, and the data collection tools.

Purpose and Hypotheses of the Research

This research aims to examine the relationship between the intention to commit violence against healthcare professionals, the level of knowledge about the rights and responsibilities of patients, and trust in the doctor.

For this purpose, the analysis tested the following hypotheses:

H_1: There is a significant relationship between the intention to commit violence against healthcare workers and the level of knowledge of patients' rights.

H_2: There is a significant relationship between the intention to commit violence against healthcare professionals and the level of knowledge of patients' responsibilities.

H_3: There is a significant relationship between the intention to commit violence against healthcare professionals and trust in the doctor.

Research Ethical Standards

For this study the approval of ethical committee no E-33490967-044-158700-/07-56 dated 27.04.2022 was taken from the Ethical Committee, Tokat Gaziosmanpaşa University. In addition, voluntary consent to participate in the study was obtained from the participants.

Model of the Research

In this study, the relational screening model was used to examine the relationship between the intention to commit violence against healthcare professionals, the level of knowledge about the rights and responsibilities of patients, and trust in the doctor. This model reveals whether the variables discussed in the research change together and the direction of the change (Karasar, 2011). While the independent variables defined in the study are the level of knowledge about patient rights and responsibilities and trust in the doctor, the dependent variable is the intention to commit violence against healthcare professionals.

Sample of the Research

The population of this study consists of individuals over 18 who have received health services from any hospital in the last year in Turkey. Since the population consists of large masses, the sampling method was adopted. In this context, 794 people were sampled using the convenience sampling method. Six of the 794 people who participated in the study were excluded because they did not receive health services in the last year, and 2 of them were under 18. As a result, the results obtained from 786 people were analyzed. The table below presents the descriptive findings of the sample population.

Data Collection Tools

The questionnaire method was used to collect data in this study. The questionnaire, distributed online, includes questions about the personal characteristics of the participants and scales of "Intention to Commit Violence against Healthcare Professionals," "Knowledge Level of Rights and Responsibilities of Patients Applying to Health Institutions" and "Trust in the Doctor". Among the questions about personal characteristics are the participants' age, gender, marital status, education level, income-generating work status, and whether there is a health worker in the family. The first scale, the "Intention to Commit Violence against Healthcare Professionals Scale" was developed by Şanlıtürk and Boy (2020). The scale consists of 15 statements in total, involving one statement for individuals' intention to commit violence (1), one statement for past experiences (2), and six statements for attitudes towards behavior which are three components of intention (3, 4, 5, 6, 7, 8), five statements for subjective norm (9, 10, 11, 12, 13) and two statements for perceived behavioral control (14, 15). The scale, structured with a 5-point rating, has no reverse-coded statements. According to the results of the reliability analysis conducted in the study, Cronbach's Alpha coefficient was 0.82. The second scale, "Knowledge Level of Rights and Responsibilities of Patients Applying to Health Institutions" was developed by Bilgin and Other (2020). This scale includes consists of 2 sub-dimensions as patient rights (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19) and patient responsibilities (19, 20, 21, 22, 23, 24, 25). The expressions in the dimensions are similarly structured as a 5-point Likert. According to the result of the reliability analysis of the scale, Cronbach's Alpha coefficient is 0.90. The third scale, "Trust in the Doctor" was developed by Şengül and Bulut; 2020) and consisted of 11 expressions. It consists of one dimension and is structured as a 5-point Likert scale. The 1st and 5th statements in the scale are coded in reverse. According to the results of the reliability analysis of the scale, Cronbach's Alpha coefficient is 0.86.

3. RESULTS

The average age of the participants is 36.20. 47.3% of the participants are female, and 52.7% are male. The majority of participants have an associate's or bachelor's degree and work in an income-generating job.

Table 1. Descriptive Findings for Participants

	Mean.	**SS**
Age	36.20	10.299
Gender	**N**	**%**
Female	372	47.3
Male	414	52.7
Education	**N**	**%**
Primary School	39	5.0
High School	175	22.3
Associate Degree - Bachelor's Degree	478	60.8
Post-graduate	94	12.0
TOTAL	786	100.0

In this section, the relevant hypotheses are tested by giving place to the analyzes.

Table 2. The Results of the Relationship Between Intention to Commit Violence Against Healthcare Professionals, Patients' Level of Knowledge of Rights and Responsibilities, and Trust in the Doctor

	Intention to Commit Violence	Past Experiences	Attitude Towards Behavior	Subjective Norm	Perceived Behavior Control
Trust in the Doctor	-.316**	.152**	.038	.212**	.233**
Level of Knowledge on Rights	-.524**	.066	-.044	.318**	.292**
Level of Knowledge on Responsibilities	-.519**	.188**	.018	.299**	.268**
** Significant at the 0.01 level.					

The table above shows the findings of the correlation analysis of the relationship between the intention to commit violence against healthcare professionals, the level of knowledge of patients' rights and responsibilities, and trust in the doctor. Accordingly, there is a negative relationship between the intention to commit violence against healthcare professionals and trust in the doctor (r=-.316, p<.01). In addition, there is a negative correlation between the intention to commit violence against healthcare professionals and the level of knowledge of patients' rights (r=-.524, p<.01) and patients' responsibilities (r=.519, p<.01). While past experiences have a positive relationship with the level of trust in the doctor (r=.152, p<.01) and the level of knowledge about the responsibilities of the patients (r=.188, p<.01), it has no significant relationship with the level of knowledge about the rights of the patients. There is no significant relationship between the attitude toward behavior and the level of trust in the doctor, and the level of knowledge about the rights and responsibilities of the patients. There is a positive correlation between the subjective norm and trust in the doctor (r=.212, p<.01), the patients' level of knowledge about their rights (r=.318, p<.01), and their responsibilities (r=.299, p<.01). Perceived behavioral control has a positive relationship with trust in the doctor (r=.233, p<.01), patients' knowledge of rights (r=.292, p<.01) and responsibilities (r=.268, p<.01).

4. DISCUSSION

This research aimed to reveal the relationship between the intention to commit violence against healthcare professionals, the level of knowledge about patient rights and responsibilities, and trust in the doctor. The research concluded that there is a negative relationship between the intention to commit violence against healthcare professionals and the level of knowledge of patients' rights and responsibilities. In other words, as the level of knowledge about the rights and responsibilities of patients increases, the intention to commit violence toward healthcare professionals will decrease. If patients are knowledgeable about their rights and responsibilities, this plays a vital role in solving the problems that arise in the healthcare process. It is stated that the diagnosis and treatment processes of patients who do not know their rights are not carried out effectively, and patients are deprived of their rights because their rights, beliefs, and values are not respected. However, it is known that patients commit violence against healthcare workers by misusing their rights (Bilgin and Diğer, 2020). Taşhan Çelik (2014) concluded that patients' attitudes to exercising their rights prevent violence against healthcare professionals. Another study found that insufficient or incorrect information about patients' rights and responsibilities played a role in increased violence against healthcare workers (Kahriman, 2014). Yiğitbaş and Deveci (2011) reached a similar conclusion and found that insufficient or incorrect knowledge of patients and their relatives about patient rights is effective in the increase in violence. Aivazi et al. (2017) concluded that respecting patient rights by healthcare professionals reduces violence against healthcare professionals.

Another finding in the study is that there is a negative relationship between the intention to commit violence against healthcare professionals and trust in the doctor. As the trust in the doctor increases, the tendency of the patient or his relative to use violence disappears. Considering the time periods from the first years of human history to the present day within the scope of medical science, there is a shift from the patient profile, which is trying to fulfill the doctor's instructions without questioning, to a patient profile who researches, questions and desires to be guided by obtaining information about their disease (Çobanoğlu, 2009). Trust in the doctor plays an essential role in the effective continuation of the treatment process by enabling the patient to express their characteristics and information about the disease more easily. At the same time, it prevents undesirable problems during the treatment process. It ensures that the patient has positive attitudes and behaviors and that the health outcomes are in the desired direction (Gülcemal and Keklik, 2016). Kumar et al. (2019) determined that factors such as not responding adequately to the patient, prolonged hospital stay due to treatment, and decreased trust in the doctor in terms of patient satisfaction increased the violence against healthcare professionals. Bhattacharya et al. (2018) emphasized that doctor-patient distrust and the changing dynamics of the doctor-patient relationship are effective in increasing violence against healthcare professionals.

5.CONCLUSION

The findings of this study revealed a negative relationship between the intention to commit violence against healthcare professionals and the level of knowledge of patients' rights and responsibilities. From this point of view, patients can be given training on their rights and responsibilities by the "patient rights unit" to prevent violence. Training on patient rights and responsibilities for healthcare professionals can also be help in preventing violence.

Considering that there is a negative relationship between the intention to commit violence against healthcare professionals and trust in the doctor, activities should be carried out to increase the trust of the patients toward the doctor. In this context, it is recommended that doctors improve their relations with patients and convey their procedures clearly and understandably.

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The Relationship Between Health Cognitions and Health Seeking Behavior

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ABSTRACT

Health cognitions and health seeking behavior is a concept used to express human behavior related to disease-related situations. The common point of both concepts is aimed at fighting diseases. Therefore, it is important to determine the relationship between the two concepts. This study aims to explain the relationship between health cognitions and health seeking behavior of individuals. The sample of this study, designed by quantitative method, consists of 388 individuals aged 18 and over living in Samsun. The data were collected using the Health Seeking Behavior Scale and Health Cognition Scale with questionnaire method. The data were obtained using independent sample t-test, one-way ANOVA and Pearson correlation analysis. There was no significant difference between Health Cognitions and gender, age, marital status, income and educational status ($p>0.05$), while a significant difference was found with chronic disease ($p<0.05$). There was no significant difference between Health Seeking Behavior and gender, age, marital status, chronic disease and income ($p>0.05$), while there was a significant difference with educational status ($p<0.05$). A low-level significant correlation was found between individuals' health cognition and health seeking behaviors ($r=0.141$; $p<0.05$). As a result of the study, it was found that there was a relationship between health cognition and health seeking behavior. It is recommended to conduct further research that examines these two concepts in detail.

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1. INTRODUCTION

The concept of cognition is defined as the transformation of acquired experiences and events into individual thought processes by evaluating them (Gochman, 1992). The Turkish Language Institution defines the concept of cognition as "The living reaching a knowledgeable and conscious state regarding the existence of an object or event" (Turkish Language Institution, 2023). Health cognitions, on the other hand, are the cognitive processes underlying the behavior of individuals in situations related to diseases or disorders (Patel et al., 2018). This cognitive process is considered to have a dynamic structure and includes the situations of perception, interpretation, learning, problem solving, gaining experience, being creative and remembering (Akpunar, 2011). It focuses on the regulation of an individual's health, behavior change and beliefs, as well as their expectations, perceptions, values and attitudes (Gochman, 1992). It also includes beliefs and information about health and diseases. Health cognitions; the individual's health-related behaviors are evaluated, the individual's perceptions about his health, and personal tendencies to engage in certain behaviors (McMillan and Conner, 2007). Cognitive and psychological states experienced by individuals have effects on their health and behavioral patterns (Altay and Yüksel, 2019). In this respect, the importance of the concept of health cognitions has increased in recent years and has been used in various fields of study.

Being healthy is an important issue for every person. For this reason, it is likely that the search behavior will occur in matters related to the health of the person (Erdoğan et al., 2020). Remedial actions taken by individuals to find solutions to their health problems are defined as health-seeking behavior (Chrisman, 1977). It is also considered as the personal behaviors of the individual to reach the optimum level of health and to engage in health-enhancing activities (Cornally and McCarthy, 2011). They include health-related activities performed by individuals who feel unwell, feel uncomfortable, feel at risk of illness, experience symptoms of illness, or seek medical support to receive treatment (Huang et al., 2019; Ward et al., 1997). Health-seeking behavior allows the community to benefit and use health services (Almaqhawi et al., 2022). It provides early diagnosis of diseases, control and application of the right treatment method (Sun et al., 2021).

The way individuals perceive illness and health (type of illness, health system, treatment costs), distance to the health institution, socio-economic status, norms, culture and beliefs affect health seeking behaviors (Aslan et al., 2004; Hjelm and Atwine, 2011). The solution of the health problems experienced are achievable in different forms. Applying to a doctor and a health institution, searching for information on the Internet, a recommendation from a trusted person or applying self-medication are some of the solutions (Kıraç and Öztürk, 2021). In this regard, when the literature is examined, online search, professional search and traditional search are shown among the methods of health seeking behavior. Professional health seeking behavior refers to individuals apply to health institution and receive treatment in order to restore their health, while traditional health seeking behavior includes actions that individuals take to restore their health with their own methods and herbal medicines and without resorting to any professional help. Online health seeking behavior, on the other hand, includes individuals receiving information from online platforms on the Internet about issues related to their health (Yaman and Atalay, 2020).

Health cognitions may have an impact on health seeking behavior as a psychological condition. It is due to the fact that health cognitions are based on the assumption that psychological state has an impact on health and are expressed as an important concept (Altay, 2019). In addition, the determination of health-seeking behavior and influencing factors ensures the correct use of health resources and the formation of a strong health system (Almaqhawi et al., 2022). Therefore, it is important to determine whether the psychological perception of an individual related to health has an impact on health seeking behavior. In addition, national or international studies have been found that discuss health cognitions and health seeking behavior together. Therefore, it is considered that the study findings will contribute to the literature.

The current study aimed to determine the relationship between individuals' health cognitions and health seeking behaviors. Another aim of the research was to reveal whether health cognitions and health seeking behavior of the participants differ according to their socio-demographic characteristics. In addition, national or international studies have been found discussing health cognitions and health seeking behavior together. Therefore, it is considered that the study findings will contribute to the literature.

2. MATERIALS AND METHODS

The study employed a descriptive research design. The population of the study consisted of individuals aged 18 and over residing in Samsun province. It was determined that the total population of individuals aged 18 and over living in Samsun at the time of the study was 1.050.708 (TÜİK, 2023) . The sample of the study consisted of 384 individuals within the 95% confidence interval and at the 5% significance level. Within the scope of the study, a total of 388 individuals were reached through convenience sampling. The data were collected electronically through the online survey application (Google Forms). The survey form consisted of three parts. In the first part, socio-demographic characteristics of the participants (gender, age, marital

status, educational status, occupation, monthly income and chronic disease status) were included.
In the second part, The Health Cognitions Scale (HCS), which was developed by Hadjistavropoulos et al. (Hadjistavropoulos et al., 2012) and Turkish validity and reliability of which was conducted by Altay and Yüksel (2019) was included. The scale consists of 20 questions and 4 factors (awfulness of illness, likelihood of illness, difficulty coping with illness, inadequacy of health services). The scale was prepared in a 5-point Likert type (strongly disagree 1, strongly disagree 2, I am undecided 3, I somewhat agree 4, I completely agree 5). The internal consistency coefficients of the scale were calculated as 0.84 for the Difficulty Coping with the Illness sub-dimension, 0.75 for the Likelihood of Illness sub-dimension, 0.77 for the Awfulness of Illness sub-dimension, and 0.65 for the Inadequate Health Services sub-dimension.
In the third part, The Health Seeking Behavior Scale (HSBS), which was developed by Kıraç and Öztürk (2021) was included. The scale consists of 12 items and 3 sub-dimensions: online health-seeking behavior, professional health-seeking behavior and traditional health-seeking behavior. The scale is 5-point Likert type (Strongly Disagree 1, Disagree 2, Neutral 3, Agree 4, Totally Agree 5). When the results of the reliability analyzes of the scale are examined, Cronbach's Alpha coefficient is 0.726 for online health-seeking behavior, 0.720 for professional health-seeking behavior, 0.736 for traditional health-seeking behavior, and 0.755 for the whole scale.

The results of the research showed conformity with the normal distribution. Descriptive (frequency, percentage) statistical methods were used in the analysis of the data, t-test to compare two independent groups, one-way analysis of variance (ANOVA) in comparisons of more than two groups, and Pearson Correlation Analysis to determine the relationship between the scales and sub-dimensions used in the study. The $p<0.05$ value was taken as the significance level. SPSS Package Program was used in the analysis of the data obtained in the study.

Prior to the study was conducted, the ethics committee approval dated 30.06.2022 and numbered 2022-645 was obtained from the Social and Humanities Research Ethics Committee of Ondokuz Mayıs University. In addition, the authors were consulted and the necessary permissions were obtained before using the scales in the study.

3. RESULTS

Table 1 shows the Reliability Analysis results for the scales and their sub-dimensions.

Table 1. Reliability Analysis Results for Health Seeking Behavior and Health Cognitions Scale and its Sub-Dimensions

Scales and Sub-Dimensions	Cronbach's Alpha
Health-Seeking Behavior Scale	0.782
Online Health-Seeking Behavior	0.781
Professional Health-Seeking Behavior	0.830
Traditional Health-Seeking Behavior	0.647
Health Cognitions Scale	0.484
Awfulness of Illness	0.694
Likelihood of Illness	0.740
Difficulty Coping with Illness	0.820
Inadequacy of Health Services	0.746

Table 2. Demographic Findings

Characteristics		Frequency n	Percentage %
Gender	Female	254	65.5
	Male	134	34.5
Income	0-8500 TL	136	35.1
	8501-17000 TL	149	38.4
	17001 TL and above	103	26.5
Age (avg=33,33)	Below average	235	60.6
	Above average	153	39.4
Marital Status	Single	200	51.5
	Married	188	48.5
Educational Status	Primary school	23	5.9
	High school	45	11.6
	Associate degree	47	12.1
	Bachelor's degree	208	53.6
	Postgraduate degree	65	16.8
Chronic Disease Status	Yes	69	17.8
	No	319	82.2

According to Table 2, 65.5% of the participants are female and 34.5% are male. However, 51.5% of individuals are single and 48.5% are married. 35.1% of the participants have an income of 8500 TL and below, 38.4% of them between 8501-17000 TL and 26.5% of them have an income of 17001 TL and above. In terms of education level, 5.9% of individuals have primary school, 11.6% have high school, 12.1% associate degree, 53.6% undergraduate and 16.8% postgraduate education. 60.6% are under the age of 33.33 and 39.4% are in the age group above 33.33 years.

It was found that 17.8% of the individuals participating in the study had a chronic disease and 82.2% did not have a chronic disease.

Table 3. Descriptive Statistics

	Min.	Max.	Mean	Std. Dev.
Health Cognitions Scale	2.25	4.10	3.2110	0.31894
Awfulness of Illness	1.25	5.00	3.5090	0.78929
Difficulty Coping With Illness	1.00	5.00	3.3228	0.65229
Likelihood of Illness	1.00	5.00	2.9852	0.78910
Inadequacy of Health Services	1.00	5.00	2.9149	0.84975
Health Seeking Behavior Scale	2.00	5.00	3.7182	0.54380
Online Health-Seeking Behavior	1.00	5.00	3.5451	0.75352
Professional Online Health-Seeking Behavior	2.00	5.00	4.3479	0.64439
Traditional Online Health-Seeking Behavior	1.00	5.00	3.4347	0.79622

The statistics of the scores obtained from the scales and subscales were given in Table 3. The mean score obtained from the Health Seeking Behavior Scale was 3.71±0.54, the minimum value was 2.00, and the maximum value was 5.00. The mean score obtained from the Health Cognitions Scale was 3.21±0.31, the minimum value was 2.25, and the maximum value was 4.10.

Table 4. Difference Analysis between Health Cognition Scale and its Sub-Dimensions and Demographic Variables

Characteristics		HCS	Awfulness of Illness	Difficulty Coping With Illness	Likelihood of Illness	Inadequacy of Health Services
Gender	Female	3,2024±0,30437	3,5551±0,74945	3,2943±0,65327	2,9823±0,79969	2,8858±0,84626
	Male	3,2272±0,34547	3,4216±0,85588	3,3769±0,64943	2,9907±0,77156	2,9701±0,85678
t		-0.730	6.214	0.263	0.503	0.043
p		0.466	0.129	0.236	0.921	0.353
Income	0-8500 TL	3,2184±0,33260	3,5276±0,78509	3,2739±0,65148	3,0276±0,77500	2,9890±0,86756
	8501-1700 TL	3,2295±0,31500	3,4597±0,83072	3,3826±0,60268	2,9849±0,77994	2,9379±0,80008
F	17001 TL and	3,1743±0,30598	3,5558±0,73509	3,3010±0,71880	2,9296±0,82428	2,7840±0,88841
p	above	0.971	0.508	1.065	0.45	1.801
		0.380	0.602	0.346	0.638	0.166
Age (avg=33,33)	Below average	3,2298±0,31843	3,5798±0,82254	3,2957±0,64924	2,9872±0,74201	2,9904±0,82539
t	Above average	3,1820±0,31859	3,4003±0,72453	3,3644±0,65691	2,9820±0,85892	2,7990±0,87597
p		1.444	2.723	0.064	3.707	1.128
		0.150	**0.028***	0.312	0.949	**0.030***
Marital Status	Single	3,2268±0,32345	3,5725±0,80380	3,2769±0,65630	3,0338±0,74966	2,9738±0,83025
t	Married	3,1941±0,31405	3,4415±0,76994	3,3717±0,64616	2,9335±0,82789	2,8524±0,86785
p		1.006	0.185	0.013	1.472	1.038
		0.315	0.102	0.153	0.212	0.160
Educational Status	Primary school	3,2870±0,39721	3,3587±0,77175	3,4674±0,68280	2,9565±0,71371	3,1848±0,92692
	High school	3,2056±0,28707	3,2444±0,82999	3,4000±0,55749	3,1222±0,78266	2,8611±0,70420
	Associate degree	3,2617±0,34424	3,6383±0,94237	3,3245±0,72778	3,0319±0,89171	2,9894±0,83236
	Bachelor's degree	3,2139±0,31626	3,5276±0,75989	3,3215±0,62837	2,9459±0,78506	2,9531±0,85580
F				3,2212±0,72037		
p	Postgraduate degree	3,1415±0,29429	3,5923±0,71065	0.834	2,9923±0,76415	2,6808±0,87779
		1.407	2.019	0.504	0.516	2.077
		0.231	0.091		0.724	0.083
Chronic Disease Status	Yes	3,2862±0,33867	3,4710±0,79583	3,3587±0,70805	3,3587±0,90898	2,8841±0,81752
	No	3,1947±0,31268	3,5172±0,78889	3,3150±0,64052	2,9044±0,73776	2,9216,85766
t		2.173	0.182	0.069	6.505	0.334
p		0.030	0.660	0.615	**0.000***	0.740

*p<0,05

The findings of the comparison of demographic variables and Health Cognitions Scale were given in Table 4. There was no significancy between Health Cognitions and gender, income, age, marital status and educational status (p>0.05), while a significant difference was found with chronic disease status (p<0.05). Health Cognitions were higher in those with a chronic disease.

There was a significant difference between the Awfulness Illness and Inadequacy of Health Services subscales and age; and between the likelihood of illness and chronic disease status (p<0.05).

Table 5. Difference Analysis Between Health Seeking Behavior Scale and Its Sub-Dimensions and Demographic Variables

Characteristics		HSBS	Online Health-Seeking Behavior	Professional Health-Seeking Behavior	Traditional Health-Seeking Behavior
Gender	Female	3,7441±0,51782	3,5492±0,74468	4,4147±0,55401	3,4633±0,73748
	Male	3,6692±0,58881	3,5373±0,77277	4,2214±0,77443	3,3806±0,89755
t		1.292	0.069	9.046	4.819
p		0.197	0.883	**0.011***	0.361
Income	0-8500 TL	3,6900±0,53023	3,4632±0,73330	4,3505±0,66459	3,4828±0,71873
	8501-1700 TL	3,7483±0,56970	3,6230±0,74040	4,3177±0,59947	3,4295±0,87103
	17001 TL and above	3,7120±0,52585	3,5405±0,79331	4,3883±0,68297	3,3786±0,78389
F		0.418	1.607	0.367	0.506
p		0.659	0.202	0.693	0.603
Age (avg=33,33)	Below average	3,7284±0,56053	3,5560±0,74984	4,3418±0,67370	3,4596±0,84093
	Above average	3,7026±0,51846	3,5283±0,76132	4,3573±0,59862	3,3965±0,72321
t		0.455	0.143	2.737	4.526
p		0.649	0.724	0.818	0.432
Marital Status	Single	3,7158±0,56564	3,5558±0,73920	4,3250±0,68520	3,4267±0,83486
	Married	3,7207±0,52105	3,5337±0,77028	4,3723±0,59878	3,4433±0,75508
t		-0.089	1.681	2.845	2.122
p		0.929	0.773	0.470	0.838
Educational Status	Primary school	3,7645±0,50481	3,6377±0,69749	4,2899±0,62202[1]	3,4928±0,85203
	High school	3,5204±0,57465	3,3333±0,76706	4,1037±0,69203[2]	3,3111±0,69413
	Associate degree	3,6099±0,68787	3,4326±0,90200	4,2482±0,82669[3]	3,3262±1,03674
	Bachelor's degree	3,7604±0,51157	3,5785±0,74354	4,4022±0,57320[4]	3,4824±0,74623
	Postgraduate degree	3,7821±0,49007	3,6333±0,65828	4,4359±0,65331[5]	3,4256±0,80689
F		2.575	1.571	2.661	0.706
p		**0.037***	0.181	**0.032***	0.588
Post Hoc				**4>2****	
Chronic Disease Status	Yes	3,6643±0,55295	3,4758±0,75854	4,3768±0,61014	3,3285±0,79724
	No	3,7299±0,54197	3,5601±0,75279	4,3417±0,65231	3,4577±0,79539
t		-0.909	0.048	0.148	0.080
p		0.364	0.400	0.682	0.222

*p<0,05, **Post Hoc: Tukey

The comparison of the demographic variables and the Health Seeking Behavior Scale were given in Table 5. There was no significance between Health Seeking Behavior and gender, income, age, marital status and chronic disease status (p>0.05), while a significant difference was found with educational status (p<0.05). Health Seeking Behavior was higher in individuals holding a postgraduate degree. A significant difference was found between professional health seeking behavior and gender and educational status (p<0.05).

Table 6. The Results of the Correlation Analysis

		Health Seeking Behavior	Online Health-Seeking Behavior	Professional Health-Seeking Behavior	Traditional Health-Seeking Behavior
Health Cognitions Scale	r	0,141*	0.091	0,222**	0.035
	p	**0.005**	0.074	**0.000**	0.497
Awfulness of Illness	r	0,128*	0.078	0.077	0,140**
	p	**0.012**	0.127	0.131	**0.006**
Difficulty Coping with Illness	r	0.085	0.067	0,215**	-0.070
	p	0.096	0.188	**0.000**	0.171
Likelihood of Illness	r	0.010	0.000	-0.041	0.060
	p	0.849	0.999	0.420	0.241
Inadequacy of Health Services	r	0.007	-0.004	0.053	-0.014
	p	0.884	0.931	0.301	0.784

*The correlation is significant at the level of 0.05.

The findings of the correlation analysis conducted between the Health Seeking Behavior Scale and the Health Cognitions Scale were given in Table 6. A very weak positively significant correlation was found between health cognitions and health seeking behavior (p<0.05). A very weak significant correlation was found between health cognitions and professional health-seeking behavior (p<0.05). There was a very weak significant correlation was found between awfulness illness and health seeking behavior and

traditional health-seeking behavior search ($p<0.05$). A very weak significant correlation was found between Difficulty Coping with Illness and professional health-seeking behavior ($p<0.05$).

4. DISCUSSION

The study aimed to examine the relationship between individuals' health cognitions and health-seeking behaviors. In this context, the health cognitions and health-seeking behaviors of the participants participating in the research were compared with their demographic characteristics.

While there was no significant difference between health seeking behavior and gender, income, age, marital status, chronic disease status; a significant difference was found with educational status. It was found that the health seeking behavior of individuals holding a Postgraduate degree was at a high level. People with a high level of educational status showed more willing and conscious behaviors in solving their own health problems, and finding appropriate treatment methods. In the subscales, a significant difference was found only between gender and educational status and professional health seeking behavior. Accordingly, it was found that females and people with a high educational level showed more professional health seeking behavior. It is considered to be associated with the fact that there is a relationship between high educational level and health literacy. The reason for the high professional health seeking behavior among females may be associated with health sensitivities of females being higher compared to males.

In a similar study, Özdemir and Arpacıoğlu (2020) could not determine a significant difference between gender and health cognitions. When the subscales were examined, a significant difference was found only between professional health seeking behavior and gender. This situation supports the findings of the current study. In contrast to the current findings, no difference was found between educational status and health seeking behavior. A significant difference was found between age and medical illness status and health seeking behavior. These findings are not consistent with the current findings. In another study, no significant difference was found between gender, age and educational status and health-seeking behavior subscales, while there was a significant difference between marital status and online health-seeking behavior (Deniz and Çimen, 2021). It can be concluded that these findings show both similar and different results with the current findings. In a study by Kıraç (2019), a significant difference were found between gender, age, educational status, income, chronic disease status and health seeking behavior. When the subscales were examined, a significant difference was found between gender and online and traditional health seeking behavior subscales; between age and all subscales; between marital status and online and professional health seeking behavior; between educational status and online and professional health seeking behavior subscales; between income and online and traditional health seeking behavior subscales, and between chronic disease status and online health seeking behavior. In another study, no difference was determined in the health-seeking behaviors of the participants according to gender and working status, while the health-seeking behavior of the participants differed online and traditionally according to their age status. There are differences in professional and traditional health-seeking behaviors according to educational status. According to the marital status of the participants, statistical differences were found in traditional health-seeking behaviors (Özişli, 2023). Consequently, the current findings related to health seeking behavior show similarities and differences to the literature.

According to the research results, a positive and low level correlation was found between health cognitions and health seeking behaviors ($p<0.05$; $r= ,141$). It was found that when the level of health cognitions of individuals increased, a low-level increase in health seeking behaviors would occur. In the literature, a study was found in which these two variables were considered together. Atalı (2021)'s study found a significant relationship between health cognitions and health-seeking behavior, similar to the current study. In previous studies, Health Cognitions Scale was used to examine self-efficacy and health beliefs (Nordgren, et al., 2008), drug compliance and depression in hemodialysis patients in Greece (Theofilou, 2013), smoking cessation behavior (Ertaş et al., 2023), the effect of socio-economic status on participants' health behaviors and health cognitions (Schüz et al., 2020), and health anxiety and cyberchondria (Airoldia et al., 2022), determining the level of physical activity in women (Walsh and Simpson, 2020), excessive weight gain in pregnant women (De Jersey et al., 2017), stress management in children (Cheetham et al., 2016). When the field literature was examined, studies were found that developed and adapted Health Cognitions Scale (Dai et al., 2019; Karaköse and Akçinar, 2021).

In previous studies, health seeking behaviour variable was used in measuring the perspective of patients in Saudi Arabia (Almaqhawi et al., 2022); in assessment of individuals according to their demographic characteristics (Deniz and Çimen, 2021); in assessment of social media use, health perception and coronavirus fear (Özdemir and Arpacıoğlu, 2020); and in determining the effect of health literacy level on healthy lifestyle behaviors (Mansur and Şimdi, 2022.

Health cognitions that reflect the beliefs of both individuals and society about the extent to which they can control and influence health outcomes determine the health seeking behavior tendencies. Individuals understanding their health behavior is an important element for the proper knowledge of the methods they

apply to solve problems, as well as for the improvement of health. It contributes to prevent health risks, to minimize disease burden, and to improve the health status of individuals and society. A good understanding of health-related behaviors, access to health information, correct treatment practices, early diagnosis of diseases, a short recovery process, and effective decision-making are achievable with a good understanding of the psychological and cognitive status. In this regard, it is recommended to increase the research that examines the two concepts in detail. Thus, it is thought that a stronger basis for future research will be provided by increasing the number of studies that address health cognitions and health-seeking behavior together.

The findings obtained from the research, the period of data collection is limited to the province where the study was conducted and the individuals living there. In this respect, the results of the research cannot be generalized to all individuals living in Turkey. In addition, it is assumed that the participants in the study respond objectively to the statements in the questionnaire and that the measurement tools used are reliable.

5.CONCLUSION

In the current study, the relationship between health cognitions and health seeking behavior was examined, and it was found that health cognitions positively affected health seeking behavior. Consequently, it was seen that health cognitions, which are defined as feelings and thoughts related to the behaviors of individuals about their health, are a factor in determining health seeking behavior. Therefore, the improvement of health cognitions of individuals increases their health seeking behaviors. It is recommended to increase the number of studies in which both concepts discussed in the study are used together.

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Evaluation of The Career Stress Levels of Students Studying in The Field of Health Sciences

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ABSTRACT

The aim of this study is to determine the career stress levels and related factors of students who are about to graduate in the field of health sciences.

The population of the study consists of final-year students studying in the departments of medicine, dentistry, pharmacy, and vocational schools in the field of health sciences of foundations and state universities operating in Istanbul (N=1900). The sample of the study was formed by 581 faculty students (State= 369, Foundation= 212) and 488 VSHS students (State= 359, Foundation= 129), and 56.26% (n=1069) of the population was reached.

The research participants consisted of 32% male students (n=339) and 68% female students (n=730). The Mann-Whitney U Test was applied to determine the differentiation of the results of the Career Stress Scale according to gender, and it was observed that there was no significant difference other than 'Factor 2' (Employment Pressure) (p=0.000). In the conducted comparisons, significant differences were found in all three dimensions of career stress according to the field of study (p<0.05). Occupations were analyzed in pairwise comparisons with the Man Whitney U Test. In paired comparisons; 'Employment Pressure' (p=0.001) and 'External Conflict'(p=0.003) between Dentistry and VSHS, 'Employment Pressure' (p=0.000) between Pharmacy and VSHS, 'Employment Pressure' (p=0.000) between Medicine and VSHS, 'Employment Pressure' (p=0.003) between Health Management and VSHS showed a significant difference. No differences were found in any dimension of career stress according to the ownership of the educational institution (p>0.05).

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1.INTRODUCTION

Career is a process that is built from childhood, lasts throughout life, and includes progress, stagnation, and setbacks (Demircioğlu, 2023). According to Nordvik, the concept of career is a dynamic process that requires decision-making during the development process, which is formed by the interaction of experience and opportunities (Nordvik, 1996). Factors such as responsibilities, potential consequences of decisions, and reactions from the environment and family can cause stress in individuals during the career process. Since career decision-making is a complex process, individuals may experience stress during the stage of creating career plans (Aşık and Akgül, 2022).
Although stress is generally perceived as negative, it can cause positive results and individual development by contributing to the motivation, attention, skill and job responsiveness of the person. Some level of stress is required for enthusiasm, creativity and productivity, but high levels of stress have negative consequences (Rojas and Kleiner, 2000).

Career stress can be defined as the stress experienced by the individual while determining his career and during the development process of his career (Park and Han, 2017; Jang, 2020). According to the research conducted on university students in Korea, the sources of stress were defined as academic achievement, extracurricular responsibilities, friendship relationships, family issues, and career. Career stress has been identified as the top-ranked stressor among them (Choi et al., 2011; Kim, 2003). Factors that cause career stress can be listed as lack of information and indecision about career, family attitudes, environmental reactions, anxiety about finding a job, and uncertainty (Günay and Çelik, 2019). It can be said that students in health sciences experience stress in clinical practices such as relationships with faculty members, fear of making mistakes, clinical skills, relationships with patients, adapting to practice teams, tasks given outside of duty and authority, pressure of having good grades (Altıok and Üstün, 2013). According to a study conducted on nursing students in 2017, the causes of stress in the clinical field: Patients' inability to trust students, fear of making mistakes in practice, insistence of faculty members, test anxiety, lack of social activities at school, and the environment's prejudice towards nursing (Yılmaz et al., 2017).

During the education period, students are faced with the stated causes of stress and if they cannot manage their stress correctly, they may experience negative situations in their careers. Therefore, they may need support in stress management. It has been found in studies that career planning also reduces career stress (Rottinghaus et al., 2009).

According to a study conducted by Fouad et al. in 2006, students experience career decision-making difficulties and psychological distress and need career counseling and career services. Although students need the services, only half of them are aware of the career services provided on their campus and only a small percentage of the students benefit from these services (Fouad, 2006).

One of the determinants affecting the life satisfaction of university students is the expectation of professional results (Yılmaz et al., 2020). It is the most natural right of every young person to find a job after completing their education, to use their skills in their own profession, to earn income and to establish and maintain their lives at the welfare level. It is known that with the increasing unemployment rates and the increase in the number of universities and the quotas of the departments in Turkey in recent years, young people in some departments have difficulties in employment. For example, in studies conducted with Health Management students, it was seen that the majority of students were worried about finding job after graduation and unemployment concerns were high (Ilıman et al., 2019). Another study conducted by Korkmazer at the Faculty of Health Sciences also supports that the unemployment anxiety of students studying in these departments is high (Korkmazer, 2020).

In a study conducted by Yılmaz et al. on the professional outcome expectation and life satisfaction of university students from different faculties, the faculty with the lowest department satisfaction and thinking that it is suitable for the department was determined as the Faculty of Health Sciences (Yılmaz, 2020). On the other hand, in the studies on the determination of professional desire in nursing students, it is concluded that most of the students choose the profession knowingly and willingly (Karadaş et al., 2017; Sönmez et al., 2018). Similar results emerge for the students of the Vocational School of Health Sciences (VSHS) (Gayef and Sarıkaya, 2012). One of the most important reasons why VSHS students choose their profession is their willingness to provide health services, but there are many factors that affect their decision to pursue a career in this field. The most important of these factors is their concern about finding a job in the industry. Anxiety about finding job strengthens the competition among students in the field of health (Turaç and Bayın Donar, 2017).

The willingness of university students to study is not the only factor in their career decisions, but it is decisive and important (Ancın and Ulucan, 2020). In a study conducted on the university students studying in different faculties, it was determined that the level of career stress decreased with the increase in the level of willingness to enter the department (Erdogan and İşsözen, 2022).

The effectiveness of all components in healthcare systems relies on a strong workforce. The workforce directly affects the quality and efficiency of the produced healthcare services. Therefore, the need for human resources should be clearly identified and planning should be made accordingly. Recently, it is predicted that there will be more graduates than needed in professions such as pharmacy due to the increasing number of faculties and quotas (Ministry of Health, 2014). On the other hand, it is known that there is a great need for nursing graduates and there are serious problems related to the number of nurses in private hospitals. Our students studying health sciences are very valuable and it is important that they participate effectively in the country's healthcare system and be free from future concerns and stress while performing their professions.

There are not many studies on the career stress of students studying in the field of health. In this study, it is aimed to obtain information about the career stresses and affecting factors of students studying in health sciences.

2. MATERIALS AND METHOD

In this study, the 'Career Stress Assessment Scale' was applied to the senior students of the School of Medicine, Dentistry, Pharmacy, Health Management and Vocational School of Health Sciences (VSHS) in order to determine the future expectations of the students who are about to graduate and their opinions about their careers. The research is designed as a cross-sectional and descriptive type. In order to conduct the research, ethical committee approval and permission were obtained from Marmara University Institute of Health Sciences on June 25, 2020.

2.1. Research Questions

The research questions are as follows:
Do students of health sciences experience career stress?
In which dimensions and areas is the stress experienced?
Does career stress differ based on gender, the ownership of the institution of study, and the profession field of study?

2.2. Working Group and Method

Convenient sampling method was used as the sampling method in the research. The research was conducted by obtaining the necessary bureaucratic permissions, with the guidance of the relevant department deans, through online and face-to-face surveys from at least one state and one foundation university from each department.
The population of the research was determined based on the number of students who will graduate from the relevant departments during the study period in the universities where the study will be conducted, using the data of the students placed by the Council of Higher Education (YOK). The population of the study was calculated to be 1900; including students who entered Medicine, Dentistry, and Pharmacy faculties in 2015-2016, students who entered 4-year programs that graduate students in 4 years in 2016-2017, and students who entered associate degree programs in 2018-2019. The sample size was planned to be at least 320 students when the survey was applied with a margin of error of 5% and a confidence interval of 95% using the Raosoft program (raosoft.com.tr).

Participants in the study were informed about the purpose of the study and were encouraged to participate voluntarily and willingly. It has been stated to the participants that the survey consists of 20 questions and takes approximately 5 minutes to complete. Before starting the research, the students who will participate in the research were informed about the purpose and method of the research, the time they were asked to allocate for the research, and the fact that the participation was completely voluntary, and their permission was obtained. In the face-to-face application, after the students were informed about the research, the questionnaire form was distributed and collected by face-to-face interviews. In online applications, survey links were sent to the students through the relevant department professors or department secretaries, and a survey was conducted. In total, 581 (State=369, Foundation=212) in faculties, 488 (State: 359, Foundation: 129) in vocational schools; 1069 questionnaires were reached.

Table 1: Participants' Descriptive Characteristics (N=1069)

Characteristics		N	%
Gender	Male	339	31.7
	Female	730	68.3
University Type	State University	730	68.3
	Foundation University	339	31.7
Department	Dentistry	198	18.5
	Pharmacy	165	15.4
	Medicine	116	10.9
	Health Management	102	9.5
	VSHS	488	45.7

Surveys were conducted online for medicine students. In the initial applications, the desired numbers could not be reached, so surveys were conducted at two more universities, one state and one foundation. A survey link was sent to approximately 650 students via e-mail, 400 from state universities and 250 from foundation universities (Approximate values were given since the exact numbers for final year students by faculties could not be provided.). A total of 116 surveys were completed, 77 from state universities and 39 from foundation universities.

Surveys were conducted online for dentistry students. A survey link was sent to approximately 300 students via e-mail, 200 from a state university and 100 from a foundation university. A total of 198 surveys were completed, 134 from the state university and 64 from the foundation university.

Surveys were conducted face-to-face by the researcher in pharmacy departments. Out of 100 students at the state university, 98 were reached, while at the foundation university, approximately 100 students, 67 were reached. A total of 165 surveys were obtained.
A face-to-face survey was conducted for a total of 60 senior students in the Health Management Department at the state university. Since there were very few students in the Health Management Departments at foundation universities, surveys were conducted in four different foundation universities, two face-to-face and two online. In the face-to-face applications, 20 out of a total of 30 students in the departments were reached. In the online applications, 22 surveys were obtained from approximately 45 students. A total of 102 surveys were collected from health management students.

Surveys were conducted face-to-face by the respective instructors of each department for all senior students in the VSHS at the state university, and all of them were reached (N=359). Surveys were also delivered online to approximately 500 senior VSHS students at two foundation universities, and 129 surveys were obtained. In the online survey application, the system was set up in a way that any unanswered question would prevent the completion of the survey, so there were no invalid surveys. In face-to-face surveys, the researcher checked and received the surveys themselves, so any inappropriate surveys were immediately returned to the participants and, once they became valid, were collected again.

2.3. Career Stress Scale

The Career Stress Scale used in the research was developed by Choi et al. in 2011 in order to identify the sources of career stress and the difficulties experienced by Korean university students. A 5-point Likert rating (Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1) was used in the scale consisting of 4 sub-dimensions and 20 items. There are no items that were reverse-scored in the scale. The high score obtained as a result of the survey indicates a high career stress level (maximum 100 points), and the low score indicates a low career stress level (at least 20 points). According to the mean and median values, a value close to 1 indicates low stress level, while a value close to 5 indicates high stress level. The median and mean values being 3 or above indicate that the stress level is increasing and tends towards the negative.

The Career Stress Scale was adapted into Turkish by Ozden and Sertel-Berk in 2017. In the original study, Cronbach's alpha coefficients were calculated for internal consistency reliability, and they were found to be 0.83 for external conflict, 0.85 for job finding pressure, 0.89 for lack of knowledge, and 0.89 for career uncertainty. A four-factor structure was formed. In the Turkish adaptation study, Cronbach's Alpha coefficients were found to be 0.83 for external conflict, 0.86 for job pressure, 0.94 for lack of knowledge and career uncertainty, and a 3-factor structure was revealed (Ozden and Sertel-Berk, 2017).

2.4. Data Analysis

The data obtained from the research were transferred to the electronic environment and analyzes and evaluations were made by using the SPSS 11.5 statistical package program. Frequency tables, central and prevalence criteria, Mann-Withney U Test and Kruskal-Wallis H Analysis were used in analyzes and evaluations. Compliance of the data with normal distribution was tested by Kolmogorov-Smirnov Test and Histogram, and it was determined that they were not suitable for normal distribution. The kurtosis and skewness values were determined to be above plus and minus 1.5, and the QQ plots were examined with central tendency and dispersion measures on the histograms, revealing that the data did not approximate a normal distribution. According to Tabachnik and Fidell, if the kurtosis and skewness values are not between negative 1.5 and positive 1.5, the distribution is not normal. For this reason, non-parametric hypothesis tests were used in our research. The statistical significance level was taken as 0.05 (Tabachnik and Fidell, 2013).

Validity and Reliability

Validity and reliability analyses were conducted again for the scale used in the research due to its evaluation in a new group/sector, and since no structure was initially established for the scale, exploratory factor analysis was preferred. Exploratory factor analysis can be preferred for the validity of scales in a new group/sector compared to confirmatory factor analysis (Şencan ,2005; Büyüköztürk 2007; Çokluk et al, 2016). The Alpha value of Cronbach, which is the internal consistency analysis for the Career Stress Scale used in the research, was calculated as 0.93. Explanatory factor analysis was used for the validity of the Career Stress Scale used in the research. A coefficient of 0.940 was reached in the KMO Test, and the adequacy of the sample was found to be 'very good'. In the Bartlett Test, a p value of <0.05 was reached. Therefore, it was seen that the items were suitable for factor analysis. The scale explains 60.97% of the total variance and a three-factor structure emerged. Item 16 was removed from the scale as it was an overlapping item and factor analysis was performed again. In Factor 1 (Career Uncertainty and Lack of Knowledge) 18, 17, 19, 20, 11, 13, 5, 14, 3 items; items 10, 12, 7, 9, 6, 8 were included in Factor 2 (Employment Pressure) and items 1, 15, 2,

4 in Factor 3 (External Conflict). Varimax rotation is used in the rotation process.

3. RESULTS

The research participants consisted of 32% male students (n=339) and 68% female students (n=730).
The Mann-Whitney U Test was applied to determine the differentiation of the results of the Career Stress Scale according to gender, and it was observed that there was no significant difference other than 'Factor 2' (Employment Pressure) (MU=103662.500 p=0.000) . As a result of the test, it can be said that female students experience more stress than male students about the 'Employment Pressure'. Table 2 shows the results:

Table 2: Comparison of Career Stress Scores by Gender

	Gender	N	Median	MWU	p
Career Uncertainty and Lack of Knowledge	Male	339	2.33	116718	0.135
	Female	730	2.56		
Employment Pressure	Male	339	**3**	103662.5	**0**
	Female	730	**3.33**		
External Conflict	Male	339	2	117715	0.198
	Female	730	2		
Career Stress Total	Male	339	2.58	116059.5	0.102
	Female	730	2.63		

339 of the students participating in the research are from foundation universities and 730 of them are from state universities. The Mann-Whitney U Test was applied to determine the differentiation of the results of the Career Stress Scale according to the 'type of university' and it was observed that there was no significant difference. The results are shown in Table 3.

Table 3: Comparison of Career Stress Scores by University Type

	University Type	N	Median	MWU	p
Career Uncertainty and Lack of Knowledge	State University	730	2.44	117015.5	0.152
	Foundation University	339	2.67		
Employment Pressure	State University	730	3.17	121457.5	0.627
	Foundation University	339	3.33		
External Conflict	State University	730	2	120480	0.486
	Foundation University	339	2		
Career Stress Total	State University	730	2.56	119695.5	0.39
	Foundation University	339	2.69		

The Kruskal-Wallis Test was applied to reveal the differences in the results of the Career Stress Scale between occupations and it was determined that there was a significant difference in all factors except the general value.

Table 4: Comparison of Career Stress Scores by Department

	Department	N	Median	Chi-Square	p
Career Uncertainty and Lack of Knowledge	Dentistry	198	2.78	9.906	**0.042**
	Pharmacy	165	2.33		
	Medicine	116	2.72		
	Health Management	102	2.56		
	VSHS	488	2.33		
Employment Pressure	Dentistry	198	3.08	48.561	**0**
	Pharmacy	165	3		
	Medicine	116	2.67		
	Health Management	102	3		
	VSHS	488	3.5		
External Conflict	Dentistry	198	1.75	12.284	**0.015**
	Pharmacy	165	2		
	Medicine	116	2.25		
	Health Management	102	2		
	VSHS	488	2		
Career Stress Total	Dentistry	198	2.61	8.995	0.061
	Pharmacy	165	2.48		
	Medicine	116	2.57		
	Health Management	102	2.6		
	VSHS	488	2.72		

A Bonferroni correction was applied to determine the source of the differences between the groups, and since 10 hypothesis tests were used, the significance level was set at 0.05/10 (0.005). Occupations were compared using pairwise comparisons with the Mann-Whitney U Test. The results showed significant differences in the following paired comparisons:

- Between Dentistry and VSHS, there were significant differences in 'Employment Pressure' (MU=40640.000, p=0.001) and 'External Conflict' (MU=41462.000, p=0.003).

- Between Pharmacy and VSHS, there was a significant difference in 'Employment Pressure' (MU=30220.000, p=0.000).

- Between Medicine and VSHS, there was a significant difference in 'Employment Pressure' (MU=18629.500, p=0.000).

- Between Health Management and VSHS, there was a significant difference in 'Employment Pressure' (MU=20310.500, p=0.003).

When the responses given to the Career Stress Scale questionnaire were evaluated in general, the items with a higher median compared to other items are presented below:

• 5. I have concerns that I don't know enough about the job I want (Md=3.0).
• 6. I have concerns that there are not enough positions in my career field (Md=3.0).
• 7. I'm worried that I won't be able to pass the recruitment exam the first time (Md=3.0).
• 8. I am worried that the job I want will not provide me with a secure income (Md=3.0).
• 9. I feel under pressure because it is difficult to study for school and prepare for a job at the same time (Md=3.0).
• 10. I feel stressed because there is so much to do to find a job (Md=4.0)
• 11. I feel blocked because I don't know what I want to do in the future (Md=3.0)
• 12. I am worried that I may not get the job I want (Md=3.0)
• 18. I feel blocked because I doubt that what I have planned for my future is what I really want (Md=3.0).

4. DISCUSSION

As a result of the research, the career stress of the students studying in some departments of health sciences in both foundation and state universities operating in Istanbul and the effect of some factors related to this were revealed.

It is remarkable that in our study's findings, higher scores were given to all items related to the factor of 'Employment Pressure' compared to other items in terms of career stress. The item with the highest median value is 'I feel stressed because there are too many things to do to find a job.' It is observed that many students are anxious about achieving their desired jobs in the future. After graduation, necessary conditions are not created by the government for students who want to pursue their own professions. Even if workforce needs analysis is conducted, necessary coordination cannot be achieved with Higher Education Institution, and faculty numbers and quotas are not reduced in departments where surplus supply will be experienced. Having too many faculties and quotas also negatively affects the quality of education. Similarly, necessary specializations and numbers cannot be provided in departments that graduate fewer students than needed. Programs should be developed to ensure that healthcare graduates who are unemployed or have started working in different fields participate in complementary programs for the needed departments.

The fear of not finding a job also negatively affects the willingness of students to pursue their desired professions in their preferred departments. Half of the items in the dimension of 'Career Uncertainty and Lack of Knowledge' also show high levels of career stress. As the stress levels in the items of 'External Conflict'dimension are low, it is concluded that students studying in health sciences do not experience external conflict.

In the study conducted by Turpçu and Akyurt with Tourism and Hotel Management students, it was determined that students experience career stress mostly in the employment pressure, similar to the result of our research (Turpçu and Akyurt, 2018). In the study conducted by Güler and Ünal with the students of the Faculty of Economics in 2020, it was seen that the items that students had high scores were in the dimensions of 'External Conflict' and 'Career Uncertainty and Lack of Knowledge' (Güler and Ünal, 2020).

In our study, the Mann-Whitney U Test was applied to determine the differentiation of the results of the Career Stress Scale according to gender, and as seen in Table 2, there was no significant difference other than the dimension of 'Employment Pressure', and it was determined that female students (Md=3.33) experienced more stress than male students (Md=3.0) in terms of employment pressure (p=0,000).

In the study conducted by Üzüm et al., it was determined that there was a differentiation in the sub-dimension of 'Career Uncertainty and Lack Of Knowledge'. According to this finding, female students have a higher level of stress about 'Career Uncertainty and Lack Of Knowledge' than male students ($p<0.05$) (Üzüm et al., 2018).

According to the study conducted by Esen on Vocational School students, there is a significant difference in the 'External Conflict' dimension based on gender, and it has been observed that female students

feel more external conflict than male students (p<0.05) (Esen, 2019).

"In the study conducted in 2019 with teacher candidates, it has been observed that female students experience more stress than male students in the 'Employment Pressure' dimension (Yılmaz, 2019).
In the study conducted by Yaşar and Turgut on students from different faculties, it was found that female students had a higher level of stress in the dimension of 'external conflict' (Yaşar and Turgut, 2019).

Gündoğdu, in his study with students from different faculties, stated that the career stress of female students is higher than male students (p<0,01) (Gundogdu, 2021). In the study conducted by Bayrakçeken and Buztepe on VSHS students, the career stress scores of male students were found to be higher than female students (p <0.05) (Bayrakçeken and Buztepe, 2021). The study conducted by Erdoğan and İşsözen in 2022 on students from different faculties also supports this finding (Erdogan and İşsözen, 2022).

On the other hand, some studies have concluded that there is no significant difference according to gender:
No difference was found based on gender in the study conducted by Güler and Ünal (2020). Similar results were observed in the studies conducted by Özkan in different faculties (2020), Bozyiğit and Gökbaraz in sports science students (2020), Çetinkaya in sports science students (2019), and Turpçu and Akyurt in tourism students (2018), where career stress did not differ by gender (Özkan 2020; Bozyiğit and Gökbaraz, 2020; Çetinkaya, 2019; Turpçu and Akyurt, 2018).

When the results of the hypothesis 'There is a difference in career stress among students based on gender' and the literature are examined, different results have been reached in the studies. It can be thought that the reason for this is that the studies were conducted in different occupations and age groups.

The Mann-Whitney U Test was applied for the hypothesis of 'Career stress differs based on the ownership of the university where students attend (state/ foundation)' and it was seen that there is no significant difference and hypothesis was completely rejected. In previous studies, it was seen that there was no comparison in terms of students going to foundation or state universities.
In order to reveal the difference between the professions for the hypothesis of 'Career stress differs based on the field of study where students attend (Medicine, Dentistry, Pharmacy, Health Management and VSHS)', the Kruskal-Wallis Test was applied and it was found that there was a significant difference in all factors except the general value.

Occupations were analyzed in pairwise comparisons with the Man Whitney U Test. In paired comparisons, 'Employment Pressure' and 'External Conflict' showed significant difference between Dentistry and VSHS; 'Employment Pressure' showed significant difference between Pharmacy and VSHS; 'Employment Pressure' showed significant difference between Medicine and VSHS; 'Employment Pressure' showed a significant difference between Health Management and VSHS.

In his study, Gündoğdu showed that there was a difference between the departments of the students on the total score of career stress. She stated that approximately 4.3% of the variance observed in the PSS scores was dependent on the department (Gündoğdu, 2021).

In a study conducted by Yu and Yang in 2013, it was found that department satisfaction and career stress were related (Yu and Yang, 2013). In his research, Özkan revealed that there is a significant relationship between students' satisfaction with the department and career stress, and that those with high satisfaction have low career stress levels (Özkan, 2020). Turgut and Yaşar stated in their study that there is a significant relationship between the department and career stress, and that the level of career stress may be higher in departments that have employment problems after graduation (Yaşar and Turgut, 2019).

Torun et al. showed in their study that university students with a positive 'core self-assessment' perceived career stress less. Core self-assessment; In short, it is a self-evaluation of the person himself. In other words, it is related to the person's self-knowledge (Torun et al.; 2021).

5.CONCLUSION

The research participants consisted of 32% male students (n=339) and 68% female students (n=730). The Mann-Whitney U Test was applied to determine the differentiation of the results of the Career Stress Scale according to gender, and it was observed that there was no significant difference other than 'Employment Pressure' (MU=103662.500 p=0.000) . It was determined that female students (Md=3.33) experienced more stress than male students (Md=3.0) in terms of employment pressure.

In our study, 32% of the participants were from foundation universities and 68% were from state universities. The Mann-Whitney U Test was applied for the hypothesis of 'Career stress differs based on the ownership of the university where students attend (state/ foundation)' and it was seen that there is no significant difference.

Occupations were analyzed in pairwise comparisons with the Man Whitney U Test. In paired comparisons; 'Employment Pressure'(MU=40640.000 p=0.001) and 'External Conflict' (MU=41462.000 p=0.003) between Dentistry and VSHS; 'Employment Pressure' (MU=30220.000 p=0.000) between Pharmacy and VSHS, 'Employment Pressure' between Medicine and VSHS (MU=18629.500 p=0.000); 'Employment Pressure' (MU=20310.500 p=0.003) showed a significant difference between Health Management and VSHS.

It is clear that the level of career stress will have significant effects on students' future work lives (Zhang et al., 2022). For this reason, families, faculty members, university career centers, statesmen who carry out planning activities in higher education and students themselves have a lot of work to reduce career stress of students.

Students should be guided to get to know themselves and their abilities during their childhood years. Individuals who understand their wishes, abilities and skills correctly can choose the right professions and be happy in their jobs. Families should support their children in line with their children's wishes and abilities, and should be with their children in career decisions. Young people should be able to receive career guidance services both in secondary education and at university. Activities such as career days should be increased in order to promote professions. Faculty members should analyze the changes, needs and expectations of their students and the business world well, prepare their students for their professions in this direction, and make the students feel ready for the business world. Research and studies should be carried out and cooperation should be established in order to increase the quality and effectiveness of practice courses and internships.

Country governments should create the necessary environment for all stakeholders to work in coordination with each other for effective human resources planning. Instead of educating students in areas with employment problems, the workforce should be shifted to areas where it is needed. The departments in Higher Education Institutions and the quotas for these departments should be revised by constantly reviewing. Cooperation between Higher Education Institutions and industry representatives should be developed, and necessary improvements and arrangements should be made to train a workforce in quality and quantity suitable for the needs of the industry.

Conflict of Interest:
The authors declare that they have no conflict of interest.

Ethical Approval:
In order to conduct the research, ethical committee approval and permission were obtained from Marmara University Institute of Health Sciences on June 25, 2020.

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Evaluation of Health Management Education Curriculum in Terms of Disaster Management

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ABSTRACT

The Department of Health Management trains managers for health institutions serving in the public and private sectors. The health sector is in a very important place due to the duties and responsibilities it undertakes in the event of a disaster. For this reason, health professionals are expected to have a good knowledge of basic disaster response knowledge and skills such as disaster management and disaster medicine. In the literature review, when it comes to the disaster preparedness of health workers, only physicians and nurses draw attention, and health managers remain in the background.

In this study, the curricula of universities providing health management education were analyzed in terms of disaster management.

In this context, it was investigated whether there are first aid, public health, disaster management and occupational health and safety courses in the curricula. A total of 56 public universities providing health management education in Turkey were included in the study. When the curricula were analyzed; First Aid course is compulsory in only 7 universities. In 25, it is included in the elective course pool. Public health course is compulsory in 27 and elective in 20 universities. Disaster management course is compulsory in 11 and elective in 30 universities. Occupational health and safety course is compulsory in 11 and elective in 33 universities. Considering that the graduates may be in positions such as prevention of disasters, preparation of disaster plan or intervention in the hospitals where they will work, it is observed that the courses that may be related to disasters that they take during their undergraduate education are not sufficient.

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1.INTRODUCTION

'Disaster Management' is a managerial approach that determines and implements the legal, administrative and technical works that should be carried out 'before, during and after the disaster' in order to prevent and minimize the damage, and improves the current situation in the light of previous experiences and experiences when faced with a disaster (Uluğ, 2009: 4). Turkey is exposed to natural disasters, especially earthquakes, due to its location and ranks 4th in the world in terms of the number of earthquakes experienced. Turkey is characterized as a "high-risk" country and experiences a large-scale earthquake that causes loss of life and property on average every 5 years (AFAD, 2018: 8).

An effective disaster response requires a well-planned and coordinated effort with many trained and experienced professionals who can apply specialized knowledge and skills in critical situations. Some of these professionals may have worked routinely with emergencies and also have disaster experience. However, many may lack critical knowledge and experience related to disasters and therefore may have difficulty performing effectively under the stressful conditions created by disasters. To ensure that these health workers are adequately prepared for disasters and public health emergencies, it is first necessary to specify the knowledge, skills and attitudes they will need.

Only then, it may be possible to adequately prepare health professionals through appropriate education and training (Walsh et al. 2012:45).
Hsu et al. (2006) listed the qualities that all health workers should have as "cross-cutting competencies" and explained these 7 competencies as follows.

Cross-cutting Competencies for Health Workers
1. Recognize a potential critical incident and implement first actions
2. Apply critical incident management principles
3. Know and apply critical incident security principles
4. Understand the corporate emergency operation plan
5. Ensure effective critical incident communication
6. Understanding the incident command system and its role in this system
7. Have the knowledge and skills needed to fulfill their role during a critical incident

Competency 1: Recognize a potential critical incident and implement first actions.
Critical incidents include disruptions to an organization's ability to maintain continuity of operations, disasters and emerging infectious diseases. An important component of appropriate disaster response is the health worker's ability to recognize a critical incident and know what to do, especially who to notify and how to activate a disaster plan. It is vital to ensure early incident recognition and early response mobilization to minimize the damage of the critical incident. Given the scenarios that may be encountered during their normal professional duties, they should be able to identify all potential critical incidents. They should be able to identify the appropriate authorities to be notified, appropriate notification steps and key information to be reported. Staff should be able to list the immediate actions required to protect personal, environmental and public safety. Make recommendations for immediate response needs prior to activation of the disaster plan.
Be able to use their knowledge of potential critical incident recognition and emergency response needs to take appropriate notification, safety and mitigation actions for the incident in question.

Competency 2: Apply critical incident management principles.
For a facility to successfully manage all critical incidents, healthcare professionals must understand the key elements of effective preparedness and response, including the appropriate actions to take. They should be able to identify the phases of critical incident management and perform activities at the appropriate stage. Apply disaster preparedness knowledge to identify key components of preparedness and recognize appropriate preparedness activities. Apply their knowledge of disaster response to recognize appropriate response activities. They should know the basic components of rescue and be able to apply knowledge of disaster recovery to recognize appropriate rescue activities.

Competency 3: Know and apply critical incident security principles.
A critical response component for health workers is the ability to protect the facility, its resources and self during a disaster. Demonstrate knowledge of security principles by identifying security threats and appropriate actions.

Competency 4: Understand the organizational emergency operations plan.
Familiarity with the organizational emergency operations plan is important for people working within the organization to support and implement an effective, coordinated course of action during any critical incident. Personnel should know and apply the components of planning in critical incident response.

Competency 5: Ensuring effective critical incident communication.
Communication is a vital element for a successful critical incident. Health workers need to know how poor communication can undermine the effectiveness of disaster responses and need to learn effective critical incident communication skills.

They should be able to apply communication knowledge to meet basic communication needs,

including identifying appropriate timing, content, recipients and methods.

Competency 6: Understand the incident command system and their role in it.
Effective critical incident response requires the successful integration of internal and external (local, state and federal) participants. To achieve this, a recognizable and unified command and control structure is essential. Given a critical incident scenario, the participant will be able to recognize his or her role in the incident command system and identify the relevant responsibilities and the limits of his or her authority.
Competency 7: Possess the knowledge and skills required to fulfill his/her role during a critical incident. Healthcare workers responding to a critical incident require specialized knowledge and skills. These include triage, personal protection, decontamination and treatment. apply knowledge and skills related to disaster triage systems. Apply knowledge and skills related to personal protective equipment (PPE) and have sufficient knowledge to successfully select and wear it. Apply knowledge and skills related to decontamination to select, demonstrate and monitor the correct decontamination method.

Most courses on preparedness responses to disasters caused by natural events and health emergencies are based on the assumption that participants are functional health care providers who have completed their professional training. To ensure preparedness at the national level, health professionals need training that focuses on the roles of the health care provider in practice (Smith et al. 2012: 492). As there is currently no accepted standard for training health workers in disaster response, a number of programs have adopted different formats to achieve stated education and training objectives. Many recognized courses and related training materials have aimed to improve standardization and accessibility. Given this rapidly evolving field, a number of competencies and recommendations for clinicians, hospital staff, hospital leaders, nurses, public health workers and health professional students have been articulated through various guidelines over the last few years. However, it is necessary to develop professional standards and educational programs based on both evidence and sound educational theory (Hsu et al., 2006: 2).

In addition to the importance of reducing the risk of disaster, building earthquake-resistant structures and continuous supervision, managing the disaster or emergency, having managers and personnel who know the process well at all stages of disaster management is an important step to reduce the loss of life and property. For this reason, it is necessary to inform the society on how to act systematically, professionally and in a timely manner in the face of danger and risk in a possible emergency situation, knowing how to protect themselves without endangering their own lives (Şengün and Küçükşen; 2019: 200).

All health workers need training to develop basic knowledge and skills to work independently and also to act as part of a coordinated response effort (Hsu et al., 2006: 2). Thayaparan et al. (2014) emphasized that disaster management education should be lifelong learning by higher education institutions and stated that the desired success in education cannot be achieved due to the complexity and interdisciplinary nature of education and even the bureaucratic procedures of universities. With the awareness that education is the right approach in adopting the right behaviors, it can be said that the interventions of uneducated people in the face of disasters may cause loss of life and property. For this reason, supporting the curriculum with disaster trainings in primary and secondary education and higher education will both increase awareness and minimize losses (Şengün and Küçükşen; 2019: 194).

Disaster management training in Turkey is available in various institutions, associations and universities. Disaster preparedness and response training is provided by Turkish Red Crescent. The training is 4 days theory and 1 day practice and includes topics such as Disasters and Disaster Management Processes, National Disaster Management Structure, Disaster Response Services (nutrition, shelter and camp management, emergency needs assessment, logistics, distribution, communication, media and public relations, reporting). (Disaster Management, Red Crescent). In addition, universities and educational institutions provide face-to-face or web-based trainings such as disaster awareness training, disaster and emergency awareness training.

4-year disaster management undergraduate program is offered in 17 universities and associate degree education is offered in 19 universities, 2 of which are foundation universities (YÖK atlas, 2023).
Considering the studies conducted in our country on the preparedness of healthcare personnel for disasters, it is seen that employees such as nurses, physicians, midwives, health technicians are generally included in the research (Dinçer & Kumru, 2021; Yıldırım & Gerdan, 2017; Çelebi & Uçku, 2017; Sezer et al., 2013; Gündüz & Akyüz, 2022). However, considering the institutions where graduates of the department of health management will work, it is foreseen that they can also take part in disaster management phases such as disaster response and emergency planning. For example, in the hospital disaster and emergency plans (HAP) preparation commission, in addition to the chief physician, deputy chief physician, responsible nurses and physicians, there are also employees in the administrative staff of the hospital such as the director of administrative and financial services, deputy director, director of patient services and health hotel management, quality manager, deputy director

responsible for revolving capital (Hospital disaster and emergency plans (hap) implementation regulation, 2020).

In this context, the study examined the status of disaster management courses in the curricula of health management departments.

2. MATERIALS AND METHOD

Before the curricula were evaluated in terms of disaster management, it was decided which courses to focus on by taking the opinions of faculty members who are experts in the field. In this context, it was investigated whether the curricula included first aid, public health, disaster management and occupational health and safety courses. All state universities with health management departments in the YÖK atlas were included in the study. Information about the departments was obtained from the YÖK atlas. Curricula were accessed from the relevant department web pages. The aim is to investigate whether there are courses related to disaster management in the curricula of health management departments.

In accordance with the purpose of the research, document analysis, one of the qualitative research methods, was applied. This method, which is used to systematically and meticulously analyze the content of documents, is used to examine and evaluate all electronic or printed materials (Kıral, 2020). In the YÖK atlas, the web pages of all universities with health management departments were accessed, and systems with curricula such as course information packages or education information system were examined. In this way, the curricula of the departments were accessed.

3. RESULTS

In this section, first general information about the health management department will be given and then the curriculum review will take place.

3.1. General Information About Department of Health Management

According to 2023 YÖK atlas data, there are 61 state, 14 foundation and 3 TRNC universities with health management departments. The health management department is located within different faculties such as health sciences or economic administrative sciences. Table 1 shows the distribution of the department according to faculties.

Table 1. Faculty-School Distribution of Health Management Departments

Department Location Unit	N	%
Faculty of Health Sciences	40	66
Faculty of Economics and Administrative Sciences	13	21
Faculty of Business	3	5
Faculty of Applied Sciences- Faculty of Social Sciences and Humanities	3	5
Higher School	2	3
Total	61	100

There are a total of 17889 students studying in the department of health management. Table 2 shows the total number of students according to faculties.

Table 2. Total Number of Students by Faculties in the Department of Health Management

Department Location Unit	N	%
Faculty of Health Sciences	10855	61
Faculty of Economics and Administrative Sciences	4880	27
Faculty of Business	1180	7
Faculty of Applied Sciences- Faculty of Social Sciences and Humanities	460	2
Higher School	514	3
Total	17889	100

In addition to 17889 total students, 4350 student quotas are opened every year. Table 3 shows the total student quota according to faculties.

Table 3. Total Number of Quotas by Faculties in the Department of Health Management

Department Location Unit	N	%
Faculty of Health Sciences	2649	61
Faculty of Economics and Administrative Sciences	1154	26
Faculty of Business	258	6
Faculty of Applied Sciences- Faculty of Social Sciences and Humanities	165	4
Higher School	124	3
Total	4350	100

Among state universities, there are only 3 accredited universities. Table 4 shows these departments.

Table 4. Accredited Departments

University	Faculty	Accrediting organization
Ankara University	Faculty of Health Sciences	SABAK
Marmara University	Faculty of Health Sciences	SABAK
Sakarya University	Faculty of Business	AACSB

3.2. Curriculum Research in the Department of Health Management

The curricula of 61 state universities included in the study were accessed from their web pages. However, no information package or curriculum information was found in 5 universities. For this reason, the curricula of 56 universities were included in the study.

Table 5. Availability of First Aid Course in Health Management Departments

First Aid Course	N	%
Compulsory	7	13
Elective	25	44
None	24	43
Total	56	

As seen in Table 5, the First Aid course is compulsory in only 13% of universities.

Table 6. Universities with Compulsory First Aid Courses

University	ECTS	Faculty
Afyonkarahisar Sağlık Bilimleri Üniversitesi	2	Faculty of Health Sciences
Bandırma Onyedi Eylül University	3	Faculty of Health Sciences
İstanbul University-Cerrahpaşa	2	Faculty of Health Sciences
Kafkas University	3	School of Applied Sciences
Marmara University	3	Faculty of Health Sciences
Sinop University	5	Faculty of Economics and Administrative Sciences
Şırnak University	3	Faculty of Health Sciences

Table 7. Availability of Public Health Courses in Health Management Departments

Public Health Course	N	%
Compulsory	27	48
Elective	20	36
None	9	16
Total	56	100

The Public Health course is compulsory in 48% of universities, as seen in Table 7.

Table 8. Universities with Compulsory Public Health Courses

University	ECTS	Faculty
Ankara University	3	Faculty of Health Sciences
Ardahan University	4	Faculty of Health Sciences
Bandırma Onyedi Eylül University	5	Faculty of Health Sciences
Bayburt University	2	Faculty of Health Sciences
Bilecik Şeyh Edebali University	4	Faculty of Health Sciences
Bingöl University	4	Faculty of Health Sciences
Eskişehir Osmangazi University	2	Faculty of Health Sciences
Gümüşhane University	4	Faculty of Health Sciences
Hacettepe University	4	Faculty of Economics and Administrative Sciences
İstanbul University-Cerrahpaşa	3	Faculty of Health Sciences
Kafkas University	3	School of Applied Sciences
Karamanoğlu Mehmetbey University	7	Faculty of Health Sciences
Kayseri University	3	Faculty of Social Sciences and Humanities
Kırklareli University	4	Faculty of Health Sciences
Kütahya Sağlık Bilimleri University	2	Faculty of Health Sciences
Marmara University	5	Faculty of Health Sciences
Muş Alparslan University	4	Faculty of Health Sciences
Necmettin Erbakan University	4	Faculty of Health Sciences
Niğde Ömer Halisdemir University	4	Faculty of Health Sciences
Ondokuz Mayıs Ünversitesi	4	Faculty of Health Sciences
Ordu University	5	Faculty of Health Sciences
Samsun University	4	Faculty of Economics and Administrative Sciences
Selçuk University	3	Faculty of Health Sciences
Sinop University	5	Faculty of Economics and Administrative Sciences
Süleyman Demirel University	5	Faculty of Economics and Administrative Sciences
Şırnak University	3	Faculty of Health Sciences
Tokat Gaziosmanpaşa University	4	Faculty of Health Sciences

Table 9: Availability of Disaster and Crisis Management Course in Health Management Departments

Disaster and Crisis Management Course	N	%
Compulsory	11	20
Elective	30	53
None	15	27
Total	56	

The Disaster and Crisis Management course is compulsory in 20% of universities, as seen in Table 9.

Table 10: Universities with Compulsory Disaster and Crisis Management Courses

University	ECTS	Faculty
Bayburt University	3	Faculty of Health Sciences
Gümüşhane University	4	Faculty of Health Sciences
Iğdır University	4	Faculty of Economics and Administrative Sciences
İzmir Bakırçay University	4	Faculty of Health Sciences
İzmir Katip Çelebi University	5	Faculty of Economics and Administrative Sciences
Kahramanmaraş Sütçü İmam University	4	Faculty of Economics and Administrative Sciences
Marmara University	4	Faculty of Health Sciences

Ordu University	5	Faculty of Health Sciences
Sakarya University of Applied Sciences	5	Faculty of Health Sciences
Selçuk University	6	Faculty of Health Sciences
Tokat Gaziosmanpaşa University	3	Faculty of Health Sciences

Table 11: Availability of Occupational Health and Safety Courses in Health Management Departments

Occupational Health and Safety Courses	N	%
Compulsory	11	20
Elective	33	59
None	12	21
Total	56	100

The Occupational Health and Safety course is also compulsory in 20% of universities, as seen in Table 11.

Table 12: Universities with Compulsory Occupational Health and Safety Courses

University	ECTS	Faculty
Ankara Hacı Bayram Veli University	6	Faculty of Economics and Administrative Sciences
Bayburt University	4	Faculty of Health Sciences
Bingöl University	5	Faculty of Health Sciences
İstanbul University-Cerrahpaşa	4	Faculty of Health Sciences
İzmir Kâtip Çelebi University	2	Faculty of Economics and Administrative Sciences
Kafkas University	2	School of Applied Sciences
Karamanoğlu Mehmet Bey University	7	Faculty of Health Sciences
Kütahya Sağlık Bilimleri University	3	Faculty of Health Sciences
Marmara University	3	Faculty of Health Sciences
Niğde Ömer Halis Demir University	5	Faculty of Health Sciences
Uşak University	3	Faculty of Health Sciences

Table 13: Total Representation of First Aid, Public Health, Disaster Management and Occupational Health and Safety Courses

Course	Compulsory		Elective		None	
	N	%	N	%	N	%
First Aid	7	13	25	44	24	43
Public Health	27	48	20	36	9	16
Disaster Management	11	20	30	53	15	27
Occupational Health And Safety	11	20	33	59	12	21

As summarized in Table 13, 13% of first aid courses, 48% of public health courses, 20% of disaster management courses, 20% of occupational health and safety courses are compulsory.

4. DISCUSSION AND CONCLUSIONS

When the data expressed in the findings section are analyzed, it is seen that the courses related to the knowledge and skills needed before, during and after disasters are insufficient in the curricula of health management departments. First aid course is compulsory in only 13% of the universities. However, Davies (2006) stated that health management education should include courses that provide basic information about health services. The purpose of including these subjects is to equip students with a set of concepts that will help them relate to clinical colleagues and interpret the various challenges of their own practice.

The aim of the first aid course is to provide students with the knowledge and skills to provide correct, effective first aid in the most common emergencies and disasters in working life, daily life (Marmara University Course Information Package). The awareness that correct first aid saves lives shows its importance not only for health management students but also for all individuals.

Public health courses are compulsory in 48% of universities and elective in 34%. The aim of this course is to define health problems in the community, to comprehend and relate environmental, hereditary, social and behavioral factors affecting these problems, to adopt the principles of preventive medicine and to associate this information with service delivery in health management (Marmara University Course Information Package). Public health problems in disasters are problems that require urgent intervention especially after the disaster. For this reason, it is important to include this course in the curriculum in order to equip students with the necessary knowledge and skills.

The aim of the disaster management course is to provide students with knowledge about the basic concepts of pre-hospital emergency health services, management organization in disasters and emergencies covering ordinary conditions and / or situations and extraordinary situations (Marmara University Course Information Package). This course, which is directly related to disaster management, is a compulsory course in 20% of the universities and an elective course in 53% of the universities. It is recommended that this course should be included in the curricula like other courses.
The aim of the occupational health and safety course is to teach the conceptual development of the right to healthy work, legal, social and organizational aspects of occupational health and safety, basic risks in the working environment and ways of protection, occupational health and safety practices in the world and in Turkey (Eskişehir Osmangazi University Course Information Package). This course is especially important in the stages of risk reduction and

preparedness before disasters, as can be understood from its purpose. In addition, considering that health management students do internship in hospitals, it is thought that this course should be compulsory. Most of the students are required to have received occupational health and safety training from the health institutions where they will do their internship, and if not taken as a course, they are asked to obtain a certificate. This course, which is very important for students, is compulsory in only 20% of universities. In 59%, it is included in the elective course pool.

Students of the department of health management, who are trained to be employed in health institutions and related ministries, constitute the workforce that can primarily take part in disasters in terms of the sector they will work in. Considering that the graduates may be in positions such as prevention of disasters, preparation of disaster plan or intervention in the hospitals where they will work, it has been observed that the courses that may be related to disasters during their undergraduate education are not sufficient. In this direction, the curricula of Health Management departments can be reviewed.

Many recent events, such as the COVID-19 pandemic, emphasize the need for health managers to master emergency and disaster management and have the right knowledge and skills to prepare for increasingly frequent and intense crises (Hertelendy et al., 2021). Hertelendy et al. (2021) stated that the design of competency-based curricula for disaster management should meet the needs of health managers representing multiple settings.

Ansari et al. (2003) also point out that if graduates of health professions are expected to improve the public health of society, curricula should be developed that can contribute to the development of managers and leaders with a public health focus. Both graduate and undergraduate programs for health management education should educate students on current and future trends in health care and be able to define public health (Hooker et al., 2017).
When the literature on health management education in Turkey is examined, it is seen that there are highly criticized issues.

Yorulmaz and Gençtürk (2018) drew attention to the problems related to education in their research on the main problems encountered in the health management profession. The fact that the curricula are not common and are located in different faculties are among some of the problems of the department. As a matter of fact, in the study conducted by Şener (2004), 50% of the academic staff and 51% of the students were of the opinion that the courses in the curriculum of the department were "partially" sufficient to meet the interests and needs of the students. Kıroğlu Aslan and Akşahin (2021) examined the curricula on the websites of the departments of universities with Health Management Departments and stated that the curricula are not common and only 25 courses are common in all departments. These studies show that health management education needs to be improved and developed.

With this study, it is thought that by addressing health management education in terms of disaster management, it will contribute to the literature and to the disaster awareness of health management department faculty members in the curricula.

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The Relationship Between Presenteeism and Work-Life Balance in Healthcare Professionals

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Presenteeism, work-life balance, health workers, health institutions

ABSTRACT

The inability of employees in the health sector to maintain a balance between work and life causes presenteeism behaviors, which increases costs by causing a loss of productivity. This study, which aims to determine the relationship between health workers' work-life balance and presenteeism, is a descriptive cross-sectional study. The sample of the study consisted of 205 health workers working in a public hospital in the province of Istanbul. Personal Information Form, YS Presenteeism scale and New Work Life Balance scale were used to collect data. According to the data obtained from the research, it has been determined that there is a negative relationship between work-life balance and presenteeism behavior. A statistically significant difference was found between marital status and job liking according to the results of the test performed to compare work-life balance status and gender, marital status and job liking status. According to the test results carried out to determine the differences in presenteeism behaviors of health workers according to their demographic characteristics, there was a statistically significant difference in marital status and willingness to work, and no statistically significant difference was found according to the gender variable. In addition, the rate of showing presenteeism behavior of health workers increases as the duration of work in the profession increases. As a result, it was determined that work-life balance had a 23% effect on presenteeism. In this context, it is thought that individual and institutional performance and productivity can be increased with measures to be taken against presenteeism.

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1.INTRODUCTION

The concept of presenteeism was first defined as "being at work when you have to be at home because you are sick or you work too long to be no longer effective" (Cooper, 1996). Johns (2010) defined it as "the act of going to work despite feeling unhealthy". Based on this definition, many studies explore the extent to which different aspects of work are associated with presenteeism. In general, people who experience poor working conditions are more likely to go to work when sick. Conditions include stressful work (Hirsch et al., 2017), lack of support from colleagues (Arnold, 2016; Caverley et al., 2007), dissatisfaction with the work environment (Leineweber et al., 2011), and workplace bullying (Conway et al., 2016).

Presenteism has also been associated with indicators of responsibility and workload such as autonomy at work (Arnold, 2016), supervisory responsibilities (Arnold & de Pinto, 2015), permanent full-time contract (Bockerman & Laukkenan, 2009), irregular working hours, long-term work (Arnold, 2016; Bockerman and Laukkenan, 2009; Hansen and Andersen, 2008). These findings suggest that time pressure or the responsibility to complete work tasks may distract people from absenteeism. Lack of job security (Caverley et al., 2007; Hirsch et al., 2017) and employers' lack of flexibility to support absenteeism due to illness (Johansson & Lundberg, 2004) were also associated with higher presenteeism.

Presenteeism, which is generally defined as "the act of going to work despite feeling unhealthy", leads to four configurations or types of presenteeism (Karanika-Murray & Biron, 2019):

1) Functional presenteeism is about coping with work and performance requirements without putting more strain on the health of the present person in the event of illness. Presenteeism is behavior that is sustained when an employee performs work tasks within their limitations due to unhealthy physical or mental resources. Functional presenteeism has been defined as the ability of individuals to participate in work as a patient, prevent losses, or promote health and productivity gains and thus support personal goals (Brockner & Higgins, 2001).

2) Dysfunctional presenteeism describes the behavior of presenteeism, which is an unsustainable choice that impairs health and performance and has the potential to lead to sick leave (Karanika Murray & Biron, 2019). Poorly managed presenteeism, where demands for efficiency may take precedence, results in worsening health in the future (Aronsson et al., 2011; Bergström et al., 2009).

3) Therapeutic presenteeism has been defined as a greater emphasis on health and less focus on performance requirements (Karanika Murray & Biron, 2019). For example, nurses who choose to work while sick instead of focusing on performance emphasize their workplace as a 'shelter', their relationship with team and family, and a deep commitment to their work (Dew et al., 2005). Here, we show how climate resources such as team support can both increase the prevalence of presenteeism and reduce its negative effects (Knani et al., 2018).

4) Over-successful presenteeism refers to the ability of a person to maintain a high level of performance at the expense of getting rid of the disease (Karanika Murray & Biron, 2019). In fact, presenteeism is linked to burnout, and the person is exhausted through overwork and the pursuit of success (Demerouti et al., 2009; Ferreira & Martinez, 2012). In hyper-successful presenteeism, people may lack the resources to recover after working outside of working hours, or they may feel compelled to reach high performance levels due to factors such as endless work (Aronsson et al., 2011).

Reasons that lead people to go to work even though they do not feel well and need rest; It is discussed in two main groups as organizational reasons and individual reasons. (Aronsson & Gustafsson, 2005; Dew, Keefe & Small, 2005; Johns, 2010; Hansen & Andersen, 2008; Lu, Lin & Cooper, 2013; Bierla, Huver and Richard, 2013; Caverley, Cunningham and MacGregor, 2007; Cullen and McLaughlin, 2006).

Organizational Reasons	Individual Reasons
Culture	Financial Status
Leadership Style	Personality Traits
Job Insecurity	Age
Easy Substitutability	Gender
Working Relationships	Length of Service
Social Support	Parental Status
Time Pressure	
Insufficient Resources	
Absenteeism Policies	

As mentioned above, absence from work is a situation that can occur for many different individual and organizational reasons and can negatively affect employees in their work and private lives. In this case, institutions must cope with situations such as loss of productivity in business life and having to cover more costs in the future (Bergstrom et al., 2009; Lu, Lin, & Cooper, 2013). A 2009 study on nurses in Denmark found that absence from the workplace increases their self-alienation and is associated with burnout (Demerouti et al., 2009). On the other hand, going to work can have a negative psychological effect on the person, even if he or she is absent from work due to physical health problems. Conway, Hogh, Rugulies, and Hansen (2014) found that coming to work sick makes depression worse. Coming to work while sick, especially in institutions with high social interaction, such as healthcare establishments, can negatively affect

other employees and patients. For example, in a hospital environment, a sick employee infecting his co-workers or other patients endanger the safety of both the patient and the employee. On the other hand, a sick employee may be more likely to have a work accident due to inattention and poor performance (Böckerman, 2018).

Work-life balance is defined as a situation in which an employee is equally satisfied with both his personal and professional life (Greenhaus et al., 2003). Work-life balance has three dimensions: participation level, time commitment, and the individual's subjective sense of satisfaction (Greenhaus et al., 2003). Time dimension: equal amount of time devoted to work and family roles; level of participation: equal psychological involvement in work and family roles; satisfaction balance is defined as equal satisfaction with work and family roles. Each component of work-life balance can be positively or negatively affected, depending on whether time, participation, or satisfaction levels are equally high or equally low. A person's attitudes and behaviors in business life affect other areas of life, and attitudes and behaviors in other areas of life affect his work (Dolan & Gosselin, 1998). In cases where work-life balance is negatively affected, it leads to results such as low job satisfaction, low organizational commitment, intention to leave, delays and absenteeism, decreased productivity and worsening physical and psychological well-being, while the positive effect is on job satisfaction, commitment, physical and mental health. lead to positive effects. (Sok et al., 2014). Negative or positive experiences in one area of life spread to other areas of life, and work life also affects other areas of life. Experiences in other areas of life also affect business life. The transfer of positive experiences, knowledge, skills, abilities and emotions between living spaces will positively affect work and other areas of life and facilitate work-life balance.

From another perspective, work-life balance is conceptualized as an employee's perception of the dual compatibility of professional and personal activities (Kalliath et al., 2008). Opatha defined work-life balance in 2010 as the degree of fulfillment of demands from work and family. The words “work-life balance” completely refers to the balance between “work” and “life”. As Opatha points out, the right balance between work and family is a specific person who fulfills the related demands that result in satisfaction (Opatha, 2010). According to Opatha, a person's inability to meet the demands of interested parties is the result of an imbalance between work and family. Factors affecting work-life balance are classified in two ways as individual and organizational factors. Among the individual factors, gender, personality, age, marital status, length of work in the profession and education can be listed. Organizational factors include leadership, wages and working hours (Guest, 2002). Individual and organizational factors can affect work-life balance. Failure to achieve work-life balance in terms of individuals and organizations creates different results for both individuals and organizations. In cases where work-life balance cannot be achieved, it is listed as illness, stress, absenteeism, decrease in job satisfaction and life satisfaction, decrease in performance and productivity, and deterioration in communication with people in workplace and non-work areas (Guest, 2002). If the work-life balance of the employees cannot be achieved or deteriorated, the anxiety levels of the employees may increase and cause them to experience psychological disorders. The possibility of encountering presenteeism behavior may increase due to psychological disorders that may occur in employees (Koçoğlu, 2007).

2. MATERIALS AND METHOD

Health services is a labor-intensive sector by nature and its most important resource is human resources. The high efficiency and productivity of institutions is closely related to the quality of human resources, the way they do business and their performance. It is important for employees to be productive at work and to provide work-life balance in order to achieve high performance. Presenteeism and work-life balance are new concepts, and the fact that the number of studies dealing with these two concepts on health workers is very low increases the importance of this research. This research, which was conducted to determine the relationship between presenteeism and work-life balance of healthcare professionals, was designed as a descriptive cross-sectional research design, which is a quantitative research design.

Research Questions

The research questions are basically as follows.

1. Is there a relationship between work-life balance and the presenteeism behaviors of healthcare professionals?
2. Does the work-life balance status of health workers influence presenteeism behaviors?
3. 3. Is there a difference in the work-life balance status of health workers according to their demographic characteristics?
4. 4. Is there a difference in the presenteeism behaviors of health workers according to their demographic characteristics?

Place, Population and Sample of the Research

The research was carried out between December 2022 and January 2023 in a public hospital within the borders of Istanbul. The population of the research consists of the health workers of the hospital. In the relevant period, there were a total of 368 health workers in the hospital. Due to the impossibility of reaching the entire universe (N=368), sampling was used. Simple random sampling method, which is a non-probability sampling method, was preferred in sampling. In the study, sufficient sample size was calculated by using the formula n0= [(t x S) /d]2, n= [n0 / (1+(n0 /N))], which is used to determine the sufficient sample size when the

number of population is known (Büyüköztürk et al., 2019). The sample size was calculated with the formula used when the number of the population was known, and at least (n= 189) health workers constituted the sample size of our research, while the questionnaire was distributed to the entire population (N= 368) and 205 health workers who volunteered to participate in the research and filled out the questionnaire were reached.

Data Collection Tools

For the research, a questionnaire consisting of two parts was created. In the first part, there is a "Personal Information Form" prepared by the researcher in which the demographic information of the participants is asked. In the second part, "YS Presenteeism Scale" developed by Yılmaz (2022) and Agha et al. (2017) and adapted into Turkish by Yılmaz (2022), there is the "New Work-Life Balance Scale". Personal Information Form is a 11-item questionnaire prepared by the researcher that questions the descriptive characteristics of healthcare professionals (Gender, age, marital status, education level, unit worked, duty, working time in the profession, working time in the institution, shift type, weekly working time and do you enjoy your job). It consists of questions. The YS Presenteeism Scale consists of 11 items and the scale has 2 sub-dimensions. The first dimension of the scale is Affect (EMS) (M1-M8), and the second dimension is Action (ACS) (M9-M11). The high overall score of the scale indicates that the Presenteeism behaviors of the employees have increased. A 5-point Likert (1: Strongly Disagree - 5: Totally Agree) was used to measure presenteeism behaviors. The New Work-Life Balance Scale consists of 15 items and the scale has 3 sub-dimensions. The first sub-dimension of the scale is the Personal Life sub-dimension (KH) containing the first 7 items (M1-M7), the next sub-dimension is the Business Life sub-dimension (IH) with 4 questions (M8-M11) and the last one is 4 questions (M12-M15). It constitutes the improvement (GOOD) sub-dimension. Items representing Personal Life and Work Life sub-dimensions (M1-M11) were reverse coded. It shows that as KH and IH scores increase, the person's satisfaction with the situation in that sub-dimension increases and he is not negatively affected by the other. Expressions in the improvement sub-dimension are evaluated directly because they are positive. A 5-point Likert (1: Strongly Disagree - 5: Totally Agree) was used to measure the New Work-Life Balance.

Data Collection Method

The data were collected face to face by the researchers by distributing a questionnaire consisting of "Personal Information Form, YS Presenteeism Scale and New Work-Life Balance Scale". The health workers who volunteered to participate in the study were informed about the questionnaire, the questionnaires were distributed, and informed consent forms were signed and their consents were obtained.

Analysis and Interpretation of Data

The data obtained in the research were analyzed by transferring them to the SPSS (Statistical Package for Social Sciences) for Windows 26.0 program. In the evaluation of the data, number, percentage, frequency, mean and standard deviation were used as descriptive statistical methods. Pearson correlation analysis was used to determine the relationship between variables. In the analysis of normally distributed data in our study, the independent sample t-Test was used to compare the quantitative continuous data between two independent groups from parametric tests, and the ANOVA test was used to compare the quantitative continuous data between more than two independent groups. Post-Hoc test was used in the evaluation of the variables that were found to be different. Regression analyzes were performed to determine the effect on the variables. The findings were evaluated at the 95% confidence interval and at the 5% significance level.

Table 1. Normal Distribution Test

Sub-Dimensions of the New Work-Life Balance Scale	**N**	**X̄**	**S.D.**	**Skewness**	**Kurtosis**
Personal Life Sub-Dimension	205	3.0084	0.621	0.135	-0.423
Work Life Sub-Dimension	205	4.0561	0.055	-1.042	1.597
Healing Sub-Dimension	205	3.0061	0.051	-0.282	0.350
Grand total	205	3.2872	0.040	-0.001	0.557
Presenteeism Scale Sub-Dimensions	**N**	**X̄**	**S.D.**	**Skewness**	**Kurtosis**
Affect Sub-Dimension	205	2.5329	0.055	0.092	-0.071
Action Sub-Dimension	205	1.8390	0.050	1.111	2.497
Grand total	205	2.3437	0.047	0.147	0.250

Before starting the analysis of the data, the normal distribution test was applied to test the conformity of the data to the normal distribution, and the kurtosis and skewness values were checked. With reference to George and Mallery (2010), values between ±2.0 were accepted as normal. Normality test results are shown in Table 1.

Scale Validity and Reliability

Cronbach's Alpha coefficient was calculated to test the reliability of the YS Presenteeism Scale and the New Work-Life Balance Scale used in the research. According to the data obtained, the Cronbach's Alpha coefficient of the YS Presenteeism Scale was calculated as 0.86 and the New Work-Life Balance Scale as 0.846, and both scales were found to be reliable. Cronbach's Alpha coefficient conformity test results are given in Table 2.

Table 2. Validity and Reliability Analysis

Scales	Number of Items	Cronbach's Alfa(α)
New Work Life Balance Scale	15	0.846
Presenteeism Scale	11	0.864

Ethical Aspect of Research

In order to carry out the study, the necessary written permission was obtained from the institution. An application was made to the Istanbul University-Cerrahpaşa Ethics Committee and Ethics Committee Approval No. 2022/401 was obtained.

Limitations of the Research

The research was carried out on health workers working in a public hospital within the borders of Istanbul province. This research is limited to the dimensions covered by the data collection tools used in the research and the perceptions of the health professionals participating in the research. In addition, the results of the research cannot be generalized due to the impossibility of reaching all healthcare professionals working in Istanbul. In this context, the health workers working in the institution where the research was conducted constituted the limit of the research.

3. RESULTS

As a result of the analysis of the data collected from this study, the following findings were obtained. The results of the frequency analysis carried out to determine the demographic characteristics of the participants are presented in Table 3.

Table 3. Demographic Characteristics of Participants (n=205)

Gender	Frequency	Percentage %
Female	136	66.3
Male	69	33.7
Marital Status		
Married	100	48.8
Single	105	51.2
Age Group		
20 – 25 years old	60	29.3
26-31 years old	107	52.2
32 to 37 years old	14	6.8
38 – 41 years old	9	4.4
41 years and older	15	7.3
Education Status		
High school	10	4.9
Associate Degree	45	22.0
Licence	119	58.0
Graduate	31	15.1
Work Area		
Emergency room	51	24.9
Work Area		
Inpatient Service	28	13.7
Intensive care	24	11.7
Other	102	49.75
Profession		
Physician	28	13.7
Nurse	108	52.7
Other	69	33.6
Working Time in the Profession		
0-5 years	49	23.9
6 to 11 years	111	54.1
12-17 years	22	10.7
18-23 years	9	4.4
24 years and above	14	6.8
Working Time in the Institution		
0-5 years	62	30.2
6 to 11 years	122	59.5
12-17 years	21	10.2
Shift Type		
Continuous Daytime	83	4.5
Perpetual Night	3	1.5
Rotary Shift	119	58.0
Weekly Working Time		
40 hours	130	63.4
40-60 hours	71	34.6
61 and above	4	1.9
Those Who Love Their Job		
Yes	158	77.1
No	47	22.9

66.3% of the individuals participating in the research are women and 33.7% are men. When the distribution of the participants by age groups was examined, it was determined that 52.2% of them consisted of individuals between the ages of 26-31. When the distribution of the participants according to their marital status was examined, it was determined that 48.8% were married

and 51.2% were single. 58% of the participants are undergraduate graduates. When the participants in the study were examined according to the units they worked, it was determined that 24.9% worked in the emergency room, 13.7% in inpatient services, 11.7% in intensive care, and 49.75% in other units. Physicians constitute 13.7% of the participants, nurses 52.7%, and other health professionals 33.6%. When the participants of the research are examined according to their working time in the profession, 54.1% of them consist of employees between 6-11 years. When the working time of the participants in the institution was examined, it was determined that 59.5% of them consisted of employees between 6-11 years. It has been determined that 40.5% of the participants work in the form of continuous daytime, 1.5% of them work continuously at night and 58% of them work in rotating shifts. When the weekly working hours of the participants were examined, it was determined that 63.4% worked 40 hours and 34.6% worked 40-60 hours. It has been determined that 77.1% of the health workers participating in the research enjoy their job, and 22.9% do not like their job.

The results of the correlation analysis carried out to determine the relationship between presenteeism and work-life balance of health workers participating in the research are given in Table 4.

Table 4. Mean, Standard Deviation and Pearson Correlation Values of Presenteeism and Work-Life Balance Variables (n=205)

Variables	X̄	S.D.	1
1. Work Life Balance	3.28	0.58	
2. Presenteeism	2.34	0.68	-0.488**

Note: ** Significant at the 0.01 level.

Pearson correlation analysis was performed to determine the relationship between Presenteeism and work-life balance, since the data in the study were in accordance with the normal distribution. Accordingly, there was a statistically negative significant correlation between presenteeism and work-life balance (r=-48, p<0.1).

Multiple regression analysis was performed to test the effect of health workers' work-life balance status on presenteeism behavior, and the results are shown in Table 5.

Table 5. Multiple Regression Analysis Results (n=205)

Variables	*B*	*SH*	*β*
Personal Life Sub-Dimension	-0.3	0.05	-0,4
Work Life Sub-Dimension	-0.01	-0.06	-0.1
Healing Sub-Dimension	-0.2	-0.6	-0.2
Still	4.12	0.3	

Note: **p<0.001. R^2=0.24; Straight. R^2=0.23; $F_{(3,201)}$=21.697

Multiple regression analysis results were statistically significant ($F_{(3,201)}$=21.697, p<0.001). The adjusted R^2 value is 0.23. This result shows that the 23% variance in presenteeism behavior is explained by the personal life sub-dimension, work life sub-dimension and improvement sub-dimension of the work-life balance variable. When the beta coefficients were examined, it was observed that the personal life sub-dimension (β=-0.4, p<0.001) and the improvement sub-dimension (β=-0.2, p<0.001) negatively affected the presenteeism behavior, whereas the work life dimension had a statistically significant effect. was not found (β=-0.1, p=0.095).

Table 6 shows the results of the t-Test performed to determine the differences in work-life balance and presenteeism status according to the demographic characteristics of healthcare professionals.

Table 6. Analysis of the Differences in Work Life Balance and Presenteeism Scores According to the Sociodemographic Characteristics of the Participants (n=205)

Work Life Balance	**N**	**X̄**	**S.D.**	**t**	**p**	**Result**
Female	136	3,27	0.54			**p >0.05**
Male	69	3,3	0.66	-0.30	0.76	
Married	100	3.38	0.53			**p < 0.05***
Single	105	3.19	0.61	2.29	0.02	
Who loves his job	158	3.40	0.54			**p < 0.05***
Who doesn't like their job	47	2.88	0.51	5.78	0.00	
Presenteeism	**N**	**X̄**	**S.D.**	**t**	**p**	**Result**
Female	136	2.32	0.60			**p >0.05**
Male	69	2.38	0.82	-0.55	0.54	
Married	100	2.22	0.72			**p < 0.05***
Single	105	2.45	0.62	-2.39	0.01	
Who loves his job	158	2.20	0.62			**p < 0.05***
Who doesn't like their job	47	2.81	0.66	-5.60	0.00	

Note: *Significant at the p < 0.05 level.

According to the results of the t-Test performed to compare work-life balance and gender, marital status and job liking, a statistically significant difference was found between marital status and job liking ($p < 0.05$). Accordingly, it has been determined that the work-life balance status of married people ($\bar{X}$ =3.38) is higher than that of singles ($\bar{X}$ =3.19), and those who love their job ($\bar{X}$ =3.40) are higher than the others.

There was a statistically significant difference in the presenteeism behaviors of healthcare professionals, their marital status and willingness to work according to the t-Test results, but no statistically significant difference was found according to the gender variable. According to this, it was determined that single people ($\bar{X}$=2.45) compared to married people ($\bar{X}$=2.22) and those who do their job dislikedly ($\bar{X}$=0.66) encounter presenteeism more than those who do it fondly ($\bar{X}$=0.62).

Table 7. Analysis of the Differences in Presenteeism Scores according to the Sociodemographic Characteristics of the Participants with the ANOVA Test (n=205)

Working Time in the Profession	N	$\bar{X}$	S.D.	F	p	Result
0-5 years	49	2.51	0.53	3.782	0.00	**p < 0.05***
6-11 years	111	2.37	0.69			
12-17 yıl	22	1.86	0.67			
18-23 years	9	2.25	0.50			
24 years and above	14	2.31	0.88			
Total	205	2.34	0.68			

Note: Significant at the p < 0.05 level.

As seen in Table 7, as a result of the one-way analysis of variance (ANOVA) performed to determine whether the arithmetic mean of the presenteeism scale differs significantly according to the variable of working time in the profession, the difference between the arithmetic mean of the arithmetic mean of the working time in the profession was found to be statistically significant (F=3,782; p< 0.05).

Post-hoc analysis was performed to determine from which group the significant difference was determined after ANOVA originated. In order to decide which post-Hoc multiple comparison techniques to use, Levene's test was used to test whether the variances of the group distributions were homogeneous and the variances were found to be homogeneous (LF=2.348; p>0.05). On top of that, Scheffe multiple comparison technique, which is widely used, was used in case the variances were homogeneous. Post-Hoc Scheffe test analysis results are given in Table 8.

Table 8. Post-Hoc Scheffe Test Analysis Results (n=205)

Variable	Working Time in the Profession	N	S.D.	p
0-5 years	6-11 years	0.14498	0.11439	0.711
	12-17 years	0.65399*	0.17117	**0.002**
	18-13 years	0.26510	0.24188	0.808
	24 years and above	0.19944	0.20212	0.861
6-11 years	0-5 years	-0.14498	0.11439	0.711
	12-17 years	0.50901*	0.15565	**0.011**
	18-13 years	0.12012	0.23116	0.985
	24 years and above	0.05446	0.18916	0.998
12-17 years	0-5 years	-0.65399*	0.17117	**0.002**
	6-11 years	-0.50901*	0.15565	**0.011**
	18-13 years	-0.38889	0.26390	0.581
	24 years and above	-0.45455	0.22802	0.273
18-13 years	0-5 years	-0.26510	0.24188	0.808
	6-11 years	-0.12012	0.23116	0.985
	12-17 years	0.38889	0.26390	0.581
	24 years and above	-0.06566	0.28495	0.999
24 years and above	0-5 years	-0.19944	0.20212	0.861
	6-11 years	-0.05446	0.18916	0.998
	12-17 years	0.45455	0.22802	0.273
	18-13 years	0.06566	0.28495	0.999

Note: * Significant at the 0.01 level.

As a result of the post-hoc Scheffe test after the one-way analysis of variance (ANOVA), which was conducted to determine which subgroups the presenteeism scores differ according to the variable of working time in the profession, there were differences between the employees whose professional working time was between 12-17 years and those who worked for 0-5 years and 6-11 years. statistically significant difference was detected (p<0.01). In this case, it has

been determined that employees with 12-17 years of work in the profession show presenteeism behavior more than those who work for 0-5 years and 6-11 years.

4. DISCUSSION

Presenteeism, which causes a decrease in performance and efficiency in health service deliver processes, is affected by organizational, individual and environmental factors. The inability to establish a work-life balance of the employees is considered as one of the reasons for presenteeism behavior. Employees' inability to maintain adequate balance between work and family causes reluctance to work, increase in work accidents, decrease in performance, and increase in absenteeism.

According to the t-Test results performed to determine the differences in presenteeism behaviors of healthcare professionals according to their demographic characteristics, a statistically significant difference was detected in marital status and enthusiasm for their job, but no statistically significant difference was detected according to the gender variable. In their research on people working in the health sector, Aronsson and Gustafsson (2005) found that female employees showed more presenteeism behavior than male employees.

When employees were examined according to their marital status, it was determined that singles (M=2.45) encountered presenteeism behavior more than married people (M=2.22). Similarly, in their study by Yılmaz and Söyük (2021), it was determined that single people were more likely to show presenteeism behavior than married people. It was determined that the rate of presenteeism behavior was higher among those who do their job without liking it (M=0.66) than those who do it with pleasure (M=0.62). A study by Miraglia and Johns (2016) similarly found that employees with an optimistic perspective had high job satisfaction and that high job satisfaction was positively associated with workplace absenteeism.

As a result of the one-way analysis of variance (ANOVA) conducted to determine whether the arithmetic means of the presenteeism scale show a significant difference according to the variable of working hours in the profession, the difference between the arithmetic means of the working hours in the profession was found to be statistically significant. Accordingly, as the duration of work in the profession increases, presenteeism behavior increases. Similar results were obtained in the study conducted by Oktay and Ay (2022) and it was observed that presenteeism behavior increased as the duration of working in the profession increased.

Schaufeli et al. (2009) determined that employees who accept not being present at work due to being workaholics have high levels of burnout (Savaarvala, 2006: 8; Demerouti et al., 2009) and low levels of performance compared to other employees.

Demeruti et al. (2009) found that employees resorted to presenteeism to compensate for poor performance and that these strategies led to long-term emotional exhaustion. Virtanen et al. (2003) found that contract workers who were forced to work less hours experienced greater workload and less job security than permanent employees, resulting in lower energy and job satisfaction (Nowak, 2006: 2).

Jena et al. (2010) concluded that being forced to work when sick due to reasons such as work pressure is an important factor in decreasing staff performance. Because employees who see their other friends not working are likely to behave like them (Çoban and Harman, 2012: 164).

5. CONCLUSION

As a result, it is thought that the presenteeism behavior experienced by health workers has negative consequences for both health workers and health institutions. The presenteeism behavior experienced by healthcare professionals individually reduces work performance and productivity, and increases work and patient safety problems. In terms of health institutions, it is said to cause a loss of productivity. For example, in a study conducted by Kandemir (2014), it was determined that presenteeism behavior causes 3 times more cost than the cost of not going to work. In a similar study, increase in medical errors, decrease in patient satisfaction, decrease in patient care quality were associated with decrease in costs (Letvak, et al., 2012). It is thought that individual and institutional performance and productivity can be increased with the measures to be taken against presenteeism. In this context, it is aimed to develop policies that protect employees for healthcare professionals, to regulate working hours so that individuals can achieve work-life balance, not to have different jobs done outside their duties and authorities, to standardize in-house work and to increase the motivation and performance of healthcare professionals, to ensure work-life balance and to increase the efficiency of health institutions expected to be increased.

Conflict of Interest:
The research has no conflict of interest.

Ethical Approval:
In order to carry out the study, the necessary written permission was obtained from the institution. An application was made to the Istanbul University-Cerrahpaşa Ethics Committee and Ethics Committee Approval No. 2022/401 was obtained.

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The Effect of Nurses' Netlessphobia Levels on Perceived Stress and Job Satisfaction Levels

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ABSTRACT

The present study aimed to determine the impact of nurses' perceived stress and job satisfaction levels in their working lives on the fear of not receiving internet service netlessphobia, which is one of the most widely used services in today's living conditions. For this purpose, a total of 34-item questionnaire was prepared including 8-item introductory information form, 12-item Fırat Netlessphobia Scale, 14-item Perceived Stress Scale, and 20-item Minnesota Satisfaction Questionnaire. The population of the descriptive and correlational study was 550 nurses. The data of 373 nurses who met the inclusion criteria were assessed. The data were analyzed using Ver SPSS 25 package program. Along with descriptive statistics (number, percentage, mean, standard deviation, median, minimum, maximum), the reliability was assessed by t-test, ANOVA, Pearson correlation and linear regression analysis. For statistical significance, $p<0.05$ was accepted. The mean total score of Fırat Netlessphobia Scale was 37.34 ± 11.53, the mean total score of Perceived Stress Scale was 39.58 ± 6.02, and the mean total score of Minnesota Satisfaction Questionnaire was 76.79 ± 13.48. The variance explained by nurses' netlessphobia levels in relation to perceived stress and job satisfaction levels was statistically significant. The analysis revealed that the effect of netlessphobia levels on perceived stress and job satisfaction was 26% and 31%, respectively (R2 =.265; p=.000; R2=.316, p=.000, respectively). Determining nurses' levels of netlessphobia in the continuation of nursing services that require intense attention and devotion is critical in terms of job stress and job satisfaction, which may affect their performance and patient life in their working life.

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1.INTRODUCTION

The prevalence of social networking and online platforms as primary modes of communication, coupled with a growing inclination to prioritize extended periods of internet usage over face-to-face interactions, has resulted in individuals actively avoiding internet-free intervals and experiencing anxiety when disconnected from the internet. This leads to fear and deprivation of being without the internet, i.e., netlessphobia (Furkan, 2022; Kartal & Bulut, 2022). Among the symptoms of Netlessphobia, behaviors such as using at least 4 smart devices for long periods of time, paying attention to the internet in the environment, actively using the internet for at least 8 hours a day, receiving at least 20 social notifications a day, and not being able to stay away from the internet even for a very short time are mentioned (Güney, 2017; Yıldız et al., 2020). The development of netlessphobia can lead to different psychological problems, new phobias, and communication disorders. It may cause negative organizational consequences such as increased employee turnover, loss of corporate confidentiality, reputation and productivity, legal problems, inefficient use of network databases, rapid informal communication (gossip), lack of concentration, information system vulnerabilities and attacks (Öztürk, 2015).

It was stated that nursing is one of the professional groups where stress, which is mostly encountered by individuals in both daily life and working life, is one of the most common (Aydın, Aytaç, & Şanlı, 2020). Sources of stress for nurses include factors such as prolonged patient care, working conditions of the healthcare organization, demands of patient relatives, tension after conflicts with team members or other healthcare professionals, high number of patients, and lack of social support (Camci & Kavuran, 2021). It was revealed that the stress that nurses are exposed to affects their performance at work and job satisfaction and that they should be very sensitive about this issue (Çamkerten, Tatar, & Saltukoğlu, 2020).

Working individuals spend one-third of their time at work during the day and therefore expect their workplaces to meet their physical, psychological, and social needs. This expectation can positively or negatively affect both job and life satisfaction, physical and mental health of individuals during working hours (Bayarçelik, Durmaz & Gürler, 2019). The concept of job satisfaction, which is an individual's attitude towards work in general, is influenced by personal, institutional, and environmental factors (Kekül & Genç, 2023). Personally perceived stress and environmentally perceived netlessphobia, which are among such factors, were also addressed in our study.

The present study aimed to determine the level of presence of netlessphobia, which is a contemporary concept, in nurses, how it affects the nursing profession, which is intense, exhausting, demanding attention and devotion, and whether it influences nurses' perceived stress and job satisfaction. Although there are a number of studies in the literature on nursing in which these concepts are addressed separately, no similar study has been found in line with the objectives of our study. Furthermore, the present study also aimed to provide recommendations for increasing job satisfaction, job performance, employee satisfaction, employee and service quality in the provision and management of nursing services.

2. MATERIALS AND METHOD

Research Design: The present study was conducted as a descriptive and correlational study to determine the effect of nurses' netlessphobia levels on their perceived stress and job satisfaction levels.

Population and Sample of the Study: The population of the study consisted of 550 nurses working in Adıyaman University Training and Research Hospital. The number of participants to be included in the study was calculated as 226 after the power analysis performed with a 95% confidence interval and 5% error margin in the sample calculation with a known population (Erdoğan, 2020). The study included nurses who completed the questionnaire questions completely and voluntarily participated in the study. A total of 373 nurses who met the criteria for participation in the study were reached during the data collection process.

Data Collection Tools: Introductory Information Form, Fırat Netlessphobia Scale, Perceived Stress Scale and Minnesota Job Satisfaction Scale were employed for data collection.

Introductory Information Form: It consists of 8 questions including age, sex, marital status, educational status, years of employment as a nurse in total and in the unit, working position and information about the unit where they work in order to obtain sociodemographic information of the nurses by reviewing the literature.

Fırat Netlessphobia Scale: The scale, the validity and reliability of which was conducted by Kanbay et al. is a 5-point Likert scale consisting of a total of 12 items and a single dimension. The Cronbach α reliability coefficient of the scale was reported as 0.930 (Kanbay et al., 2021). The Cronbach α reliability coefficient of the scale was 0.941 in our study. The minimum score is 12 points, and the maximum score is 60 points. The higher the score obtained from the scale, the higher the level of netlessphobia.

Perceived Stress Scale: The scale, the validity and reliability of which was conducted by Eskin et al. consists of a 5-point Likert scale with a total of 14 items and two sub-dimensions: perception of

inadequate self-efficacy (items 4, 5, 6, 8, 9, 10, and 13) and perception of stress/discomfort (items 1, 2, 3, 7, 11, 12, and 14). Additionally, 7 items in the scale are reverse scored (items 4, 5, 6, 7, 9, 10, and 13). The Cronbach α reliability coefficient of the scale was reported as 0.930 (Eskin et al., 2013). The Cronbach α reliability coefficient of the scale was 0.941 in our study.

Minnesota Job Satisfaction Scale: The scale was developed by Weiss et al. (1967) and translated into Turkish by Deniz and Güliz Gökçora (Kundak et al., 2015). The scale is a 5-point Likert scale and consists of a total of 20 items. It has 2 sub-dimensions: intrinsic satisfaction (items 1. 2. 3. 4. 7. 8. 9. 9. 10. 11. 15.16.20) and extrinsic satisfaction (items 5.6.12.12.13.14.17.18.19). The Cronbach's alpha coefficient of the scale was reported to vary between 0.88 and 0.91 in the literature (Danaci & Koç, 2020). As for our study, the Cronbach α reliability coefficient of the scale was determined as 0.915. The highest score that can be obtained from the scale is 100 and the lowest score is 20. Scores approaching 20 indicate a decrease in job satisfaction level, while scores approaching 100 indicate an increase.

Data Collection: The data of the study were collected between March and July 2022 through Google Forms. Data were collected from nurses who met the inclusion criteria by using online communication tools and by obtaining their online consent.

Data Analysis: SPSS for Windows (Statistical Package for Social science for Windows, Version 25.0 packaged program) was used to analyze the data obtained from the study. Skewness and Kurtosis values were employed to assess the conformity of the data to normal distribution. Data were evaluated with descriptive statistics (number, percentage, mean, standard deviation, median, minimum, maximum) as well as reliability, t-test, ANOVA, Pearson correlation and linear regression analysis. For statistical significance, $p<0.05$ was accepted.

Ethical Approval

The approval of Adıyaman University Social Sciences and Humanities Ethics Committee was obtained prior to the start of the study (Decision date and number: 12/01/2022-191). Compliance with the Declaration of Helsinki Principles was ensured throughout the research. Accordingly, the first page of the online questionnaire utilized in the study provided informed consent.

Limitations of the Study

The results cannot be generalized to all nurses because the present study was conducted in a training and research hospital located in southeastern Türkiye and the sample could not be selected probabilistically.

3. RESULTS

When the socio-demographic characteristics of the nurses who participated in the study were analyzed, it was revealed that the majority of them were female, aged 31 and over, married, had a bachelor's degree, and worked as ward nurses in internal clinics. Furthermore, it was also found that most of the nurses had 0-5 years of professional experience and 0-5 years of working experience in the unit they were working in (Table 1.).

Table 1. Distribution of Nurses Based on Socio-Demographic Characteristics (N:373)

Features	N	%
Sex		
Female	288	77.2
Male	85	22.8
Age		
20-25	74	19.8
26-30	113	30.3
31 and above	186	49.9
Marital status		
Married	190	50.9
Single	183	49.1
Educational Level		
High School	72	19.3
Associate degree	25	16.7
Undergraduate	256	68.6
Postgraduate	20	5.4
Unit of Employment		
Internal Clinic	145	38.9
Surgical Clinic	106	28.4
Outpatient Clinic	96	25.7
Administrative	26	7.0
Duty		
Ward Nurse	195	52.3
Executive Nurse	74	19.8
Outpatient Clinic Nurse	71	19.0
Nurse in Training	33	8.8
Years of Professional Experience		
0-5 years	143	38.3
6-10 years	137	36.7
11-15 years	56	15.1
16 years and above	37	9.9
Year of Employment in the Unit		
0-5 years	221	59.2
6-10 years	108	29.0
11-15 years	29	7.8
16 years and above	15	4.0

The mean scores of the total score of Fırat Netlessphobia scale, total score of Perceived stress scale, perception of inadequate self-efficacy and perception of stress/discomfort sub-dimensions utilized in this study, and the mean scores of the total, intrinsic and extrinsic satisfaction sub-dimensions of the Minnesota Job Satisfaction scale are provided in Table 2. The mean total score of the Netlessphobia scale was 37.34 ± 11.53, the mean total score of the Perceived stress scale was 39.58 ± 6.02, the mean score of the perception of inadequate self-efficacy subscale was 17.79 ± 3.84, and the mean score of the perception of stress/discomfort subscale was 21.79 ±

4.35. Additionally, the mean total score of the Minnesota Job Satisfaction Scale was 76.79± 13.48, the mean intrinsic satisfaction sub-dimension score was 46.51± 8.10, and the mean extrinsic satisfaction score was 30.27± 6.01 (Table 2.).

Tablo 2. Mean and Standard Deviation Values of the Scales

Tablo 2.a. Fırat Netlessphobia Scale Means and Standard Deviations

Sub-titles	Min	Max	X̄± SD
Toplam	12.00	60.00	37.34 ± 11.53

Tablo 2.b. Perceived Stress Scale Mean and Standard Deviations

Sub-titles	Min	Max	X̄± SD
Inadequate self-efficacy perception	7.00	29.00	17.79 ± 3.84
Perception of stress/discomfort	9.00	35.00	21.79 ± 4.35
Toplam	16.00	60.00	39.58± 6.02

Tablo 2.c. Minnesota Job Satisfaction Scale Mean and Standard Deviations

	Min	Max	X̄± SD
Intrinsic satisfaction	12.00	60.00	46.51± 8.10
Extrinsic satisfaction	8.00	40.00	30.27± 6.01
Toplam	20.00	100,00	76.79± 13.48

The correlation analyses between the netlessphobia scale and the sub-dimensions of the perceived stress scale and job satisfaction scale are provided in Table 3. There was a low positive correlation (r=0.265, p<0.01) between the total score of the netlesphobia scale and the total score of perceived stress. A low-level negative correlation (r=-0.110, p<0.05) was observed between the total score of the Netlessphobia scale and the sub-dimension of inadequate self-efficacy perception. There was a low positive correlation (r=0.463, p<0.01) between the stress /discomfort perception sub-dimension. A low positive correlation (r=0.117, p<0.05) was found between the total score of the netlesphobia scale and the total score of job satisfaction. There was no significant correlation between the total score of the Netlessphobia scale and insufficient intrinsic satisfaction, while there was a low positive correlation (r=0.163, p<0.01) between the extrinsic satisfaction sub-dimension (Table 3).

Table 3. Correlation Analysis Between Variables

Variables	Mean± SD	Correlation Matrix					
		Fırat Netlessphobia (Total)	Inadequate self-efficacy perception	Perception of stress/discomfort	Perceived Stress Total	Intrinsic satisfaction	Extrinsic satisfaction
Fırat Netlessphobia (Total)	37.34 ± 11.53	1					
Inadequate self-efficacy perception	17.79 ± 3.84	-,110*	1				
Perception of stress/discomfort	21.79 ± 4.35	,463**	,075	1			
Perceived Stress Total	39.58± 6.02	,265**	,692**	,772**	1		
Intrinsic satisfaction	46.51± 8.10	,073	-,245**	-.054	-,195**	1	
Extrinsic satisfaction	30.27± 6.01	,163**	,238**	-.037	-,179**	,824**	1
Minnesota Job Satisfaction Total	76.79± 13.48	,117*	-,253**	-.049	-,197**	,968**	,940**

*p<0.05 , **p<0.01

Simple regression analysis was performed to explain the effect of the score level obtained from the Netlessphobia scale on perceived stress and job satisfaction. When the significance level corresponding to the F value was examined, it was observed that the model was statistically significant (F=27.917; 20.465, p<0.01). Beta coefficients, t value and significance levels of independent variables revealed that the total score level of Netlessphobia scale has a statistically significant effect on the total scores obtained from perceived stress and job satisfaction scale (p<0.05). The variance explained for the perceived stress and job satisfaction levels of nurses' netlessphobia levels was statistically significant. Based on the results of the analysis, it was concluded that the effect of netlessphobia levels on perceived stress and job satisfaction was 26% and 31%, respectively (R^2=.265, p=.000; R^2=.316, p=.000, respectively) (Table 4).

Table 4. Regression Analysis Results of Fırat Netlessphobia Scale for Perceived Stress and Minnesota Job Satisfaction Scale

Dependant variable	Independant variable	ß	Std. Error%	t	p	F	Model p	Adjusted R^2
Netlessphobia	Sabit	17.289	3.840	4.502	0.000	27.917	0.000	0.265
	Perceived Stress	0.507	0.096	5.284	0.000			
Netlessphobia	Sabit	3.136	5.547	0.565	0.000	20.465	0.000	0.316
	Perceived Stress	0.573	0.096	5.944	0.000			
	Job Satisfaction	0.150	0.043	3.489	0.001			

4. DISCUSSION

The Internet has become an almost integral part of people's lives in all societies with the many new technological developments it has brought. This technology, which is included in the lives of individuals with virtual shopping opportunities, social networks, banking services and communication tools that facilitate life in daily life, has made life easier on the one hand, and on the other hand, it has increased people's dependence on the internet and technology in today's societies. The increasing use of the internet due to its spread to all areas of life leads to problematic internet use and pushes individuals to be unable to stay without the internet and to be in an environment without the internet (Furkan, 2022; Güney, 2017).

The present study investigated the effect of nurses' netlessphobia level on perceived stress and job satisfaction. Although netlessphobia has been studied in different disciplines and student groups in the national and international literature, (Akman & Murşit, 2018; Bacaksiz et al., 2022; Kartal & Bulut, 2022; Özgür et al.; Tanır, 2021; Yıldız et al., 2020)no research results were encountered on nurses. However, it is of great importance in terms of both employee health and patient safety to investigate the effects of netlessphobia especially on employees and to make organizational arrangements. Due to the limited literature on the subject, Netlessphobia will be discussed within the framework of internet and smartphone addiction since it is a concept that emerges as a result of internet addiction and is frequently associated with the use of smartphones for internet access.

The present study revealed that nurses' level of netlessphobia was above the average. Therefore, we can argue that the nurses who participated in the study have a significant fear of being left without the Internet. When the literature on the subject is analyzed, there is no research result assessing the netlessphobia levels of nurses; however, in the results of the studies on nomophobia, internet addiction and related factors associated with netlessphobia, it is seen that these addictions / problems are at medium level and above (Al et al., 2022; Buneviciene & Bunevicius, 2021; Eroğlu & Kutlu, 2020; Kapikiran et al., 2023; Yücel & Özen, 2023). Additionally, the results of studies conducted with different groups of students and employees also indicate similarities (Ayar et al., 2018; Kartal & Bulut, 2022; Özbay et al., 2023; Yıldız et al., 2020). The study by Kapıkıran et al. (2023) analyzing the effect of nomophobic behaviors of emergency nurses on their perceptions of clinical decision-making found that the participants had moderate nomophobia and there was a strong negative relationship between nomophobia and perceptions of clinical decision-making (Kapikiran et al., 2023). The study conducted by Al et al. (2020) to analyze the relationships between psychological health, nomophobia and social media addiction according to the job satisfaction level of healthcare workers found that the frequency of nomophobia in the participants was 97.5% and 45.5% had moderate nomophobia (Al et al., 2022).

The systematic review and meta-analysis study conducted by Buneviciene and Bunevicius (2021) to analyze the prevalence of internet addiction in healthcare professionals revealed that the pooled prevalence rate of internet addiction was 9.7% among 1,818 healthcare professionals and 16% among nurses. The study conducted by Ayar et al. (2018) with the participation of nursing students analyzed the effect of problematic internet use, social media use and social appearance anxiety on the nomophobia (fear of being without a cell phone) levels of students. 51.9% of nursing students were found to be moderately nomophobic. Additionally, a strong relationship was detected between nomophobia levels of nursing students and problematic internet use, social appearance anxiety and social media use variables (Ayar et al., 2018). The study conducted by Kartal and Bulut (2022) to analyze the netlessphobia and digital addiction levels of midwife candidates and to determine the factors affecting them revealed that the netlessphobia levels of the students were found to be at a medium level (Kartal & Bulut, 2022). In a cross-

sectional study conducted by Çınar Özbay et al. (2023) to analyze the factors associated with nomophobia in individuals, netlessphobia was found to be one of the factors strongly associated with nomophobia (Özbay et al., 2023).

The study conducted by Yıldız et al. to analyze the relationship between smartphone, internet addiction and fear of missing developments in licensed athletes found a moderate positive relationship between the sub-dimensions of fear of missing developments, nomophobia and internet addiction (Yıldız Et al., 2020). Along with the use of the internet for professional requirements in the nursing profession, it is recognized that a great amount of time is spent on social networking sites with the widespread use of smartphones and this situation can negatively affect the performance, productivity and service quality levels of nurses (Eroğlu & Kutlu, 2020; Hoşgör et al., 2021). In line with the research and our research findings, it can be argued that people from all segments of society, including nurses, have increased their online activities thanks to smartphones, ease of use and easy access to the internet from anywhere, and are therefore at risk for netlessphobia and other digital addictions that come with it. In this perspective, evaluating the change in the level of netlessphobia of nurses, who always perform a job that requires attention, in terms of working life and some organizational outcomes will provide valuable information.

The present study revealed that the level of stress perceived by the nurses was above the average. Furthermore, it was also found that there was a low positive correlation between nurses' netlessphobia level and perceived stress and netlessphobia explained 26% of the change in perceived stress level. Netlessphobia is a concept that includes feeling fear, anxiety, worry, anxiety, and tension caused by being without the internet (Güney, 2017; Öztürk, 2015). The perceived stress level of the nurses participating in the study is similar to some research results in the literature (Al-Hamawendy & Açıkgöz, 2023; Amin et al., 2015; Kent et al., 2019). The study conducted by Amin et al. on nurses revealed that 47.3% of nurses perceived moderate stress (Amin et al., 2015). The study by Kent et al. found that nurses' perceived stress levels were moderate and highly correlated with burnout and compassion fatigue (Kent et al., 2019). Based on the results of another study conducted by Al-Hamawendy and Açıkgöz on nurses in Iraq, the perceived stress level of nurses was found to be above average and 85% of them experienced moderate stress (Al-Hamawendy & Açıkgöz, 2023). Since the perceived stress level is a concept associated with the stress experienced by the individual, there may be more than one factor that can affect it. One of them may be netlesphobia, the fear of being without the internet. Although there is no research result in the literature analyzing this relationship in nurses, the results of studies conducted in different groups support this. The study conducted to analyze the mediating effect of procrastination and the moderating effect of flow experience in the relationship between perceived stress and Internet addiction among university students in China found that there were significant relationships between perceived stress, Internet addiction, procrastination and flow (Gong et al., 2021). The study on the relationship between perceived stress and Internet addiction in students who continued their education during the Covid 19 pandemic quarantine in India reported that 84% of the participants had high levels of perceived stress and there was a positive relationship between perceived stress and Internet addiction (Singh et al., 2020). Another study conducted to analyze the prevalence of problematic internet use among physician assistants and its relationship with depressive symptoms, perceived stress and health care outcomes reported that problematic internet users experienced high levels of depressive symptoms, perceived stress and burnout (Grover et al., 2019). Nurses serve in a highly stressful environment due to the nature of their work and the complexity of the working environment. It is considered that this may be one of the reasons why the perceived stress level of nurses in the present study, as in many other studies, was above the average. Moreover, the positive correlation between the level of netlesphobia and the level of netlesphobia indicates that it is one of the factors affecting the perceived stress. However, we cannot argue that this is the only reason based on the findings of the present study. Therefore, longitudinal studies may be recommended to differentiate and understand this situation.

The level of job satisfaction of nurses in our study was found to be above average. Additionally, it was concluded that there was a low positive correlation between nurses' netlessphobia level and job satisfaction and netlessphobia explained 31% of the change in job satisfaction level. There is no study analyzing the relationship between netlessphobia and job satisfaction in the existing literature. However, it is possible to observe the change in the impact of smartphones, which are frequently used to access the internet in working environments, on work outcomes in two ways: positive and negative (Wang & Suh, 2018). Some studies revealed that the use of smartphones at work positively affects job performance, increases employees' job satisfaction by increasing the flexibility of decision-making, and reduces loneliness and depression levels (Kim & Chung, 2014; Middleton et al., 2014; Shaw & Gant, 2002; Wang & Suh, 2018). Moreover, some studies reported that problematic smartphone use emotionally exhausts employees, increases the likelihood of making mistakes by distracting them, leads to infection risk and privacy problems in patients, impairs the quality of communication between

employees, negatively affects occupational health and safety, disrupts work and increases the level of work stress due to increased workload (Aguilera-Manrique et al., 2018; Alan et al., 2022; Ayyagari et al., 2011; Bautista & Lin, 2016; Cavazotte et al., 2014; Cho & Lee, 2016; Erdem et al., 2017; Ito et al., 2005; Lupo et al., 2020; Smetaniuk, 2014; Wang & Suh, 2018). Job satisfaction is a concept that reflects the positive or negative perception that a person feels towards work, which is influenced by individual and environmental characteristics. Therefore, job satisfaction, as well as perceived stress, may be affected by many different characteristics and conditions. The present study found that nurses' job satisfaction levels were above the average, indicating that nurses were satisfied with their jobs. Regarding the relationship between netlesphobia and job satisfaction, we can argue that there is a significant relationship between netlesphobia and extrinsic satisfaction and that this is a determinant in the effect on job satisfaction.

5. CONCLUSION AND RECOMMENDATIONS

As we continue to live in a fast and ever-evolving digital age, one of the areas where technology is at the forefront is, of course, the health sector. Health professionals closely follow these developments in the health sector. Among health professionals, nurses are an essential occupational group both numerically and in terms of the time they spend with patients. Within this context, it is of great importance in terms of nursing management to examine the current organizational behaviors of nurses and what affects these behaviors. The present study analyzed the effects of nurses' netlessphobic levels, one of the problems of the digital world we live in, on nurses' perceived stress and job satisfaction. The results of the study revealed that the netlesphobic levels of the nurses participating in the research were above the average and had effects on perceived stress and job satisfaction. In this regard;

- It is recommended to conduct studies to establish how netlessphobic levels affect different sample groups and different organizational behaviors that are essential in nursing services management.
- To determine the netlessphobic levels of nurses and to carry out studies to prevent patient care errors,
- To provide trainings on correct internet use in order to follow the developments in the health system without breaking away from the digital world and to increase the awareness of nurses on this issue.

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Conflict of Interest

No conflict of interest has been declared by the authors.

Ethical Approval

Adıyaman University Social Sciences and Humanities Ethics Committee was obtained prior to the start of the study (Decision date and number: 12/01/2022-191).

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Accreditation in The Health Sector from The Perspective of Health-Accredited Auditors

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ABSTRACT

Along with the quick developments in technology, expectations in health care services and attention to quality and accreditation has increased. This study aims to explore the perspectives of Health Accredited Auditors (HAAs) who work for Turkish Health Care Quality and Accreditation Institute (TUSKA) on health care accreditation.

There are 202 accredited auditors within TUSKA who got their HAA title before 2021 and so far, 57 HAAs have been assigned for active duty in the audits. In this study, participants were chosen among the HAAs who attended audits actively via snowball sampling and 15 of them were interviewed. Obtained data were analyzed by MAXQDA.

For the purpose of obtaining the perspectives of the HAAs, a list of 17 codes and with the review of these codes, 5 inclusive themes were created. These themes are institutional contribution, institutional development, necessity, financial performance and practicality.

The HAAs clearly stated that accreditation process contributed to health care institutions positively, accelerated institutional development, proved to be necessary, affected institutions' financial performance positively, and can be implied to any health care institution easily. On the other hand, there were some dissidences among the HAAs on the effect of accreditation on patient potential, perspectives of the managers on accreditation, health care institutions' acceptance of accreditation standards, financial burden of the standards and the cost of applications.

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1.INTRODUCTION

Quality, derived from the Latin word "*quails*" and defined in different ways, has emerged with the desire to prevent human beings and mechanisms from making mistakes and to reach perfection (Uyguç, 1998). In general terms, quality is defined as the compliance of a goods or service with all the predetermined features and qualities within the framework of the wishes and desires of the customers (Peşkircioğlu, 1999). A few definitions come forward regarding the quality in health care services. Donabedian (1980) defines quality in health care services as maximizing a comprehensive measure of the patient's well-being after calculating the gains and losses from the stages in the service process. Whereas Ovretvit (1998) defines it as meeting the needs of those who need the service most in line with the standards and directions set by the top managers and buyers, with the least cost to the institution.

The concept of accreditation has started to appear in the field of health services since the 1900s, and today it is seen that it is one of the most preferred external evaluation tools in order to obtain information about the level of achievement of the strategically determined targets of health institutions/organizations (Avcı and Şenel, 2019). The accreditation process in health services is defined as the process of checking and approving the compliance of health institutions and organizations with previously determined and published standards by institutions whose acceptability is approved by everyone (Kavak, 2018). The aim of accreditation programs in health services is to increase and standardize the quality of the services provided (Cengiz, 2018)

Among the studies on the evaluation of accreditation processes in health, we can see that Shaw et al. (2013) carried out a study with the accreditation institution directors and concluded that quality studies in health in the international arena contribute significantly to the improvement of the processes executed in institutions, that the use of traditional systems in order to ensure quality and accreditation practices creates difficulties in the process, and that it is necessary to improve standards preventing the process by the accreditation institutions in order to overcome the difficulties. In their studies, Boyd et al. (2018) focused on the difficulties of hospital audits that accreditation institution accredited auditors go through and they stated that audits put pressure on the hospitals and this ensures improvement in the quality and standards. In addition, they implied that audits, which improve both accredited auditor and institution, are long-termed and demanding process, so accredited auditors carrying out this process should be high quality.

Demirbilek and Çolak (2008) reported most of the hospital managers support the studies on the quality in health and managers should be encouraged. Akar et al. (2015) stated that better results can be obtained by covering all employees instead of making quality studies seem to be the task of a certain department within the hospital. Ertaş and Çelik (2018) also reported that quality standards positively affected hospitals. Maimaitireyimu and Arslanoğlu (2019) stated in their studies that, with the implementation of accreditation and quality, improvements in service quality as well as customer satisfaction in hospitals were observed, and with the adoption of Health Accreditation Standards (SAS) and Health Quality Standards (SKS) by hospital employees, accreditation and quality procedures became more effective.

With the accreditation services in health, it is aimed to examine health institutions and organizations through an autonomous and unbiased external source. By means of accreditation, it is thought that efficiency will increase, cost will decrease, trust in health institutions and organizations will increase, service quality will improve, management structure will develop and standards or criteria can be met in health services (Timmons, 2004; Yetginoğlu, 2009).

Within the scope, it is aimed to examine the perspectives of the Health Accredited Auditors (HAAs) within the body of the Turkish Health Care Quality and Accreditation Institute (TUSKA), which is the only authorized institution in the field of health care accreditation in Turkey.

2. MATERIALS AND METHOD

2.1. Design

In the study, case study design, one of the qualitative research methods, was used. Case study design; It is a qualitative approach pattern in which detailed and in-depth information is collected from various information sources about real life, a current limited situation or situations within a certain period of time, and situation themes are revealed (Creswell, 2013).

2.2. Population and Sample

At the date of the study, there are 202 SAD of the study in TÜSKA. 57 SAD actively took part in the inspections carried out. In the study, SADs who actively took part in the audits were reached by snowball sampling method, one of the purposeful sampling methods in qualitative research (Gentles et al. 2015). Data collection continued until saturation point in concepts, themes and coding (Saunders et al. 2018). In this context, 15 meetings were held.

2.3. Data Collection

Semi-structured interview technique, one of the interview techniques, was used as a data collection method. The interview technique stands out as a data collection method mostly used in qualitative research. It is a preferred method used to determine the opinions, thoughts, experiences, accumulation and perceptions of individuals about events and situations; in order to provide detailed information (Fossey el al. 2002).

The semi-structured interview questions used in the study were created by the researchers in accordance with the literature information (Demirbilek and Çolak, 2008; Yıldız, 2010; Shaw et al. 2013; Akar et al. 2015; Boyd et al. 2018; Ertaş and Çelik, 2018; Maimaitireyimu and Arslanoğlu, 2019) and Ministry of Health Accreditation sets (Sağlık Bakanlığı, 2018).Questions were "Do health accreditation services contribute to health institutions?", "Do health accreditation services contribute to health institutions' institutional development?", "Are health accreditation services considered to be necessary by health institutions?", "How do health accreditation services affect the financial performance of health institutions?", and "Can health accreditation services be implemented by health institutions?". As well as audio records, the researcher noted down the answers of participants. Each HAA was numbered in the order they were interviewed (HAA1-HAA15). Each interview lasted 27 minutes on average.

2.4. Analysis

Repeated and emphasized expressions were identified in the data obtained from the interviews. The expressions were coded, themes were created based on the codes, and then main themes were created. Analyzed thematically (Braun and Clarke, 2019). The MAXQDA program was used in the analysis (Kuckartz and Rädiker, 2019).

2.5. Limitations

The first potential limitation of this study is that health accreditation practices in Turkey are at an initial level and have become widespread enough. Secondly, the participants live in different provinces across the country. There are Covid 19 epidemic precautions at the time the study was conducted. Due to the reasons mentioned above, combined with time and budget constraints, not all interviews could be held face-to-face. Thirdly, the conclusions based on the findings are temporary because the data change over time. Fourthly, the opinions of the participants reached through the chosen method do not express the general opinion.

2.6. Ethical Considerations

For the conduct of the research, approval was obtained from the Ethics Committee of Non-invasive Clinical Researches at the Faculty of Health Sciences of XXX, dated 24.11.2021 and numbered 07-2021/34, and permission was obtained from the Presidency of TUSKA with the official letter dated 21.12.2021 and numbered 154953729.

3. RESULTS

The word cloud created for the concepts expressed in the interviews with the HAAs within the scope of the study is given in Figure 1. Accordingly, during the interviews, the most frequently used words are accreditation (467), institution (319), process (303), health (243), organization (229), accredited (172), employee (154), standard (153), quality (114), patient (99), hospital (81), available (81), necessary (80), service (80), provides (75).

Figure 1. Word cloud

A list of 17 codes and 5 inclusive themes were created as a result of the re-examination of the obtained codes during the meetings held to address the perspectives of the HAAs on health accreditation. The inclusive themes created are institutional contribution, institutional development, necessity, financial performance and applicability. The code tree made from created themes and codes is given in Figure 2. According to this tree, the most coding was done to 'importance' (36) code under necessity theme, following that code in order are 'managers' (34) code under necessity theme and 'patient potential' (30) code under institutional contribution theme. The least coding was done to 'meeting the standards' (8) code under financial performance, following that code in order are 'limitations' (10) code under practicality theme and 'personnel development' (11) code under institutional development theme.

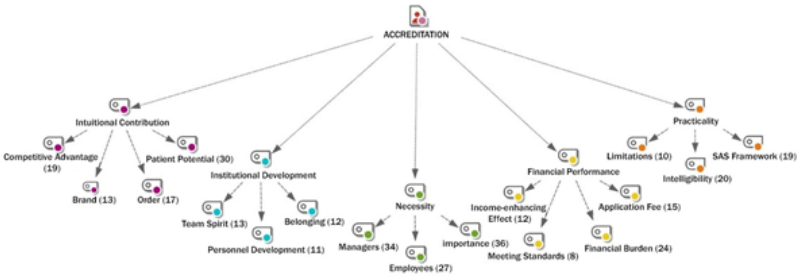

Figure 2. Themes and codes

The HAA numbers expressing the themes are given in Table 1. In the interviews, all of the HAAs made various statements on the themes of institutional contribution, necessity, financial performance, and applicability, while 1 HAA did not make any statement regarding the institutional development theme.

Table 1. Theme and code systmem

Theme	Code System	HAA															
		15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	TOTAL
Intuitional Contribution	Competitive Advantage	-	X	X	X	X	X	X	X	X	X	X	-	X	X	X	13
	Brand	X	X	X	X	X	-	X	-	X	X	-	-	-	X	X	10
	Order	X	X	X	X	-	X	X	X	-	X	-	X	X	-	-	10
	Patient Potential	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15
Intuitional Development	Team Spirit	X	-	X	X	X	-	-	-	-	X	-	X	X	X	X	9
	Personnel Development	X	X	X	X	X	-	X	-	X	-	-	X	X	-	X	10
	Belonging	X	-	-	X	X	X	X	X	X	X	-	X	X	-	-	10
Necessity	Managers	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	14
	Employees	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	14
	Importance	X	X	X	X	X	X	X	-	X	X	X	X	X	X	X	14
Financial Performance	Income-enhancing Effect	-	-	-	X	-	X	X	X	-	X	X	X	X	-	X	9
	Meeting Standards	-	X	-	X	-	-	-	-	-	X	X	X	X	X	X	8
	Financial Burden	X	-	X	X	X	X	-	X	X	X	X	X	X	X	X	13
	Application Fee	X	X	X	X	X	X	-	X	X	-	X	-	X	X	X	12
Practicality	Limitations	X	X	-	X	-	-	X	X	X	-	X	-	X	-	X	9
	Intelligibility	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	14
	SAS Framework	X	X	X	X	X	X	-	X	X	X	X	X	X	X	X	14

The HAA numbers expressing the codes under the institutional contribution theme are given in Table 1 when examined, 15 HAAs statements were made for the patient potential code, 13 for the competitive advantage code, and 10 for the order and brand codes. Considering the codes under the institutional contribution theme, the most stated codes by the HAAs are patient potential (30), competitive advantage (19), order (17) and brand (13) codes (Figure 2).

HAA 1: "When we consider what kind of contributions accreditation provides to institutions, it can be said that it provides a competitive advantage in the first place. It has now been proven that it provides a competitive advantage especially for health institutions operating in the private sector and adds brand value to institutions."

HAA 9: "I can easily say that accredited organizations always make a name for themselves in the sector and create a brand value."

HAA 12: "An accredited institution is more organized and neater than another. It works systematically, approaches its services more scientifically, more technically and more rationally."

HAA 15: "They advertise themselves in their working areas, make a name for themselves more, try to become a well-known brand, thus they increase the patient potential in the institution."

The HAA numbers expressing the codes under the institutional development theme are given in Table 1. When examined, 10 HAAs made statements about personnel development and belonging codes, and 9 HAAs for team spirit codes. Considering the codes under the institutional development theme, the most stated codes by the HAAs are team spirit (13), belonging (12) and personnel development (11) (Figure 2).

HAA 3: "In the accreditation process, those who work with the institution are also improved."

HAA 6: "Accreditation also contributes positively to the relations of employees with each other, I have seen this during my audits. Their communication, coordination with each other and working as a team are positively affected."

HAA 7: "They come a long way in terms of working, place of work, working culture or belonging to the place of work."

HAA numbers expressing the codes under the theme of necessity are given in Table 1. When examined, 14 HAAs statements were made for managers, employees and importance codes. Considering the codes under the necessity theme, the most stated codes by the HAAs are importance (36), managers (34) and employees (27) (Figure 2).

HAA 2: "In general, there is a resistance to accreditation practices by employees. However, after they start to take part in the process, it is understood by many employees that accreditation is a process aimed at facilitating their own work. I think employees are divided into two on this matter. While many see it as necessary, some see it as unnecessary."

HAA 12: "The perception of accreditation in the field has not been fully formed, there is not enough demand. There are various reasons for this. Various incentive mechanisms can be established to increase demand. The factors that will make the accreditation and process attractive should be increased."

HAA 15: "Seeing accreditation as necessary in institutions is partly related to the vision of the manager. Some managers see accreditation as necessary, while others may think it is totally unnecessary."

The HAA numbers expressing the codes under the financial performance theme are given in Table 1. When examined, 13 HAAs statements were made for financial burden code, 12 for application fee, 9 for income-enhancing effect code and 8 for meeting standards code. Considering the codes under the financial performance theme, the most stated codes by the HAAs are financial burden (24), application fee (15), income-enhancing effect (12) and meeting standards (8) (Figure 2).

HAA 2: "The application fee for accreditation is considered high by most of the health institutions. The application fee may not be high for the private health institutions considering the financial income after accreditation. However, application fees for accreditation in public institutions can be a challenging reason. Application fees for accreditation should not be reduced, application fees can be met by the ministry for public institutions."

HAA 5: "Accreditation creates a financial burden on institutions in meeting standards. Structural repairs and modifications are required to meet certain standards. However, I do not think that this financial burden is very expensive."

HAA 10: "Accreditation positively affects the financial performance of the health institution, even if it does not generate a direct income, it definitely creates an indirect income for the health institution."

HAA 11: "Accreditation costs a lot for health institutions, and health institutions expect a reward for that. This is also very natural."

The HAA numbers expressing the codes under the theme of practicality are given in Table 1. When examined, 14 HAAs statements were made for the intelligibility and SAS framework codes and 9 for the limitation code. Considering the codes under the practicality theme, the most stated codes by the HAAs are intelligibility (20), SAS framework (19), and limitation (10) (Figure 2).

HAA 7: "I don't think there will be much of unintelligibility from the perspectives of the accredited auditors, but sometimes it can happen for the institutions. Standards can be perceived differently."
HAA 8: "As a person who takes part in the creation of standards and at every stage of the process, I think the standards are clear and intelligible. As accredited auditors, we do not find it difficult in this process. However, people who are not familiar with the topic and who are new to the process may have difficulty in understanding."

Within the scope of the themes discussed in the study, it is seen that the HAAs often differ under the theme of financial performance, and the financial structure of the accreditation process draws attention. In the interviews, while some of the HAAs stated that the accreditation process does not cost health institutions and organizations a lot, does not create a financial burden to meet the standards, and that the application fees are affordable, 11 (73,33%) of the HAAs stated that the accreditation process costs a lot, especially meeting some of the standards in the SAS brings serious financial burdens, and that they find the application fees for public health institutions, if not for health institutions operating in the private sector, quite high, and they have a good number of difficulties in affording the fees.

4. DISCUSSION

Within the scope of the study, 15 HAAs were interviewed, and the perspectives of the HAAs on health services accreditation were discussed.

4.1. Institutional Contribution

In the interviews, the HAAs stated that the accreditation process and accreditation certificate provide various contributions to health institutions, and they discussed these contributions under the headings of competitive advantage, brand, patient potential and order. Regarding the competitive advantage, they stated that the health institutions that take part in the accreditation process and have the accreditation certificate have an advantage over the institutions that are not involved in this process and do not have the certificate. Doğan et al., (2017) stated in their study that by targeting quality in health institutions, competitive advantage will be achieved and sustainable success can be achieved in the long term, and the HAAs supported this view in this study. Regarding the brand, they stated that with the successful completion of the accreditation process, the recognition of the institutions will increase, they will create brand value and they will be mentioned more. As patients' perception of the quality of service they receive increases, their satisfaction level is also positively affected by this increase. Many studies show that perceived service quality and level of customer satisfaction significantly affect people's recommendations (Uzunal and Uydacı, 2010; Yılmaz, 2011). It is thought that the necessary investments and practices to meet the expectations of the service buyers will provide positive feedbacks and significant incomes to the institutions. Increasing the satisfaction of patients in institutions that provide health services is very important in terms of creating customer loyalty (Öz and Uyar, 2014). Regarding patient potential, most of the HAAs stated that accreditation should be a reason for preference. They also mentioned that some of the patients already consider accreditation as a reason for preference and this increases patient potential; however, awareness level of all patients is still not high enough. Regarding order, the HAAs specified that accreditation ensures that the processes in health institutions are carried out in a more thorough and reliable way.

Çayırtepe ve Özkoç (2019) discussed the role of having an accreditation certificate in patients' choice of health institution. They stated that hospital quality is among the top three in the preference of health institutions, but that the international accreditation certificate is not given equal importance. That the HAAs mentioned although some of the patients already consider accreditation as a reason for preference, awareness level of all patients is still not high enough supports this view.

Weber (2005) stated that if changes occur, accreditation contributes to the hospital in responding to these changes and increasing the quality of service. Braithwaite et al. (2012) stated that accreditation programs continuously improve institution activities and service delivery. Yousefinezhadi et al. (2020) also supported this view by stating that the accreditation process provides the greatest contribution to health institutions in terms of improving existing processes. In this study, the HAAs also stated that accreditation improves processes and ensures that processes in health institutions are carried out more thoroughly and reliably. It has been seen that the studies in question support each other.

4.2. Institutional Development

In the interviews, the HAAs made various statements about institutional development of the accreditation process in institutions. They discussed institutional development under personnel development, belonging and team spirit titles. Regarding personnel development, they stated that the accreditation process contributes to the development of the institution personnel and that it will contribute to the professionalism of the employees by expanding their vision. Regarding belonging, they stated that with the accreditation process, the staff of the institution feels more belonging to their institution and the commitment between them becomes stronger. Regarding team spirit, they stated that encouraging employees to work together during the accreditation process creates awareness of working as a team and contributes positively to employees' communication.

Akyurt (2007) stated in her study that the institutions that received the accreditation certificate value the ideas of the employees in the institution, the teamwork is given importance by the employees of the institution and there is a sense of belonging, and the vocational training and progress of the employees are supported by their institutions. The results obtained from this study also support this view.

Akyüz and Akyüz (2015) stated that quality and accreditation studies lead to positive changes in communication within the organization. Greenfield and Braithwaite (2008) stated that the accreditation process makes positive contributions to communication and decision making. In their study on the use of accreditation as a cultural change tool in hospitals, Pomey et al. (2004) concluded that accreditation is effective in increasing communication and changing the institutional culture. In this study, the HAAs also stated that accreditation encourages the employees of the institution to work together and contributes positively to the communication of the employees by creating team spirit and awareness. It has been seen that the studies in question support each other.

4.3. Necessity

In the interviews, the HAAs made various statements regarding the necessity of accreditation. Under the theme of necessity, they discussed the perspectives and approaches of managers and employees to the accreditation process and evaluated the importance given to accreditation. Regarding managers' perspectives on accreditation, they stated that the views of the managers have an important place in the process, along with the managers who know the benefits of accreditation for the institution and apply for it, there are also managers who see the whole process as a workload and unnecessary action, and this is related to the visionary nature of the managers. They stated that the accreditation process contributes to the development of the institution personnel and that it will contribute to the professionalism of the employees by expanding their vision. Regarding employees' perspectives on accreditation, they stated that the majority of health professionals consider the accreditation process as a workload and do not consider it necessary. Regarding the importance given to accreditation, they stated that the necessary importance is not given to the accreditation process, and that the interest in the accreditation process will increase with the privileges and incentives to be provided. In addition, they expressed the importance and necessity of carrying out activities for more recognition of TUSKA, which controls the accreditation and its process.

Akar et al. (2015), in their study on the quality perception of health managers, interpreted the quality management perceptions of managers positively in general. In their study with hospital managers to evaluate hospital accreditation systems, Yousefinezhadi et al. (2020) also found that managers were satisfied with the accreditation process and accreditation standards. Yıldız (2010) stated in his study that senior managers can contribute to the creation of an environment aimed at quality improvement and be a driving force behind quality improvement efforts. Mermer (2016) also mentioned in his study that health managers are aware that accreditation is indispensable and that they should include the health institutions they serve in the accreditation process as much as possible.

In his study with the participants from the hospital where he works, Akıncı (2016) found that almost all of the participants had a clearly positive attitude towards accreditation; however, one of the obstacles hindering accreditation system requirements results from some of the employees' indifference to the process. Öztaş (2014) also supported this situation in her study mentioning that employees should embrace, accept and participate in the accreditation process, emphasized the necessity of creating an adequate institutional culture, and also stated that the Ministry of Health should support quality and accreditation process at all levels.

Bayer et al. (2019), in their study to determine the perceptions of health care professionals towards quality, reached a conclusion that quality studies increase the workload of health care professional and do not contribute to their development.

Healthcare professionals do not adopt the accreditation process because it increases bureaucracy, causes loss of time, does not add value to patient care, increases costs both directly and indirectly, and is not consistent

(Lemieux-Charles et al., 2003; Greenfield and Braithwaite, 2008).

In countries where there is a national accreditation program, health institutions want to know what they will gain from the process, what the process will cost, what it will regulate, what kind of incentives they will receive before they start the accreditation process (Shaw et al., 2010). A study by Braithwaite et al. (2012) supports this statement. It is seen that the policies followed by the governments, the support they provide and the incentives given to health institutions during or at the end of the process are important factors in shaping the process of applying for accreditation of health institutions.

When the results of the studies in the literature are examined, it is seen that the results obtained from this study support each other.

4.4. Financial Performance

In the interviews, the HAAs made various statements regarding the effects of accreditation on institutions' financial performance. The HAAs discussed financial performance under income-enhancing effect, meeting the standards, financial burden and application fee headings. Regarding income-enhancing effect, they stated that accreditation increases patient potential, it is effective in reducing expenses and costs, thus it creates an income-increasing effect. Regarding financial burden, they stated that the accreditation process costs a lot, but this cost is natural and it will pay off in a short time with the implementations applied in the process. They also emphasized that these costs are very affordable by private health institutions, but they are generally expensive for public health institutions. Regarding meeting the standards, while some of the HAAs stated that accreditation standards would not create a financial burden on health institutions, the majority of the HAAs mentioned that meeting the standards in some parts of the set could create a financial burden on health institutions. Regarding the application fee, while some of the HAAs claimed that the fee is considered to be too high by most of the health institutions and it is an important factor in applying for accreditation, other HAAs stated that the fee isn't high and it is an unimportant detail for the health institutions. In addition, they stated that the application fees are affordable for the health institutions operating in the private sector, but the fees are high for the health institutions operating in the public sector and the institutions have difficulties in meeting them.

In her study, Özdere (2017) found that accreditation supports effective financial resource management. Öztaş (2014), on the other hand, stated that the costly aspect of quality and accreditation implementations should not be forgotten and necessary precautions should be taken accordingly.

In a study conducted by Maimaitireimu (2019) on the perspectives of quality directors on SAS, the participants stated that they found the accreditation costs of international accrediting institutions such as JCI very high, and that if accreditation activities that are carried voluntarily are made compulsory, it may be too challenging for health institutions to meet the standards financially. The HAAs in this study also support this view.

Jafar et al. (2015) stated that the main obstacle in front of the accreditation process is the inadequacy of financial resources. Yousefinezhadi et al. (2020) supported this view in their study; managers stated that one of the most challenging issues in the accreditation process is deficiencies due to human, finance and equipment (23%).

4.5. Practicality

In the interviews, the HAAs made various statements regarding the practicality of accreditation. Practicality was discussed under limitations, intelligibility and SAS framework headings. Regarding limitations, among the HAAs, there were those who thought that the accreditation standards were clear, as well as those who thought they were not, and they also stated that there could be differences of opinion in the perception of the standards. Öztaş (2014) stated that quality and external accreditation audits are not adequately carried out, therefore quality and accreditation activities are adversely affected, and standards cannot gain sufficient functionality. Regarding intelligibility, they stated that the accreditation standards can be understood by the accredited auditors in general, but from time to time there are difficulties in understanding the standards by the executive institutions. Similarly, Akyurt (2007) stated that there are differences of opinion in the implementation of the standards, there are deficiencies in what it means and how it should be applied, and this problem could be solved with trainings by the specialists, which can create a positive effect.

5. CONCLUSION

In recent years, Turkey has made significant progress in increasing access and quality of healthcare services. Quality studies have become widespread, covering public, private and universities providing health services. The developments and quality standards in the Turkish healthcare sector are at a level that can be exemplary in the world. However, the desired level of accreditation could not be reached. The number of scientific studies on health accreditation in the literature is low. All of the studies obtained provide literature information. This study is the first field study

on health accreditation. It offers a perspective on health accreditation from the perspective of health accredited auditors. In this way, it contributes to the health management literature.

The perspectives of the HAAs within TUSKA on accreditation were discussed under institutional contribution, institutional development, necessity, financial performance and applicability themes. In the interviews, the HAAs stated that accreditation would make significant contributions to health institutions, would contribute to the institutional development of health institutions, that they considered accreditation and its process as necessary, and that the process could be applied in health institutions. However, the HAAs had difference of opinions while evaluating the accreditation process in terms of financial performance. Opposed to the HAAs who stated that the accreditation process would not create a financial burden on health institutions and the institutions would not have difficulties in meeting the relevant standards, there were also those who stated that the process would create a financial burden and the institutions would have problems in meeting the standards. The most disagreement among the HAAs arose about the application fee; they evaluated it as high, appropriate and low. However, they commonly stated that the application fee is very affordable for private health institutions and they can easily afford it, but the application fee for public health institutions is high and it is much more difficult to meet the fee.

In order to increase the interest of health institutions in accreditation and accreditation applications, accreditation standards can be revised to create minimum cost to health institutions, various incentives and privileges, primarily financial, can be provided, and the application fee can be reduced to the minimum or a discounted application fee can be offered for public health institutions.

The study provides determinations and solutions to accreditation applications from the point of view of auditors in the literature. It is a reference for future studies. For future studies, it is recommended to conduct studies on the perspectives of managers, employees and stakeholders of accredited organizations on accreditation.

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Conflict of Interest:
The authors declare that they have no conflict of interest.

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Assessment of Epidemiology Courses in Health Management Undergraduate Education in Turkey

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ABSTRACT

In today's ever-changing environment, health managers need to focus on promoting the health of populations. Therefore, they need a specialized understanding of epidemiology, as a requirement for population-based management. Epidemiology is acknowledged as an important component of undergraduate health management education, providing the knowledge and skills that health managers need in their professional lives. This cross-sectional descriptive study aims to assess the epidemiology courses in health management undergraduate programs in Turkey. The current curricula of 75 health management undergraduate programs, listed on the Program Atlas of the Higher Education Council, are reviewed through universities' official websites to profile the characteristics of epidemiology courses. Descriptive statistics was expressed as mean ± standard deviation for continuous variables, frequency and percentage values were used for categorical variables. 60 (80.0%) programs have epidemiology in their curricula. Yet the characteristics of these courses, such as their core/elective status, the semesters they are conducted, the weekly contact hours and ECTS credits, and the topics covered in the syllabus vary across programs. The findings reveal that there are variations regarding how epidemiology courses are conducted across health management undergraduate programs in Turkey. Apparently, this poses a challenge against all efforts to ensure the uniformity of the minimum core competencies among all health management program graduates; and although the Health Management National Core Education Program has been a great starting point towards standardization, there are further steps to be taken to improve the health management undergraduate curricula in Turkey.

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1.INTRODUCTION

A health system, as defined by the World Health Organization (WHO), consists of all organizations, institutions, resources and people whose primary aim is to promote, restore, or maintain health through the efforts to influence determinants of health as well as more direct health-improvement activities, i.e. delivery of preventive, promotive, curative and rehabilitative interventions (WHO, 2010). The scientific advances and innovations in medicine as well as the development and expansion of relevant technologies for prevention, diagnosis, treatment, and rehabilitation of diseases since the middle of the 20th century have led to a rapid increase in the knowledge and understanding of improving population health. Yet the world is still facing many health challenges, including the outbreaks of vaccine-preventable diseases or emerging infections; the ageing of populations, who rely heavily on health care, pensions and social protection; the growing burden of non-communicable diseases; increasing rates of obesity and physical inactivity; health impacts of urbanization, environmental pollution and climate change, multiple humanitarian crises and migration. As these challenges impose another dimension of burden to already complex and complicated health systems, health systems need staff, funds, information, supplies, transport, communications as well as overall guidance and direction to function (WHO, 2010).

Therefore, at all levels of any health system, there is a growing need for managers with expertise in both business and health who would focus on the activities of planning, organizing, controlling, and motivating in order to deal with the financial constraints and the complexity of matrix structures within organizations, making budget and staffing decisions that affect availability and access to services while keeping their focus on promoting the health of greater populations. In the United States, the employment of medical and health services managers is projected to grow 28% from 2022 to 2032, showing a much faster growth than the average for all occupations (U.S. Bureau of Labor Statistics, 2023).

Apart from the numbers, health managers are required to provide guidance and leadership to govern the entire health ecosystem, i.e. at individual, organizational and population levels, and effective health management leads to better health outcomes, improving the health of populations. Health managers execute core functions, including planning, organizing, staffing, controlling, directing, risk-assessing, and decision-making. As decision-makers, health managers need to access complete information and make use of it in order to deliver high-quality and cost-effective health services and making the 'best' choices for the populations they serve. Therefore, they need all the tools to equip themselves with the knowledge and capacity to handle this ever-changing environment, epidemiological measurements being the foremost of these tools.

Health Management Education

Health management education has a relatively short history. Health management has become a career field following the development of medical science and the growth of hospitals in the United States, thus initially had a hospital emphasis. The first degree-granting program of the Marquette University in Wisconsin in 1926, and the first graduate program of the University of Chicago in 1934, were both established in hospital administration. The early programs used the term “hospital administration” in their titles; however, this has changed to “healthcare administration” or some similar phrase, as the field has changed to include a broader range of organizations in which healthcare executives work. The Association of University Programs in Health Administration (AUPHA), founded in 1948, and Commission on Accreditation Healthcare Management Education (CAHME), founded in 1968, accredit undergraduate and graduate programs in the United States and Canada with a focus to develop and continuously improve health management education; and European Health Management Association (EHMA), founded in 1982, focuses on enhancing the capacity and capability of health management in Europe (Haddock et al., 2002; Hilsenrath, 2012).

Globally today, health management education is conducted either as an undergraduate (Bachelor’s) or graduate (Master’s and PhD) degree to provide the skills in organization, leadership, quality assurance, and information technology management, which are all necessary in the field; and both degrees are considered essential in today’s job market. An undergraduate degree is generally the minimum education requirement and may be considered a general business overview. It focuses primarily on entry-level management to equip health managers to direct, plan, and monitor medical and health services, to coordinate and monitor the usage of facilities, services, and staff to ensure best practices and effective resource allocation. Although a graduate degree, which provides more in-depth knowledge, including course work in health policy and law, marketing, organizational behavior, healthcare financing, human resources, and other health topics; is required for advancement to the following or top levels of management in many organizations, a career in health management requires a minimum of a bachelor’s degree. According to AUPHA, the basic curriculum for the health management degree should include the study of management theory, concepts, and skills, such as leadership, financial management, economics, law, organizational behavior, quantitative methods, and planning; the study of the healthcare industry including epidemiology, health and human behavior, and medical care organization; and the demonstration of integration

of course material through application of management concepts to the healthcare industry in a major project, paper, or exam (AUPHA, n.d.).

Today there are many undergraduate and graduate health management programs around the world. However, the breadth and diversity of health management education vary. Weil (2013) claims that "health management education and the role of health managers are patterned and consistent with how the country's healthcare system is organized, managed, and financed in Europe and the United States". Kalangi and Thakur (2018) emphasize that in India "the challenges lie not in the capacity of the education system but in the structure, content, quality, and the distribution of the programs offering training in healthcare management. There is a need for a certain level of consistency among the programs with respect to the structure and content of the curriculum, in order to ensure the inclusion of a base set of competencies for all graduates in this field".

In Turkey, health management education started in 1963 at the Health Administration Vocational School of the Ministry of Health. In 1970, the Health Administration Vocational School was set up under Hacettepe University with a graduate program and in 1975 an undergraduate program was also launched (Yenimahalleli Yasar & Boutsioli, 2011, Çimen, 2010). As of 2023, there are a total of 109 health management undergraduate programs in Turkey as defined in the Higher Education Program Atlas of Council of Higher Education (https://yokatlas.yok.gov.tr/lisans-anasayfa.php). In 2017, the Health Management National Core Education Program is developed in line with the criteria set by AUPHA and in accordance with the adaptation to the Bologna Process as a guide to define the professional competencies that the health management undergraduate degree is required to provide and to ensure the standardization throughout the country. A total of 22 program competencies as well as the topics, content and learning outcomes that set the foundation in health management field are identified in this document (Sağlık Yönetimi Ulusal Çekirdek Eğitim Programı [SAYÇEP], 2017).

Epidemiology in Health Management Education

Epidemiology, as an umbrella term, covers the wide range of public health matters and analyzes the cause, progression and spread of disease using biology and statistics. It is defined by Last (2001) as "the study of the distribution and determinants of health-related states in specified populations, and the application of this study to control health problems". It generates information for decision-making, reassessment of existing knowledge and solutions towards improved quality. Its significance has been recognized back in the 19th Century by Florence Nightingale who recommended that hospitals should collect data on the diagnoses, operations performed and complications including death, age, sex, occupation, date of admission and discharge (Hooker, 2008). Following the recognition of the importance of epidemiology to health planning and administration by many expert educators in the 1970s, it was advised that epidemiology should become part of the curriculum for master's programs in health management education. The importance of epidemiology as a required component of health management education to assess population health and status was also acknowledged by both AUPHA (undergraduate programs) and CAHME (graduate programs) (Caron et al., 2013). AUPHA, in 1982, published a compendium of papers on teaching epidemiology in health administration, and the term 'managerial epidemiology' was used with an emphasis on teaching health administrators how to utilize epidemiology to manage healthcare organizations (Crichton & Neuhauser, 1982; Filerman, 1982).

AUPHA gives external validation to undergraduate health administration programs through its certification process and requires them to have adequate coverage, which refers to fundamental knowledge of specific areas in their curriculum. According to its criteria, epidemiology should be covered under the topic of population/community health, emphasizing the socio-cultural factors associated with the distribution and etiology of health and disease, the use of epidemiologic concepts and principles in the practice of managing the health of populations and communities, methodological skills including the calculation of rates, analysis of vital statistics, and programming data using a basic statistical package (AUPHA, 2023). CAHME also requires the accredited graduate programs to include the "assessment and understanding of the health status of populations, determinants of health and illness, and factors influencing the use of health services" in their curricula (Hooker, 2008).

In consideration with the significance of epidemiology as an acknowledged component of health management undergraduate education to provide the knowledge and skills to health managers for decision-making about utilization of health services, resource allocation, needs analysis, and quality improvement; reassessment of existing knowledge, and developing solutions towards improved health; this study aims to define the current situation regarding the epidemiology courses in the curricula of Health Management Undergraduate Programs in Turkey, and to profile the characteristics of these courses.

2. MATERIALS AND METHOD

Data for this cross-sectional descriptive study were collected in July 2023. The current list of health management undergraduate programs in Turkey was acquired from the Program Atlas of the Higher Education Council website

(https://yokatlas.yok.gov.tr/lisans-anasayfa.php). Of the total of 109 Health Management Undergraduate Programs listed on the website, the programs that are taught in English, in evening education and as open education were excluded, and a total of 75 programs were included in the study. The webpages of each program were browsed and the current curricula, as declared in the universities' Information Package for National Qualifications Framework for Higher Education, were reviewed to see whether there was an epidemiology course in the curriculum; and to profile the characteristics of the existing epidemiology courses, including their core/elective status, semesters, weekly contact hours, European Credit Transfer and Accumulation System (ECTS) credits, how the courses are titled, the topics covered, and the course instructors. Descriptive statistics were presented as numbers and percentages.

3. RESULTS

Of the 75 health management undergraduate programs included in this study, 61 (81.3%) are in public universities and 14 (18.7%) are in foundation universities. 60 (80.0%) health management undergraduate programs include epidemiology courses in their curriculum. Of these, 49 (81.7%) programs are in public and 11 (18.3%) programs are in foundation universities (Figure 1).

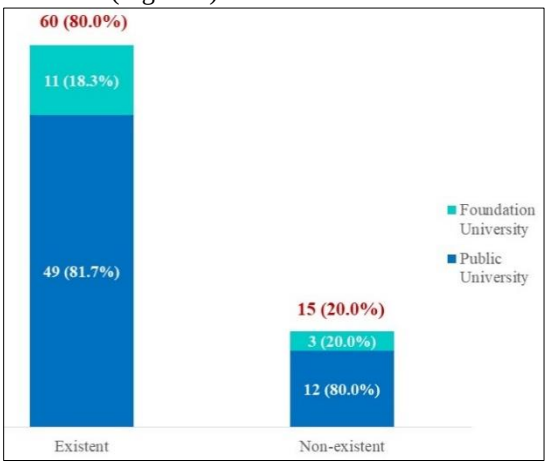

Figure 1. Existence of Epidemiology Courses in Health Management Undergraduate Programs

However, there are variations between programs regarding how epidemiology courses are taught including their compulsory or elective status, the term it is taught, weekly contact hours and ECTS credits.

Epidemiology is taught as a core course in 28 (46.7%) programs and as elective in 32 (53.3%) programs. Of the 49 programs in public universities, 29 (59.2%) conduct epidemiology courses as elective, whereas of the 11 programs in foundation universities, 8 (72.7%) conduct epidemiology courses as core courses (Table 1).

In all 60 programs, epidemiology is taught as a one-semester course. However, the semester that the course is conducted varies from 1st to 8th semesters. Of the 60 programs, 40 (66.7%) programs teach epidemiology in the second year of their curriculum, i.e. 20 (33.3%) programs in the 3rd and another 20 (33.3%) programs in the 4th semesters. The number of programs that teach epidemiology in the third and fourth year of their curriculum dramatically decreases to 10 (16.7%) and 4 (6.7%) respectively; and only 6 (10.0%) programs teach epidemiology in the first year. In public universities, epidemiology is taught mostly in the 3rd and 4th semesters (36.7% and 32.7% respectively); and in foundation universities, 36.4% of the epidemiology courses are taught in the 4th semester (Table 1).

The weekly contact hours of epidemiology courses vary between the programs with a mean value of 2.6±0.6 and a median of 2.5[2-5]. Epidemiology is scheduled for 2 hours/week in 30 (50.0%) programs and for 3 hours/week in 28 (46.7%) programs. A total of 26 (53.1%) programs in public universities and 6 (54.5%) programs in foundation universities teach epidemiology as 2 hours/week courses. (Table 1).

The ECTS credits of epidemiology courses also vary between 60 programs, with a mean value of 3.8±1.1 and a median of 4 [2-7]. Epidemiology courses have 4 ECTS in 24 (40.0%) programs and 3 ECTS credits in 14 (23.3%) programs. A total of 19 (38.8%) of the 49 programs in public universities and 5 (45.5%) of the 11 programs in foundation universities have 4 ECTS credits for epidemiology courses (Table 2).

Table 1. Characteristics of epidemiology courses

Variable	Public University		Foundation University		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Course type						
Core course	20	40.8	8	72.7	28	46.7
Elective course	29	59.2	3	27.3	32	53.3
Semester						
1st	2	4.1	0	0.0	2	3.3
2nd	3	6.1	1	9.1	4	6.7
3rd	18	36.7	2	18.2	20	33.3
4th	16	32.7	4	36.4	20	33.3
5th	3	6.1	3	27.3	6	10.0
6th	3	6.1	1	9.1	4	6.7

7th	1	2.0	0	0.0	1	1.7
8th	3	6.1	0	0.0	3	5.0
Weekly Contact Hours						
2 hours	26	53.1	4	36.4	30	50.0
3 hours	22	44.9	6	54.5	28	46.7
4 hours	1	2.0	0	0.0	1	1.7
5 hours	0	0.0	1	9.1	1	1.7
ECTS Credits						
2	6	12.2	2	18.2	8	13.3
3	13	26.5	1	9.1	14	23.3
4	19	38.8	5	45.5	24	40.0
5	9	18.4	3	27.3	12	20.0
6	1	2.0	0	0.0	1	1.7
7	1	2.0	0	0.0	1	1.7

**Percentage within public universities*
***Percentage within foundation universities*

53 (88.3%) health management undergraduate programs teach epidemiology courses under the title of epidemiology, basic epidemiology or managerial epidemiology; however, in 7 (11.7%) programs, epidemiology is taught as a combined course with either public/community health or statistics. While the most preferred title is "epidemiology" in both public and foundation universities (83.7% and 63.6% respectively), 27.3% of the foundation universities also prefer the title of "managerial epidemiology" (Table 2).

Of the 44 health management undergraduate programs that declared the epidemiology course instructor on their webpage, 19 (43.2%) are taught by Assistant Professors, and in only 2 (4.5%) programs the course instructors are Research Assistants. (Table 2).

Table 2. Titles and instructors of epidemiology courses

Variable	Public University		Foundation University		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Course Title						
Epidemiology	41	83.7	7	63.6	48	80.0
Basic Epidemiology	1	2.0	0	0.0	1	1.7
Managerial Epidemiology	1	2.0	3	27.3	4	6.7
Public Health & Epidemiology	3	6.1	1	9.1	4	6.7
Epidemiology & Health Indicators	1	2.0	0	0.0	1	1.7
Epidemiology Health	1	2.0	0	0.0	1	1.7
Statistics & Epidemiology	1	2.0	0	0.0	1	1.7
Course Instructor's Title†						
Professor	4	11.4	1	11.1	5	11.4
Associate Professor	5	14.3	1	11.1	6	13.6
Assistant Professor	15	42.9	4	44.4	19	43.2
Lecturer	5	14.3	3	33.3	8	18.2
Research Assistant	2	5.7	0	0.0	2	4.5
All Faculty Members	4	11.4	0	0.0	4	9.1

** Percentage within public universities*
*** Percentage within foundation universities*
† Programs that identified the course instructor are included

Among a total of 53 health management undergraduate programs, which had published their syllabus for epidemiology courses on their webpages, 48 (90.6%) programs include epidemiological studies, 47 (88.7%) include the definition and basic concepts of epidemiology, and 35 (66.0%) include health indicators, while the least included topic is epidemics and surveillance with only in 7 (13.2%) programs (Table 3).

Table 3. Basic topics included in the epidemiology course syllabus

Topics	Frequency	Percentage
Epidemiological Studies	48	90.6
Definition and Basic Concepts of Epidemiology	47	88.7
Health Indicators	35	66.0
Uses of Epidemiology	26	49.1
History of Epidemiology	24	45.3
Epidemiology of Communicable Diseases	20	37.7
Epidemiology of Non-Communicable Diseases	14	26.4
Epidemics and Surveillance	7	13.2

4. DISCUSSION

As global health systems struggle to deliver high-value and high-quality services despite rapidly increasing

costs, the need for health managers who could handle the scientific and medical developments; innovative technologies; changing demographics, mortality and morbidity trends; and financial arrangements becomes more prominent. Health managers are essentially responsible for ensuring the continuation of healthcare delivery and for managing both the business and health components of an organization's activities while keeping their focus on promoting the health of greater populations.

In the context of health services where clinical professionals and health managers work in close proximity and under the dominance of evidence-based practice toward improving population health, health management education is needed more than ever. In order to train health managers who can analyze the situation, determine the priorities, plan and evaluate, assess the determinants of health and adopt health promotion as a principle, health management education needs to offer a broad curriculum that provides a foundation in a range of disciplines and reflecting the rich experience that health management can offer as an occupation (Davies, 2006).

Although it is a well-known fact that effective health management education will advance the likelihood of delivering high-quality services and improving population's health, there is an ongoing global debate on how to raise future health managers who are exquisitely skilled in the art and science of management with expertise in both business and health as the breadth and diversity of health management education vary. Fos et al. (1998) stated that health managers need to focus on delivering health services to populations, and this population-based management requires an "appreciation and specialized understanding of epidemiology". Caron (2010) emphasized that managerial epidemiology as "the science of public health management" would utilize the traditional quantitative and causal reasoning methods and incorporate them with the business aspects. Managerial epidemiology is also defined as "the scientific basis for any health system reform" and regarded essential for professional preparation in both clinical and management practice (Roper & Cates, 1993). As recommended by the Commission on Health Research for Development in 1990, national health policies and actions need to be based on epidemiological information; health measures should not be predetermined, but rather guided by epidemiology through local data collection and analysis; and therefore local epidemiological research abilities have to be strengthened (Bryant & Harrison, 1996; Unger & Dujardin, 1992).

As the English scientist Lord Kelvin said in the 19th century, "When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot express it in numbers, your knowledge is unsatisfactory" (Bush, 1991). Hooker (2008) quotes that the "assessment and understanding of the health status of populations, the determinants of health and illness, and factors influencing the use of health services" is what CAHME requires the accredited programs to include in their curricula. Caron & Hooker (2011) quote that today health managers are required to be proficient in "…the funding, organization, and management of healthcare services…" as well as "…the analysis of the health needs of the population, health promotion and prevention". In this perspective, epidemiology courses are essential to provide health managers with the knowledge and skills to make decisions about utilization of health services, resource allocation, needs analysis, quality improvement, etc. The findings of this study show that 80.0% of health management undergraduate programs in Turkey include epidemiology in their curriculum.

In an undergraduate program, courses can be classified either as a core course, which is mandatory for students to study in order to meet the requirements of the program; or as an elective course, which allows them to study their topics of interest while making up the total number of credits to complete the degree. SAYÇEP (2017), which describes the professional competencies that health management undergraduate degree requires, states that the core courses covering the competencies should make up 70% of the curriculum and the remaining 30% should be elective courses which are defined according to the specific program objectives. The findings of this study reveal that more than half of the programs (53.3%) teach epidemiology as an elective course. The question that rises here is what happens if a student chooses any course among the elective courses but epidemiology. This would lead to the lack of much needed epidemiological skills for future health managers upon graduation.

In higher education programs, a contact hour includes the time spent in class, be it lecture or laboratory, when the professor is teaching the student, and usually equals to 40 to 50 minutes in real time. However, a more accurate tool regarding the comparison of different programs is regarded as the ECTS, which aims to make national education systems more comparable internationally in accordance with the adaptation to the Bologna Process. ECTS credits represent learning based on defined learning outcomes, skills and competencies that define the qualification and are accepted as the standard way of measuring the student's workload, i.e. the number of classroom hours per week and the hours spent by the student to perform outside assignments in higher education (European Commission, n.d.). This study reveals that both the weekly contact hours and the ECTS credits of

epidemiology courses vary between programs in Turkey.

Unfortunately, there has been no published empirical research on what epidemiological topics should be included in the curriculum for a managerial epidemiology course (Hooker, 2008). Caron et al. (2013) acknowledge that although most undergraduate and graduate health management programs teach epidemiology courses in their curricula, there is still an inconsistency across the programs regarding their goals, objectives, and final content; and that the accreditation and certification criteria to guide what health administration programs should expect of students studying epidemiology are limited. Despite all the efforts, the breadth and diversity of health management education vary globally. Studies have shown that there is variability in what is taught in different programs, as some programs teach only basic public health epidemiology while others have more of a managerial focus to their epidemiology (Singh et al., 1996; Kilpatrick & Romani, 1995). The health management education, both undergraduate and graduate, is expected, even advocated, to change as the health systems evolve; and along with the role of health managers, it is patterned and consistent with how a country's health system is organized, managed, and financed (Counte et al., 2019). The findings of this study show that the topics covered in epidemiology courses in health management undergraduate programs in Turkey are diverse and there is no standardization as to what should be covered in the syllabus. Similarly, a study by Caron & Hooker (2011) found that most undergraduate programs teach introductory epidemiology (16/35, 46%) or epidemiological principles in other courses, while only a limited number of programs offer advanced or managerial epidemiology in their curricula.

As the challenge appears to be celebrating the breadth on one hand while bringing cohesion to the content that would appropriately span health systems and health needs on the other, it is essential that greater value should be attached to health management education and a systematic approach should be taken towards curriculum development (Hooker, 2008; Davies, 2006). There are some insights developed to guide universities in developing health management programs accordingly. The need for a certain level of consistency among the programs regarding the structure and content of the curriculum is emphasized to ensure the inclusion of a base set of competencies for all graduates (Kalangi & Thakur, 2018); and the 'MBA and MPH Joint Degree Program' launched in Yale University in 2014 is regarded as a good example due to its integration of management and public health knowledge in an innovative health management undergraduate program to provide the students with an interdisciplinary perspective and a curriculum that incorporates core competencies in public health, health management and business, involving epidemiology as core courses (Pettigrew et al., 2015). The role of accrediting organizations in promoting competency-based standards for education and how organizations such as AUPHA and EHMA can promote sharing across disciplines and careers as well as learning from others in developing curricula for an effective health management education is also being discussed lately (Glandon, 2019; West et al., 2019).

5. CONCLUSION

In the context of health services where clinical professionals and health managers work in close proximity and under the dominance of evidence-based practice towards improving population health, health management education should offer a broad curriculum that includes the context for practice; research awareness and skills of critical appraisal; a grounding in a range of disciplines and a reflective approach towards general management skills. A central role for epidemiology courses in health management education would be to provide the content and the skills to monitor the trends of access to certain health services, allocate limited resources, plan for surge capacity, and measure clinical outcomes, to gather and assess the information to make the best decisions for population health. to assess their organization's effectiveness in preventing disease and promoting health while maintaining the fiscal vitality of their business.

As the findings of this study reveal, there are variations regarding how epidemiology courses are conducted across health management undergraduate programs in Turkey in terms of the existence of the course in the curricula, its core or elective status, weekly contact hours, ECTS credits, as well as the topics covered in the syllabus. This poses a challenge against all efforts to ensure the uniformity of the minimum core competencies among all health management program graduates, who need a solid foundation in epidemiology to be well-equipped to address and solve the future challenges of the health sector, to better manage organizations, to plan strategically, to implement interventions, and to evaluate the outcomes. Although SAYÇEP has been a great starting point towards standardization of the educational content across health management undergraduate programs in Turkey, there are apparently further steps to be taken, particularly with a special emphasis on epidemiology in the health management curriculum, i.e. to standardize the content, and to guide the development of goals and objectives of epidemiology courses employing vertical integration with a multidisciplinary approach.

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Ethical Approval: The data for this study have been collected by browsing the websites of Higher Education Institutions, and reviewing the curricula of the programs which are public information; therefore, no ethical approval has been sought.

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Importance of Job Satisfaction, Organizational Commitment and Problem-Solving Competence in Nurse Human Resource Management

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ABSTRACT

Nurses' confidence that they can solve the problems they will encounter in their professional lives, their job satisfaction and organizational commitment are important in terms of creating a peaceful and productive working environment. These issues should be given importance in terms of increasing the quality of health services and ensuring patient and employee satisfaction. In this study, which is modeled as descriptive and relationship-seeking, it is aimed to measure nurses' perceptions of job satisfaction, organizational commitment, and problem-solving competencies and to reveal how these perceptions change according to nurses' demographic characteristics. The population of the study consists of nurses working in a private hospital in Kirsehir. The data of the research were collected with a face-to-face questionnaire. Job Satisfaction, Organizational Commitment and Interpersonal Problem-Solving Scales were used to collect the data of the research. As a result of the research, it has been determined that the Constructive Problem-Solving Factor differs significantly according to the age and marital status variables, the Persistent Approach to Problem Solving Factor according to the age variable, and the Physical Conditions Factor of the Job Satisfaction Scale differs significantly according to the Marital Status Variable. It was determined that there was no significant difference in any of the other factors and variables. In conclusion, in order to ensure a peaceful and productive working life, it is recommended that nurses be given regular in-service training on problem solving and psychological resilience.

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INTRODUCTION

Individuals face problems sooner or later in their working life. If the individual is a health worker, the solution becomes more difficult, requires urgency, and causes intense stress. As the problems experienced increase and they are not overcome with appropriate approaches, job satisfaction and organizational commitment decrease. The priority of nurse human resource management should be to reverse this pessimistic picture.

A problem is defined as a situation that physically or emotionally disturbs the person, causes hesitation, and has several possible solutions. The main characteristics of the problem are that it is a challenge for the person facing the problem, the person needs to solve it, the person has not encountered this problem before and is not willing to solve it (Yıldırım and Bağsürer, 2019). Education, training, development, maturity level, abilities, motivations, social and cultural environment are among the factors that affect problem solving (Yıldırım et al., 2014).

Scientists have developed many theories about problem solving. According to Bandura, the strength of people's belief in their own competencies determines whether they will try to cope with certain problems (Çetinkaya, 2013). On the other hand, John Dewey's Theory of Reflective Thought includes interpreting the experience, naming the problems outside the experience, making explanations for the problems, forming and testing assumptions (Kızılkaya and Aşkar, 2009). Karl Popper argues that the problems caused by the failure of the individual will increase the knowledge and experience of the individual. Alex Osborne's theory of problem solving consists of three stages, including finding the problem, idea, and solution (Yiğiter, 2012). Mountrose revealed a five-stage problem-solving strategy that includes emotions (Dede, 2021). Thorndike, on the other hand, recommends trial and error method in problem solving (Yıldırım, 2016).

Nursing is not a static profession. Developing and advancing the profession requires scientific research and using scientific techniques to solve the problems encountered. Nursing care, which is applied with an evidence-based and scientific approach in problem solving, also increases the quality of the service provided (Taşçı, 2005).

It is an important element in increasing their performance that ensuring employees are satisfied with their jobs by providing the necessary opportunities. Job satisfaction includes components such as pay, advancement, working conditions, supervision, organizational procedures, and co-worker relationships (Al-Zu'bi, 2010).

Nursing services have a great role in the efficiency and sustainability of health services. Nurses' job satisfaction is essential for high quality health care delivery. If job satisfaction is not achieved in nurses, it is seen that the quality of patient care decreases, the cost of health care increases and the staff turnover rate increases in nurses (Türe, 2020).

According to Porter and Lawer (1968), organizational commitment of employees is defined as a set of behaviors that motivate employees to work for the benefit of the organization, to want to stay in the organization, and to accept the goals and values of the organization (as cited in Chen et al, 2015). In their research, Meyer and Allen (1991) developed a commitment model based on these themes, arguing that the definitions of commitment in the literature can be conceptually grouped into three themes: “wants and desires”, “perceived cost” and “obligation”.

In the event that nurses' organizational commitment increases, their institutional affiliation develops, and as a result of using their professional knowledge and skills more, excellence in nursing practices can be achieved (Amiri, 2007).

There are many studies in the literature on job satisfaction, organizational commitment and problem solving. Studies in the field of executive nursing generally address the issues of job satisfaction, organizational citizenship, perceived leadership, and organizational commitment. The problem-solving competence of nurses has not been associated with organizational commitment and job satisfaction in any study. However, determining the relationship and affecting factors between nurses' problem-solving competencies, job satisfaction and organizational commitment will contribute to the creation of a healthier organizational climate. In order to fill this gap in the literature, this study revealed changes in nurses' perceptions of job satisfaction, organizational commitment, and problem-solving competence according to their demographic characteristics, revealing clues that will guide nurse human resources management.

Answers to "What is the level of nurses' perceptions of job satisfaction, organizational commitment and problem-solving competencies?" and "How do nurses' perceptions of job satisfaction, organizational commitment and problem-solving competencies vary according to their demographic characteristics?" questions were investigated with this research.

MATERIAL AND METHOD

Sample of the research

The population of the research consists of 74 nurses working in Kırşehir Private Musa Gül Hospital. Sample selection was not made in the study, active volunteer participants were included in the population. The minimum number of samples and the degree of impact were calculated with the GPOWER 3.1.9.7 program (priori and post hoc) and are presented in the appendix.

In the explanatory factor analyzes conducted in SPSS Program, the Kaiser Meyer Olkin (KMO) value for the Organizational Commitment Scale was 0.843; 0.867 for Job Satisfaction Scale; For the Interpersonal Problem Solving Inventory, it was found to be 0.772 and the value is within the reference range for sample adequacy (Çokluk et all, 2012). In addition, N HOELTER values for sample adequacy of the AMOS program (N HOELTER ≥ 63 for the Organizational Commitment Scale; N HOELTER ≥ 65 for the Job Satisfaction Scale; N HOELTER ≥ 59 for the Interpersonal Problem Solving Inventory) are also within the reference range (Hoelter, 1983).

Data collection tools

The data of the research were collected by Job Satisfaction, Organizational Commitment, and Interpersonal Problem-Solving Scales. The Job Satisfaction Scale, which aims to measure job satisfaction, was developed by Durak Batıgün and Hisli Şahin. It is a 32-item Likert type scale. This scale has four (Physical Conditions, Individual Conditions, Autonomy, Business Policies and Salary) factors. Organizational Commitment scale, developed by Meyer and Allen (1991) and adapted into Turkish by Dağlı, Elçiçek and Han (2018), consists of three factors: affective commitment, continuance commitment and normative commitment. Developed by Çam and Tümkaya (2007), the Interpersonal Problem-Solving Inventory is a 50-item Likert-type scale. The sacale has five (Negative Approach to the Problem, Constructive Problem Solving, Taking Responsibility, Persistent Approach, Diffidence) factors.

Data collection method

The data of the research were collected through face-to-face survey between 15-30 July 2022.

Ethics committee and institutional permission

Before starting the research, ethics committee approval was obtained from the Social Sciences Ethics Committee of Kırşehir Ahi Evran University (Ethics committee decision No: 2022-05/11 Date: 07.07.2022). In addition, institutional permission was obtained from Kırşehir Private Musa Gül Hospital, and it is attached.

Analysis of Data

In the analysis of the data collected in the study, the Statistical Package for The Social Sciences (SPSS) program was used. Descriptive statistics were used for the demographic data and scale scores of the participants. The scales were analyzed by taking their averages. Higher averages mean higher participants' perceptions of job satisfaction, organizational commitment and problem-solving competence. ANOVA analysis was applied to examine the relationship between scale factors and demographic variables.

RESULTS

20.3% of the participants are men and 50% are married. The working years of 60.8% of the participants are in the range of 1-5 years, and the income status of 95.9% of them is in the range of 4000-6000 TL. Looking at their age, it is seen that 37.8% of them are between 18-25 years old and 9.5% of them are 46 years old and over.

Table 1. Descriptive characteristics of the participants

Income status	**N**	**%**	**Age**	**N**	**%**
4000-6000	71	95,9	18-25	28	37,8
6001-8000	1	1,4	26-35	18	24,3
8001-10000	1	1,4	36-45	21	28,4
10001 and above	1	1,4	46 years and older	7	9,5
Working year	**N**	**%**	**Gender**	**N**	**%**
1-5	45	60,8	Male	15	20,3
6-10	13	17,6	Female	59	79,7
11-15	10	13,5	**Marital status**	**N**	**%**
16-20	4	5,4	Married	37	50,0
26 years and above	2	2,7	Single	37	50,0

The nurses' job satisfaction, organizational commitment and perception levels of interpersonal problem solving were evaluated by the average of the scale items. When Table 2 is examined, it is seen that the averages of the Affective Commitment factor of the Organizational Commitment scale were between 4.43 and 4.57; Continuance Commitment factor averages were between 4.20 and 4.28; Normative Commitment factor averages were between 3.64 and 4.39. Job Satisfaction scale consists of Physical Conditions, Individual Conditions, Autonomy, Business Policies and Wage dimensions.

The averages of the Physical Conditions factor are between 4.34 and 4.45; Individual Conditions factor averages are between 3.93 and 4.14; Autonomy factor averages are between 4.15 and 4.28; The Business Policies and Wages factor averages are between 4.14 and 4.38. Interpersonal Problem-Solving Scale consists of Negative Approach to Problem, Constructive Problem Solving, Taking Responsibility, Persistent Approach and Self-Confidence. The averages of the Negative Approach factor are between 3.73 and 3.93; Constructive Problem-Solving factor averages are between 4.23 and 4.35; Taking Responsibility factor averages are between 4.01 and 4.24; Persistent Approach factor averages are between 3.81 and 3.96; The self-confidence factor averages are between 3.80 and 3.84.

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In Table 2, it is seen that the mean scores of the Interpersonal Problem-Solving Scale are relatively low compared to the others. In addition, the standard deviations of this scale are higher than the others. The high standard deviation is due to the large number of different views. Especially, when evaluated according to the factor content, due to the low self-confidence factor average, it can be deduced that the nurses have a perception of inadequacy in subject of benefiting from previous experiences when faced with a problem, acting hastily in solving the problem, and believing that they can overcome the problem.

It is seen that the Emotional Commitment factor averages of the Organizational Commitment scale have the highest averages and the lowest standard deviations compared to other scale factors. When the factor content is examined, it can be said that nurses have a high perception of belonging to the institution, to see themselves as a part of the family in the institution, to have a special place in the private life of the institution, and to the emotional commitment to the institution.

Table 2. Means of scale items

Scale Name	Factor Name	Factor mean	Items	Mean	Standard Deviation
Organizational commitment	Emotional Commitment	4,49	b1	4,43	0,72
			b2	4,45	0,71
			b3	4,49	0,63
			b4	4,55	0,58
			b5	4,57	0,62
	Continuing Commitment	4,23	b6	4,22	0,91
			b7	4,28	1,03
			b8	4,20	0,94
	Normative Commitment	4,19	b9	4,31	0,88
			b10	3,64	1,22
			b11	4,39	0,64
			b12	4,30	0,87
			b13	4,32	0,81
Job satisfaction	Physical Conditions	4,38	d1	4,35	0,671
			d2	4,45	0,705
			d3	4,34	0,799
			d4	4,38	0,771
	Individual Conditions	4,06	d8	4,04	0,957
			d10	4,12	0,906
			d11	3,93	0,984
			d14	4,14	0,984
			d15	4,08	1,030
	Autonomy	4,20	d5	4,28	0,884
			d9	4,15	0,932
			d12	4,19	0,932
	Business Policies and Salary	4,26	d6	4,27	0,816
			d7	4,14	0,926
			d13	4,38	0,947
Interpersonal Problem Solving	Negative Approach to the Problem	3,87	p3	3,92	1,21
			p6	3,93	1,20
			p14	3,92	1,21
			p16	3,73	1,34
	Constructive Problem Solving	4,31	p1	4,23	0,99
			p2	4,35	0,91
			p11	4,35	0,91
	Taking Responsibility	4,16	p4	4,24	0,99
			p8	4,01	1,04
			p9	4,23	0,99
	Persistent Approach	3,89	p5	3,96	1,00
			p7	3,92	1,06
			p15	3,81	1,07
	Diffidence	3,82	p10	3,84	1,05
			p12	3,84	1,05
			p13	3,80	1,09

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ANOVA analysis was applied to determine whether nurses' perceptions of problem solving, job satisfaction and organizational commitment differ according to their demographic characteristics. The Constructive Problem-Solving Factor of the Interpersonal Problem-Solving Scale differed significantly according to age and marital status variables, the Persistent Approach Factor of the Interpersonal Problem-Solving Scale differed significantly according to the Age variable, and the Physical Conditions Factor of the Job Satisfaction Scale differed significantly according to the Marital Status Variable. Except for the factors and variables above, it was determined that there was no significant difference between any of the factors and variables.

When Table 3 is examined, it is seen that nurses' perceptions of constructive problem solving differ significantly according to their ages (F: 5,701; p: 0.001). The biggest difference is between the 18-25 age group (x: 13.78±1.52) and over the age of 46 (x: 10.57±2.29). The following conclusions can be drawn from the fact that the average of nurses in the 18-25 age group is slightly higher than the others: young employees know their needs at the time of the problem, can comprehend the direct or indirect effects of the problem, and have a positive attitude by seeing the problem as experience.

Table 3. ANOVA Results of Constructive Problem-Solving Factor of Interpersonal Problem-Solving Scale by Age Variable

Age range	Number	Mean	Standard Deviation	Source of variance	Sum of squares	Mean of squares	F	p	Gap
18-25 (1)	28	13,78	1,52	Between groups	92,81	30,93	5,701	,001	1>4 2>4
26-35 (2)	18	13,72	2,42	In-group	379,84	5,426			3>4
36-45 (3)	21	11,90	3,04						
46 years and older (4)	7	10,57	2,29						
Total	74	12,93	2,54						

According to Table 4, nurses' persistent problem-solving approaches differ significantly according to their age (F: 3.67; p: 0.016). The biggest reason for the difference is 18-25 (x: 12.60±2.49) and over 46 (x: 9.00±0) participants. It is clear from this result that Participants over the age of forty-six are more passive than others, in terms of proving their right and defending themselves until the end, stubbornly going after the problem until the problem is solved, insisting on reaching a solution in problem solving.

Table 4. ANOVA Results of Persistent Approach Factor of Interpersonal Problem-Solving Scale by Age Variable

Age range	Number	Mean	Standard Deviation	Source of variance	Sum of squares	Mean of squares	F	p	Gap
18-25 (1)	28	12,60	2,49	Between groups	75,94	25,31	3,67	,016	1>4 2>4
26-35 (2)	18	11,38	2,72	In-group	481,90	6,88			3>4
36-45 (3)	21	11,61	3,05						
46 years and older (4)	7	9,00	0,00						
Total	74	11,68	2,76						

Nurses' perceptions of constructive problem solving differ significantly according to their marital status (F: 4.85; p: 0.03). Since the mean of single participants (x: 13.56±1.99) is higher than married ones (x: 12.29±2.88), it can be inferred that single nurses do not have a destructive attitude in coping with the problem, think creatively and focus on a solution (Table 5).

Table 5. ANOVA Results of Constructive Problem-Solving Factor of Interpersonal Problem-Solving Scale by Marital Status Variable

Marital status	Number	Mean	Standard deviation	Source of variance	Sum of squares	Mean of squares	F	p	Gap
Married	37	12,29	2,88	Between groups	29,85	29,85	4,85	0,03	1>2
Single	37	13,56	1,99	In-group	442,81	6,15			
Total	74	12,93	2,54						

According to Table 6, nurses' perceptions of physical conditions in job satisfaction differ significantly according to their marital status (F: 4.68; p: 0.03). The fact that the mean of single participants (x: 18.10±1.85) is higher than the married ones (x: 16.91±2.78) indicates that single nurses are satisfied with the order and cleanliness, technological facilities, and interpersonal communication style in their workplaces.

Table 6. ANOVA Results of the Physical Conditions Factor of the Job Satisfaction Scale by Marital Status Variable

Marital status	Number	Mean	Standard deviation	Source of variance	Sum of squares	Mean of squares	F	p	Gap
Married	37	16,91	2,78	Between groups	26,16	26,16	4,68	0,03	2>1
Single	37	18,10	1,85	In-group	402,32	5,58			
Total	74	17,51	2,42						

DISCUSSION

There are different results between age and perceptions and attitudes towards problem solving in the literature. It is stated that problem-solving self-confidence is high at young ages in some studies, while in others, there are findings that problems can be solved more easily in older ages with the effect of lived experiences.

A significant difference was found between the constructive problem-solving factor and the age variable in this study (F: 5,701; p: 0.001). The average of the participants aged 18-25 is higher than the participants aged 46 and over (Table 3). Yıldırım and Bağsürer (2019), in their study with nurses, found that there was no statistically significant difference between problem solving and the age variable. Koç, Koyuncu, and Sağlam (2015) determined that the problem-solving skill levels of nursing and midwifery students did not differ significantly according to their age.

Erkuş and Bahçecik (2015) also revealed that nurses' perception of problem solving did not change according to their age. Er et al (2018) found that the problem-solving competencies of sports and classroom teaching students differ significantly according to their ages. Gemlik and Sur (2004) revealed that there is a significant difference between the problem-solving perceptions of private hospital administrators and their age. Ulupınar (1997), in her study with nursing students, found that the average of problem-solving scale decreased with increasing age. Similarly, Kelleci and Gölbaşı (2014) revealed that the perception of problem solving is high in youthful age groups.

It was observed that nurses' perceptions of constructive problem solving differed significantly according to their marital status in this study (F: 4.85; p: 0.03). The mean of single participants (x: 13.56±1.99) is higher than the married ones (x: 12.29±2.88). Başar, Akın, and Durna (2015) found that nurses' perceptions of problem solving did not differ according to their marital status. Akın et al. (2007) found that the problem-solving scale scores of married students were significantly higher than those of single students in their study with nursing students. In their study with nurses, Karakurt and Ekinci (2015) revealed that problem solving perceptions differ according to their marital status, and divorced nurses have a higher average than single nurses.

Nurses' perceptions of physical conditions in job satisfaction differ significantly according to their marital status in this study (F: 4.68; p: 0.03). The mean of single participants (x: 18.10±1.85) is higher than the married ones (x: 16.91±2.78). Koyutürk (2015) found that the job satisfaction of health workers differed significantly according to their marital status, and the average of single participants (2.84) was higher than the married ones (2.68) in her thesis study. Dündar (2011) revealed that the working conditions sub-dimension of the teachers' job satisfaction scale differs significantly according to marital status, and the average of married people (2,49) is higher than that of singles (2.29) in the thesis study. Sağır (2016) found that job satisfaction did not differ according to marital status in his research with Ministry of National Education employees. Azim et al (2013) found that job satisfaction did not differ according to marital status in a study with Bangladeshi employees. Yorulmaz, Kıraç, and Yılmazsoy (2018) revealed that the job satisfaction of the employees differed significantly according to their marital status, and the average of the single participants (2.95) was higher than the married (2.71) in their study with healthcare professionals. In the comparison of job satisfaction and marital status, it is seen that different results are obtained in different samples.

CONCLUSION

The fact that the nursing profession focuses on human health and has an error-free structure causes intense stress in the execution of the profession. The smallest problem to be experienced in such an environment causes uneasiness and anxieties to increase. In in-service trainings organized for nurses, the issue of problem solving should be broadly addressed. For example, persevering approach skills such as stubbornly going over the problem until it is solved, insisting to reach a result should be gained. When faced with a problem, there is a need for nurses who know what they need to solve, approach the problem positively and focus on the solution.

In this study, nurses' job satisfaction, organizational commitment and perception levels of problem solving were examined. Emotional Commitment factor averages of the Organizational Commitment scale have the highest averages (4,49) and the lowest standard deviations compared to other scale factors. Physical Condition factor averages of the Job satisfaction scale have the highest averages (4,38) and the lowest standard deviations compared to other scale factors. Constructive Problem Solving factor averages of the Interpersonal Problem Solving scale have the highest averages (4,31) and the lowest standard deviations compared to other scale factors.

In this study, it was examined whether nurses' job satisfaction, organizational commitment and problem-solving perceptions differ according to their demographic characteristics. The following results were achieved:

Nurses' perceptions of physical conditions in job satisfaction differ significantly according to their marital status.

Nurses' perceptions of constructive problem solving differ significantly according to their marital status.

Nurses' persistent problem-solving approaches differ significantly according to their age.

Nurses' perceptions of constructive problem solving differ significantly according to their ages.

Nurse human resources cover a large area among healthcare professionals. Keeping this resource and ensuring its effective use is possible by ensuring their job satisfaction. It is seen that the physical conditions dimension of the job satisfaction scale has the highest average in this study. It can be said that the health institutions are clean, bright, spacious, warm, or cool according to the season, decorated with a modern architecture, and providing technological opportunities at the highest possible level are motivating tools in the job satisfaction of nurses. Demarcation of the limits of authority and responsibilities and the degree of freedom in the business environment are among other issues.

As a result, it is critical for nurses, who constitute an important part of the health workforce, to have and develop problem-solving skills to achieve excellence in service delivery. Job satisfaction is defined as a key component in ensuring nurses' retention. Nurse job satisfaction has a significant role in patient satisfaction, quality service delivery and cost reduction. Increasing organizational commitment of nurses and formation of institutional belonging; it means making maximum use of their knowledge and skills and realizing international scientific standards in nursing practices.

In order to provide and receive healthy healthcare services, nurses' job satisfaction, organizational commitment and problem-solving competencies should not be ignored. Professional career training for nurses should be encouraged. Manager-employee relations should be reviewed and improved.

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The Effect of Awareness of The COVID19 Pandemic and Health Literacy Levels on Healthy Lifestyle Behaviors

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ABSTRACT

It can be argued that the COVID-19 outbreak has created awareness in terms of understanding the importance of health, hygiene, financial, and spiritual well-being. In this study, it was aimed to determine the awareness levels of university students about the COVID-19 outbreak and whether their health literacy levels have an effect on their healthy lifestyle behaviors. The population of the study consists of 5829 associate degree students enrolled in vocational schools within Bilecik Şeyh Edebali University in the 2021-2022 academic year. The convenience sampling method, which is a non-random sampling method, was used in the data collection. The sample size in this study was 457 individuals. The data obtained in the study were evaluated through the SPSS 22.0 statistical software in a computer environment. When the regression analysis of the study was examined, a significant cause-and-effect relationship was found between following the news and developments, being affected by work life, having concerns, taking precautions, health literacy, and healthy lifestyle behaviors. Therefore, health literacy needs to be adapted and integrated into daily life for COVID-19 and similar infectious diseases. The findings of this study can provide valuable insights for the development of public health policies and health communication strategies. Strengthening health awareness and enhancing health literacy during and after the pandemic can be critical steps to promote and sustain healthy lifestyle behaviors. By implementing effective measures, society can strive for improved health outcomes and better preparedness for future health challenges.

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INTRODUCTION

Due to the COVID-19 crisis, a pandemic disease that broke out in November 2019 and dominated the world's agenda for a considerable period, people have harbored high expectations of exercising control over their own health. It is emphasized that knowing the risk factors of epidemic diseases is of great importance in managing and preventing the destructive consequences of the disease (Abel & McQueen, 2020). Furthermore, customary lifestyle habits have been significantly disrupted due to the restrictions imposed as a result of COVID-19. These restrictions are noted to negatively impact healthy lifestyle behaviours (Lucini et al., 2020). However, it is also stressed that assuming individual and societal responsibilities is essential to preventing the COVID-19 disease. Globally, extensive efforts are being made to combat the COVID-19 pandemic and curtail its spread, with coordination enabled at the national and international levels to minimize the risk of infection (Paakkari & Okan, 2020). Similar to other nations, the Ministry of Health in Turkey developed a diagnostic algorithm and made an effort to identify possible cases. (Gemlik et al., 2021). At the First International Conference on Health Promotion held in Ottawa in 1986, action principles and guidelines for promoting and enhancing health were defined and outlined. The Ottawa Charter described health promotion as "the process of enabling people to increase control over, and to improve their health." In order to achieve complete physical, mental, and social well-being, individuals and communities should be able to identify and achieve their aspirations, meet their needs, and adapt to or change environmental conditions. Therefore, health is perceived not only as a purpose of existence but also as the resource for everyday life (Kickbusch et al., 2013). It is only when individuals can exert control over their circumstances and conditions that they can fulfill their full health potential. It is claimed that people's access to the right information sources, and their ability to interpret and implement this information correctly is associated with health literacy. Thus, enhancing individuals' health literacy levels is vital for controlling and preventing the COVID-19 pandemic (Kaya & Kaplan, 2020).

Literature Review

Healthy Lifestyle

The World Health Organization (WHO) emphasizes that 60% of an individual's health and quality of life are related to their behavior and lifestyle (WHO, 2004). Health-risk behaviors are activities that increase a person's vulnerability or sensitivity to adverse health outcomes (Engle et al., 1996). In contrast, health-promoting behaviors are described as a way to approach life positively and enhance self-fulfillment (Wang et al., 2009). Numerous studies have demonstrated that adopting health-promoting behaviors reduces the occurrence of diseases and lowers mortality rates (Sanci et al., 2000; Wainwright et al., 2000). Health-promoting behavior is dependent on the lifestyle habits adopted during the early years (Wang et al., 2009).

The concept of a healthy lifestyle emerged in the literature in the 1980s, and subsequently, various models were developed to contribute to its development. It can be observed that the concept of health promotion serves as a reference when expressing the concept of a healthy lifestyle (Pender, 1987; Pender et al., 1990; Pender et al., 1992; Johnson, 2005). The value of promoting and enhancing health as a method of improving health for all individuals was emphasized through the Declaration of Alma-Ata, which set global health goals (WHO, 1978). Pender, Murdaugh, and Parsons (2006) defined health promotion as "a behavior motivated by the desire to increase well-being and actualize human health potential." Healthy lifestyle behaviors encompass actions driven by health-promoting activities and the desire to be healthy (Pender et al., 1992). Studies indicate that a health-promoting lifestyle reduces both mortality and morbidity while preventing chronic diseases such as heart disease and cancer (Wang et al., 2009). Health-promoting behaviors include health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. These behaviors are considered as the indicators of an individual's health-promoting lifestyle (Savadatti, 2015). Walker, Sechrist, and Pender (1987) describe a health-promoting lifestyle as a multidimensional model of actions and perceptions initiated by the individual, serving to maintain or enhance one's well-being, self-fulfillment, and satisfaction level. In addition to personal actions and perceptions, socioeconomic conditions and environmental influences also affect a health-promoting lifestyle (Savadatti, 2015).

Health Literacy

When reviewing the literature, it can be observed that the concept of health literacy has been used for approximately fifty years. Particularly in the United States, this term is used to define and explain the relationship between patients' literacy levels and their ability to adhere to therapeutic practices (Ad Hoc Committee on Health Literacy, 1999). Health literacy refers to the ability to comprehend health-related materials such as prescriptions, appointment cards, medication labels, and home health care instructions (Parker et al., 1995). Research based on this definition demonstrates that inadequate functional health literacy poses a significant barrier in the education of patients with chronic diseases and can lead to incorrect or insufficient medication use, resulting in substantial costs to the healthcare sector (National Academy on an Aging Society/Center for Health Care Strategies, 1998). Health literacy refers to the cognitive and social skills that determine individuals' motivation and abilities to access, understand, and use information to protect and improve their health. Beyond being able to

read brochures and successfully schedule appointments, health literacy requires the capacity to comprehend and effectively utilize the information. Enhancing individuals' access to health information and their ability to use it effectively, health literacy holds critical importance in terms of empowerment (Nutbeam, 2000).

Health literacy skills are dynamic. They change over time based on individual capabilities, experiences, and alterations in the healthcare system. Health literacy is a continuously evolving concept that has been recently recognized as an intersecting priority in the delivery of safe and high-quality health services (Parnell, 2014). The rapid transformation of the 2019 coronavirus disease (COVID-19) into a pandemic has compelled individuals to acquire health information, apply it, and swiftly adapt their behaviors (Zarocostas, 2020).

MATERIAL AND METHOD

Purpose of the research

It can be argued that the COVID-19 pandemic has created awareness regarding the significance of well-being in terms of health, hygiene, material, and spiritual aspects. Keeping up with news and developments during the pandemic, the impact of the pandemic on work life, the scope of worries related to the pandemic, and the steps taken to prevent it are some examples of factors that show these awareness levels. Individuals are thought to need at least a basic level of health-related information and the ability to apply it when engaging in these activities. Additionally, there are several factors that represent healthy lifestyle behaviors, such as health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management. In this study, the existence of awareness regarding the COVID-19 pandemic and health literacy consciousness are investigated to understand whether they influence individuals' healthy lifestyle behaviors. Accordingly, the objective of the research is to determine the impact of awareness levels and health literacy levels related to the COVID-19 pandemic among students at Bilecik Seyh Edebali University on their healthy lifestyle behaviors.

Population and Sample

The population of the study consists of 5829 associate degree students enrolled in vocational schools within Bilecik Şeyh Edebali University in the 2021-2022 academic year. Data were collected between April 2022 and June 2022 through an online survey made on Google Forms. Convenience sampling, a non-random sampling method, was used for data collection. This method is useful when a good sampling frame is available and the population is geographically concentrated in a particular region (De Vaus, 1990). The sample size for this study was 457 individuals. The following formula was applied to determine whether the sample size was sufficient (Evans et al., 2007).

$$n = \frac{Nt^2pq}{d^2\,(N-1) + t^2pq}$$

$$n = \frac{5829 * 1{,}96 * 0{,}5^2}{0{,}05^2(5829-1) + 1{,}96^2 * 0{,}5^2} = 197\ person$$

As determined in the calculation, 457 people selected from the main mass meet the quorum for the analysis of the study.

Data Collection Tools

In the data collection process, four instruments were utilized. The following instruments were the “Individual Information Form”, the “COVID-19 Current Situation, Knowledge, and Awareness Form” (Ertas et al., 2021), the “Healthy Lifestyle Behaviors Scale-II” (Bahar et al., 2008), and the 'Turkey Health Literacy Scale-32” (Okyay and Abacigil, 2016)."

The "COVID-19 Current Situation, Knowledge, and Awareness Form" was designed to determine the public's knowledge level and awareness of the COVID-19 pandemic during its initial outbreak. The "Healthy Lifestyle Behaviors Scale Behaviours II" was employed to understand participants' healthy lifestyle behaviors. The Turkish Health Literacy Scale-32" was developed to generate scenarios that highlight the processes of accessing, comprehending, evaluating, and applying health-related information, as well as to assess the use of scenarios in health literacy evaluation (Okyay and Abacigil, 2016). In a previous study conducted by Bahar et al. (2008) related to the "Healthy Lifestyle Behaviors Scale-II," they calculated a reliability coefficient of 0.94. Moreover, the reliability values of the subscales ranged from 0.79 to 0.87. Okyay and Abacigil (2016) determined a reliability coefficient of 0.927 for the Turkish Health Literacy Scale-32" in their own study.

The analysis of Data

The data obtained in the research were evaluated using the SPSS 22.0 statistical software in a computer environment. Descriptive statistics such as frequency and percentage analyses were used to determine the characteristics of the participants. Mean and standard deviation statistics were used in the analysis of the scales. Kurtosis and Skewness values were examined in order to determine whether the research variables showed a normal distribution. (Table 2). According to relevant literature, results within +1.5 to -1.5 (Tabachnick and Fidell, 2013) or +2.0 to -2.0 (George and Mallery, 2010) for Kurtosis and Skewness values are considered to indicate a normal distribution. It was found that the research variables exhibited a normal distribution. Parametric tests were employed for data analysis.

The relationships between the dimensions determining the scale levels of the participants were examined using correlation and regression analyses. Correlation coefficients (r) were evaluated as follows: 0.00-0.25 very weak, 0.26-0.49 weak, 0.50-0.69 moderate, 0.70-0.89 high, and 0.90-1.00 very high (Kalayci, 2006). In order to investigate the variations in scale levels based on the students' descriptive characteristics, t-tests, one-way analysis of variance (ANOVA), and post hoc (Tukey, LSD) analyses were utilized. Cohen's d and Eta-squared (η^2) coefficients were used to calculate the effect size. The effect size indicates whether there is a significant and considerable difference between the groups. Cohen's value of 0.2 is considered small, 0.5 is moderate, and 0.8 is large, while the Eta-squared value of 0.01 is small, 0.06 is moderate, and 0.14 is large (Buyukozturk et al., 2018).

RESULTS

Findings regarding the descriptive characteristics of the participants are given below.

Table 1. The distribution of Participants by Descriptive Characteristics

Groups	Frequency (n)	Percent (%)
Gender		
Female	281	61,5
Male	176	38,5
Class (associate degree)		
First Grade	244	53,4
Second Grade	213	46,6
Mother's Education Status		
Primary or Secondary School	360	78,8
High School	75	16,4
College and above	22	4,8
Father's Educational Status		
Primary or Secondary School	282	61,7
High School	147	32,2
College and above	28	6,1
Income status		
2500 TL and Under	49	10,7
2501-4500	151	33,0
4501-7000	141	30,9
7001-10000	64	14,0
10001 and above	52	11,4

The students are distributed as follows based on gender: 281 (61.5%) are female, and 176 (38.5%) are male. Regarding their academic year, 244 (53.4%) are in the first grade, and 213 (46.6%) are in the second grade. In terms of mother's education level, 360 (78.8%) have completed primary or middle school, 75 (16.4%) have completed high school, and 22 (4.8%) have completed college or higher education. As for father's education level, 282 (61.7%) have completed primary or middle school, 147 (32.2%) have completed high school, and 28 (6.1%) have completed college or higher education. Concerning income levels, 49 students (10.7%) have an income of 2500 TL and below, 151 (33.0%) have an income between 2501 and 4500 TL, 141 (30.9%) have an income between 4501 and 7000 TL, 64 (14.0%) have an income between 7001 and 10000 TL, and 52 (11.4%) have an income of 10001 TL and above. Regarding COVID-19 awareness, health literacy, and healthy lifestyle behaviors, the arithmetic mean, standard deviation, and minimum-maximum levels are provided below.

Table 2. COVID-19 Awareness, Health Literacy, and Healthy Lifestyle Behaviors Mean Scores

	N	Average	Sd	Min.	Max.	Kurtosis	Skewness	Alpha
News and Development Tracking	457	1,949	0,401	1,000	3,000	0,749	0,297	0,723
Impact on Work Life	457	2,374	0,463	1,000	3,000	-0,203	-0,618	0,785
Concern	457	2,438	0,503	1,000	3,000	0,022	-0,932	0,803
Precautionary Measures	457	2,336	0,354	1,250	3,000	0,182	-0,078	0,796
Health Literacy	457	39,405	8,313	11,720	50,000	0,972	-0,987	0,967
Health Responsibility	457	18,267	5,057	9,000	34,000	-0,442	0,233	0,912
Physical Activity	457	16,361	5,584	8,000	30,000	-0,553	0,413	0,932
Nutrition	457	18,409	4,772	9,000	32,000	-0,280	0,260	0,947
Spiritual Development	457	23,024	6,670	9,000	36,000	-0,366	-0,173	0,921
Interpersonal Relationships	457	22,481	5,936	9,000	36,000	-0,205	-0,247	0,938
Stress Management	457	17,398	4,996	8,000	32,000	-0,196	0,238	0,930
Total Healthy Lifestyle Behaviors	457	115,941	27,578	52,000	190,000	-0,160	-0,140	0,956

The students mean scores and standard deviations for each variable are as follows:
Impact on Work Life: Mean = 2.374, SD = 0.463 (Min = 1, Max = 3)
Concern: Mean = 2.438, SD = 0.503 (Min = 1, Max = 3)
Precautionary Measures: Mean = 2.336, SD = 0.354 (Min = 1.25, Max = 3)
Health Literacy: Mean = 39.405, SD = 8.313 (Min = 11.72, Max = 50)
Physical Activity: Mean = 16.361, SD = 5.584 (Min = 8, Max = 30)

Nutrition: Mean = 18.409, SD = 4.772 (Min = 9, Max = 32)
Stress Management: Mean = 17.398, SD = 4.996 (Min = 8, Max = 32)
Total Healthy Lifestyle Behaviors: Mean = 115.941, SD = 27.578 (Min = 52, Max = 190).

When the averages are examined, it is seen that the averages of health literacy are high and the averages of healthy living behaviors are low. The fact that the mean of health literacy is high and the mean of healthy living behaviors is low may indicate that individuals may have health-related knowledge, but they have difficulty in putting this knowledge into practice. This may indicate that although individuals are conscious and do not have problems in accessing health-related information, there are deficiencies in adopting and maintaining healthy behaviors.

Table 3. Shows the correlation analysis between COVID-19 Awareness, Health Literacy, and Healthy Lifestyle Behavior Scores

		News and Development Tracking	**Impact on Work Life**	**Concern**	**Precautionary Measures**	**Health Literacy**
Health Responsibility	r	0,024	0,040	0,090	0,009	0,004
	p	0,611	0,397	0,056	0,853	0,938
Physical Activity	r	0,016	-0,074	-0,174**	-0,183**	0,013
	p	0,728	0,116	0,000	0,000	0,774
Nutrition	r	0,067	0,044	-0,032	0,069	0,046
	p	0,151	0,349	0,501	0,143	0,328
Spiritual Development	r	-0,100*	-0,051	-0,228**	-0,045	-0,101*
	p	0,032	0,278	0,000	0,334	0,031
Interpersonal Relationships	r	-0,113*	0,007	-0,138**	-0,122**	-0,052
	p	0,015	0,882	0,003	0,009	0,265
Stress Management	r	0,016	-0,033	-0,206**	-0,045	0,013
	p	0,731	0,482	0,000	0,339	0,789
Total Healthy Lifestyle Behaviors	r	-0,026	-0,017	-0,147**	-0,069	-0,022
	p	0,573	0,720	0,002	0,141	0,639
Significant at; *p < 0.05 ** p < 0.01						

The correlation analysis between the variables "news and developments tracking," "impact on work life," "concern," "precautionary measures," "health literacy," "health responsibility," "physical activity," "nutrition," "spiritual development," "interpersonal relationships," "stress management," and "total healthy lifestyle behaviour scores" showed the following results:
Significant Negative Weak Correlations:
Physical Activity and Concern: r = -0.174, p < 0.05
Physical Activity and Precautionary Measures: r = -0.183, p < 0.05
Spiritual Development and News and Developments Tracking: r = -0.100, p < 0.05
Spiritual Development and Concern: r = -0.228, p < 0.05
Spiritual Development and Health Literacy: r = -0.101, p < 0.05
Interpersonal Relationships and News and Developments Tracking: r = -0.113, p < 0.05
Interpersonal Relationships and Concerns: r = -0.138, p < 0.05
Interpersonal Relationships and Precautionary Measures: r = -0.122, p < 0.05
Stress Management and Concern: r = -0.206, p < 0.05
Total Healthy Lifestyle Behaviors and Concerns: r = -0.147, p < 0.05.

In summary, there were significant weak negative correlations between some of the variables, mainly involving "physical activity," "spiritual development," "interpersonal relationships," "stress management," and "total healthy lifestyle behaviors," with "concern," "news and developments tracking," and "precautionary measures." However, other variables did not show statistically significant correlations.

Table 4. The Effect of COVID-19 Awareness and Health Literacy on Healthy Lifestyle Behaviors

Dependent Variables	**Independent Variables**	**ß**	**t**	**p**	**F**	**Model (p)**	**R^2**
Health Responsibility	Fixed	16,463	7,765	0,000	0,848	0,516	0,002
	News and Development Tracking	0,369	0,586	0,559			
	Impact on Work Life	-0,059	-0,101	0,920			
	Concern	1,026	1,817	0,070			

	Precautionary Measures	-0,450	-0,594	0,553			
	Health Literacy	-0,006	-0,192	0,848			
Physical Activity	Fixed	22,498	9,849	0,000	5,448	0,000	0,047
	News and Development Tracking	0,988	1,455	0,146			
	Impact on Work Life	0,274	0,433	0,665			
	Concern	-1,548	-2,546	0,011			
	Precautionary Measures	-2,796	-3,428	0,001			
	Health Literacy	0,040	1,261	0,208			
Nutrition	Fixed	14,926	7,483	0,000	1,417	0,217	0,005
	News and Development Tracking	0,483	0,814	0,416			
	Impact on Work Life	0,792	1,433	0,153			
	Concern	-0,932	-1,755	0,080			
	Precautionary Measures	0,873	1,226	0,221			
	Health Literacy	0,023	0,810	0,418			
Spiritual Development	Fixed	31,152	11,505	0,000	6,923	0,000	0,061
	News and Development Tracking	-1,687	-2,095	0,037			
	Impact on Work Life	1,026	1,367	0,172			
	Concern	-3,617	-5,018	0,000			
	Precautionary Measures	1,465	1,515	0,130			
	Health Literacy	-0,048	-1,257	0,210			
Interpersonal Relationships	Fixed	28,890	11,793	0,000	3,788	0,002	0,030
	News and Development Tracking	-1,336	-1,834	0,067			
	Impact on Work Life	1,301	1,916	0,056			
	Concern	-1,908	-2,925	0,004			
	Precautionary Measures	-0,980	-1,120	0,263			
	Health Literacy	0,001	0,036	0,972			
Stress Management	Fixed	19,610	9,566	0,000	4,869	0,000	0,041
	News and Development Tracking	0,204	0,334	0,738			
	Impact on Work Life	0,970	1,708	0,088			
	Concern	-2,585	-4,737	0,000			
	Precautionary Measures	0,126	0,172	0,864			
	Health Literacy	0,028	0,968	0,334			
Total Healthy Lifestyle Behavior Scores	Fixed	133,539	11,647	0,000	2,411	0,036	0,015
	News and Development Tracking	-0,979	-0,287	0,774			
	Impact on Work Life	4,304	1,355	0,176			
	Concern	-9,563	-3,134	0,002			
	Precautionary Measures	-1,762	-0,430	0,667			
	Health Literacy	0,039	0,241	0,810			
Linear Regression Analysis							

Indeed, the results of the regression analysis show that there is no significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and health responsibility ($F = 0.848$, $p = 0.516 > 0.05$). This means that these independent variables did not have a significant effect on the participants' health responsibility scores in the context of the study. In other words, the study did not find any evidence to support a causal relationship between these factors and the participants' health responsibility behaviors.

The results of the regression analysis show that there is a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and physical activity ($F=5.448$, $p=0.000 < 0.05$). However, the total variation in physical activity explained by these independent variables is relatively low, accounting for only 4.7% ($R2=0.047$). The specific effects of each independent variable on physical activity are as follows: News and Developments Tracking: News and developments tracking does not have a significant effect on physical activity ($p=0.146 > 0.05$). In other words, the students' engagement with news and current events does not influence their physical activity levels. Work Life Impact: Work life impact also did not significantly affect physical activity ($p=0.665 > 0.05$). The students' work-related experiences do not show a substantial relationship with their physical activity

behaviors. Concern: Concern negatively affects physical activity (ß=-1.548). Higher levels of concern are associated with lower levels of physical activity. Precautionary Measures: Precautionary measures negatively affect physical activity (ß=-2.796). Students who take more precautionary measures in response to the pandemic tend to engage in less physical activity. Health Literacy: Health literacy did not have a significant effect on physical activity (p=0.208 > 0.05). The level of health literacy among the students does not appear to be strongly related to their physical activity levels. In summary, the regression analysis suggests that concern and precautionary measures negatively influence physical activity levels among the students, while news and developments tracking, work life impact, and health literacy do not have significant effects on their physical activity behaviors. However, it is crucial to interpret these results cautiously, considering the relatively low amount of total variation explained by the independent variables.

The results of the regression analysis indicate that there is no significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and nutrition (F=1.417, p=0.217 > 0.05). In other words, these variables do not collectively explain a significant amount of variation in students' nutrition behaviors. The individual effects of each independent variable on nutrition are not statistically significant, as indicated by their p-values: News and Developments Tracking: News and developments tracking does not have a significant effect on nutrition (p=0.416 > 0.05). Work Life Impact: Work life impact does not significantly affect nutrition (p=0.153 > 0.05). Concern: Concern does not have a significant effect on nutrition (p=0.080 > 0.05). Precautionary Measures: Precautionary measures do not significantly affect nutrition (p=0.221 > 0.05). Health Literacy: Health literacy did not have a significant effect on nutrition (p=0.418 > 0.05). In summary, based on this analysis, there is no evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and the nutrition behaviors of the students. It is important to consider these results with caution and potentially explore other factors that may influence students' nutrition habits.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and spiritual development (F=6.923, p=0.000 < 0.05). In other words, these variables collectively explain a significant amount of the variation in students' spiritual development. The individual effects of each independent variable on spiritual development are as follows: News and Developments Tracking: News and development tracking decreases spiritual development (ß=-1.687). Work Life Impact: Work life impact does not significantly affect spiritual development (p=0.172 > 0.05). Concern: Concern decreases spiritual development (ß=-3.617). Precautionary Measures: Precautionary measures do not significantly affect spiritual development (p=0.130 > 0.05). Health Literacy: Health literacy does not significantly affect spiritual development (p=0.210 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and the spiritual development of the students. However, the direction of these effects is not uniform, as some variables decrease spiritual development while others do not have a significant impact. It is essential to interpret these results carefully and potentially investigate other factors that may influence students' spiritual development.

The results of the regression analysis show that there is a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and interpersonal relationships (F=3.788, p=0.002 < 0.05). In other words, these variables collectively explain a significant amount of the variation in students' interpersonal relationships. The individual effects of each independent variable on interpersonal relationships are as follows: News and Developments Tracking: News and developments tracking does not significantly affect interpersonal relationships (p=0.067 > 0.05). Work Life Impact: Work life impact does not significantly affect interpersonal relationships (p=0.056 > 0.05). Concern: Concern decreases interpersonal relationships (ß=-1.908). Precautionary Measures: Precautionary measures do not significantly affect interpersonal relationships (p=0.263 > 0.05). Health Literacy: Health literacy does not significantly affect interpersonal relationships (p=0.972 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' interpersonal relationships. The level of concern has a negative impact on interpersonal relationships, suggesting that higher levels of concern are associated with lower levels of interpersonal connections. However, it is important to note that the overall explained variation in interpersonal relationships by these variables is relatively low (R2=0.030, explaining 3% of the variation). Hence, there might be other factors influencing students' interpersonal relationships that were not considered in this analysis. Further research is needed to explore additional contributing factors.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and stress management (F=4.869, p=0.000 < 0.05). In other

words, these variables collectively explain a significant amount of the variation in students' stress management. The individual effects of each independent variable on stress management are as follows: News and Developments Tracking: News and developments tracking does not significantly affect stress management (p=0.738 > 0.05). Work Life Impact: Work life impact does not significantly affect stress management (p=0.088 > 0.05). Concern: Concern decreases stress management (ß=-2.585). Precautionary Measures: Precautionary measures do not significantly affect stress management (p=0.864 > 0.05). Health Literacy: Health literacy does not significantly affect stress management (p=0.334 > 0.05). In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' stress management. The level of concern has a negative impact on stress management, suggesting that higher levels of concern are associated with lower stress management levels. However, it is important to note that the overall explained variation in stress management by these variables is relatively low (R2=0.041, explaining 4.1% of the variation). Hence, there might be other factors influencing students' stress management that were not considered in this analysis. Further research is needed to explore additional contributing factors.

The results of the regression analysis indicate a significant relationship between news and developments tracking, work life impact, concern, precautionary measures, health literacy, and overall healthy lifestyle behaviors (F=2.411, p=0.036 < 0.05). In other words, these variables collectively explain a significant amount of variation in students' overall healthy lifestyle behaviors.

The individual effects of each independent variable on overall healthy lifestyle behaviors are as follows:

News and Development Tracking: News and developments tracking does not significantly affect overall healthy lifestyle behaviors (p=0.774 > 0.05).

Work Life Impact: Work life impact does not significantly affect overall healthy lifestyle behaviors (p=0.176 > 0.05).

Concern: Concern decreases overall healthy lifestyle behaviors (ß=-9.563).

Precautionary Measures: Precautionary measures do not significantly affect overall healthy lifestyle behaviors (p=0.667 > 0.05).

Health Literacy: Health literacy does not significantly affect overall healthy lifestyle behaviors (p=0.810 > 0.05).

In summary, based on this analysis, there is evidence of a significant relationship between the studied factors (news and developments tracking, work life impact, concern, precautionary measures, health literacy) and students' overall healthy lifestyle behaviors The level of concern has a particularly significant negative impact on overall healthy lifestyle behaviors, suggesting that higher levels of concern are associated with lower overall healthy lifestyle behaviors. However, it is important to note that the overall explained variation in overall healthy lifestyle behaviors by these variables is relatively low (R2=0.015, explaining 1.5% of the variation). Therefore, there might be other factors influencing students' healthy lifestyle behaviors that were not considered in this analysis. Further research is needed to explore additional contributing factors.

DISCUSSION AND CONCLUSION

COVID-19, which is a pandemic disease affecting nearly seven hundred million people all over the world and caused the death of nearly seven million people, has had serious effects on the social, psychological and economic life of societies (COVID - Coronavirus Statistics - Worldometer, n.d.). During the pandemic, people made intense efforts to follow the news and developments related to the outbreak. The pandemic seriously affected work life and led to changes in the working arrangements in many sectors. Individuals had worry various issues, such as the risk of infection, the restriction of social life, the fear of unemployment, the inability to continue education, and the worry of access to food.

In response to the pandemic, individuals have developed awareness of taking precautions, such as paying attention to hand hygiene, using cologne, wearing masks, practicing social distancing, and engaging in prayers (Ertas et al., 2021). The health literacy level of an individual exposed to continuous information flows about this pandemic plays a vital role in acquiring, distinguishing, and comprehending accurate medical information (Seng et al., 2020). Previous studies indicated the importance of health literacy in preventing non-communicable diseases. However, the significance of health literacy in taking precautions against pandemic diseases should not be overlooked (Paakkari & Okan, 2020).

Healthy lifestyle behaviors are defined as set of beliefs and practices that individuals adopt to maintain good health, preserve health, and protect themselves from illnesses. Individuals, who embrace healthy lifestyle behaviors can enhance and sustain their well-being. Therefore, the development of healthy lifestyle behaviors forms the foundation for disease prevention and maintaining health (Celebi et al., 2017). Healthy lifestyle behaviors are associated with reduced mortality, increased life expectancy, and improved well-being. Unhealthy behaviors (such as poor nutrition, lack of physical exercise, tobacco, and alcohol use) contribute to the global burden of disease.

During periods of pandemic diseases such as COVID-19, it is believed that the adoption of unhealthy eating and sedentary behaviors, reduced time spent outdoors, and increased screen time can have adverse effects on public health. This not only affects physical health but also leads to mental disorders. Studies indicate that COVID-19 has led to increased concerns about illness, resulting in depression and stress disorders among individuals (Balanzá–Martínez et al., 2020).

In the context of the COVID-19 pandemic, individuals have a responsibility to support their immune system by choosing a healthy lifestyle. This includes opting for a diet rich in fruits and vegetables, engaging in regular exercise during leisure time, maintaining a healthy body weight, and getting adequate sleep, all of which are crucial for healthy lifestyle behaviors (Naja et al., 2020). During the COVID-19 pandemic, individuals who adopt a healthy lifestyle are reported to have better mental health during quarantine in terms of physical activity, nutrition, and sleep behaviors (Kilani et al., 2020).

In this study, the impact of university students' awareness of the COVID-19 pandemic and their health literacy on healthy lifestyle behaviors was evaluated. Based on the correlation analysis conducted in the study, it was observed that there is a negative correlation between physical activity and concern (r=-0.174), as well as between physical activity and precautionary measures (r=-0.183). This suggests that as students' concerns about COVID-19 increase, their level of physical activity decreases, and as their efforts to take precautions against the pandemic increase, their physical activity decreases as well. There is also a negative correlation between spiritual development and following news and updates about COVID-19 (r=-0.1) and feeling anxious about the pandemic (r=-0.228). Bahar (2008) defines spiritual development as an individual's ability to achieve inner peace and establish a harmonious relationship with the universe. It can be argued that an increase in following news and updates about COVID-19 and the level of concern about the pandemic negatively affect an individual's inner peace.

Similarly, there is a negative correlation between interpersonal relationships and following news and updates about COVID-19 (r=-0.113), feeling anxious about the pandemic (r=-0.138), and precautionary measures (r=-0.122). The concern about contracting COVID-19, efforts to take precautions, and the tendency to follow news and updates about the pandemic may weaken individuals' social communication and relationships with others.

A negative correlation was also found between stress management and feeling anxious (r=-0.206). Stress management involves reducing tension and keeping stress under control. It can be assumed that managing and coping with stress becomes more challenging in situations with higher levels of anxiety.

When examining the regression analysis of the study, a significant causal relationship was found between following news and updates, the impact on work life, feeling anxious, taking precautions, health literacy, and physical activity ($F=5.448$; $p=0.000<0.05$). The concern about the COVID-19 pandemic negatively affects the level of physical activity. Similarly, behaviors related to taking precautions against the pandemic also reduce physical activity. When examining the indicators of physical activity as part of Diedhiou et al.'s (2021) study, a statistically significant decrease was detected in the proportion of individuals who were sufficiently physically active before COVID-19. In a similar study conducted by Bao et al. (2022) with university students, a decrease in physical activity during the pandemic was reported. The decline in physical activities may be attributed to the normalization phase of COVID-19 prevention and control, which involves minimizing outdoor activities and opting for convenience services such as package delivery and takeout due to the development of transportation and technology (Bao et al., 2022).

The regression analysis carried out to determine the causal relationship between spiritual development and awareness of the COVID-19 pandemic, health literacy, and healthy lifestyle behaviors yielded significant results. Following news and updates and feeling anxious negatively affect spiritual development. As spiritual development refers to achieving inner peace, the more students follow news and updates related to COVID-19 and experience an increase in concern about the disease, the more their inner peace will be disrupted, resulting in a decrease in their level of spiritual development.

Additionally, the regression analysis performed to determine the causal relationship between following news and updates, the impact on work life, feeling anxious, taking precautions, health literacy, and interpersonal relationships also yielded significant results. Feeling anxious about COVID-19 reduces the level of interpersonal relationships. The fear and concern of contracting an infection from the people around them weaken interpersonal relationships (Goodwin et al., 2020). During pandemic diseases, both individually and socially, social distancing increases, which may lead to a decrease in social relationships.

Overall, the findings suggest that COVID-19-related concerns and precautionary measures negatively influence individuals' spiritual development and interpersonal relationships, respectively. Moreover, the increased awareness and concern about the pandemic lead to changes in healthy lifestyle behaviors including a decrease in physical activity and the adoption of unhealthy habits like unhealthy eating and sedentary lifestyles (Bao et al., 2022; Diedhiou et al., 2021). These implications highlight the importance of addressing individuals' mental and emotional well-

being during pandemics to support their overall health and promote healthy lifestyle behaviors.

The regression analysis conducted to determine the causal relationship between stress management and awareness of the COVID-19 pandemic, as well as health literacy, yielded significant results. Specifically, it was observed that concerns about contracting COVID-19 reduce individuals' ability to manage stress effectively. In a similar study conducted by Yasmin et al. (2020) on students, it was reported that due to the pandemic, students' stress levels increased day by day, and they found it challenging to control this situation.

These findings suggest that the COVID-19 pandemic and its associated concerns have a significant impact on individuals' stress levels and their ability to cope with stress effectively. The uncertainty and fear surrounding the pandemic can lead to heightened stress and anxiety levels, making it essential to provide adequate support and resources for stress management during such times. By addressing stress management and promoting mental well-being, individuals may be better equipped to handle the challenges posed by the pandemic and maintain their overall health and well-being.

In this study, while some negative correlations were found between students' awareness of COVID-19 and health literacy and their healthy lifestyle behaviors, other correlations were not statistically significant. The research concluded that health literacy does not significantly influence healthy lifestyle behaviors but awareness of COVID-19, particularly concerns and preventive measures, negatively affect these behaviors. Another study conducted with 921 individuals in Türkiye reported that during the COVID-19 pandemic, the risk of contracting the disease increased, dietary habits changed, and the overall quality of life declined (Diedhiou et al., 2021).

This study demonstrates the impact of health literacy levels on healthy lifestyle behaviors. Therefore, public policymakers and healthcare professionals should develop and promote educational programs to enhance health literacy. Encouraging individuals to access accurate and up-to-date information sources on health-related topics is crucial. Promoting the use of reputable websites, government health agencies, and healthcare professionals as sources of information can help in making informed decisions about their health. The influence of the COVID-19 pandemic underscores the importance of creating awareness in improving healthy lifestyle behaviors. Health awareness campaigns and educational materials can encourage greater community participation. Promoting collaboration between healthcare providers, educational institutions, workplaces, and community organizations is essential. Intersectoral cooperation can lead to a holistic approach in promoting healthy lifestyles, which can be particularly effective during pandemics. The results of this study highlight the need for long-term follow-up and in-depth research to understand the long-term effects of healthy lifestyle behaviors.

It is essential to consider some limitations while interpreting the outcomes of this research. The convenience sampling method was used in this study, which may lead to incorrect generalizations to the entire population of Türkiye. Additionally, the online survey design limited the sample to individuals with internet access. The accuracy of the data collected in the research relies on the assumption that participants provided truthful and sincere responses to the surveys.

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Conflict of Interest:
The authors declare that they have no conflict of interest.

Ethical Approval:
Prior to commencing this research, an application was submitted to the Institutional Review Board of Uskudar University for Non-Interventional Studies. The ethics committee, in its meeting on May 27, 2020, with reference number 61351342/2020-254, decided that the research titled "Information, Attitudes, and Practices of the Turkish Society Regarding Covid-19" is ethically appropriate. Quotations have been made in accordance with scientific rules. Additionally, the participation of the subjects in the research was based on voluntariness.

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Molecular Diagnostic Laboratory Setup and Maintenance for Sars-Cov-2

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ABSTRACT

Importance of laboratory diagnosis has come to the spotlight once again with the COVID-19 pandemic caused by Sars-Cov-2 and significant changes have taken place in terms of laboratory operation. A global effort has emerged when all healthcare professionals faced a biological threat. Interlaboratory collaboration and multidisciplinary approach contributed to this effort. This study aims to explain step-by-step establishment of a fully capable laboratory for Sars-Cov-2 diagnosis to support local and global fight for the COVID-19 pandemic. Several precautions were taken, and disaster plans were updated because of the changes in employee health and workload distribution. Some of these are setting up a laboratory from scratch for microorganism diagnostic tests performed in pandemic cases, measures for healthcare workers, personnel assignment planning, changes in the variety and number of tests, innovations in quality standards and the contribution of laboratories to scientific studies. Ankara Molecular Diagnostic Laboratory has become one of the laboratories in Türkiye where Sars-Cov-2 and its mutations have been studied the most with 1,710,856 samples between 01 October 2020 and 01 May 2022 since its establishment and it has become the laboratory with the highest number of equipment and technical personnel in the capital. This study summarizes all the phases of Ankara Molecular Diagnostic Laboratory beginning with its establishment from the scratch and covers all the steps to render this facility fully operational.

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INTRODUCTION

Severe acute respiratory syndrome coronavirus-2 (Sars-Cov-2), a new coronavirus, emerged in December 2019 in Wuhan, China is the etiological agent of the coronavirus disease 2019 (COVID) which was declared a pandemic by the World Health Organization (WHO) on March 11, 2020 (Tan et al., 2020). More than 532 million confirmed cases of COVID-19 have been reported worldwide with more than six million deaths by the end of March 2022 according to WHO data (WHO Situation Report., 2022). The first COVID-19 case in our country coincides with global pandemic declaration date and health services were significantly affected in the face of this unexpected situation (Finch et al.;2022). The diagnosis of COVID-19 infection caused by Sars-Cov-2 needs to be confirmed by laboratory tests. Reverse transcription and real-time polymerase chain reaction (RT-qPCR) based on the demonstration of Sars-Cov-2 viral RNA is the gold standard in diagnosis (Liu et al.; 2020). Sample collection, transportation and storage are the factors that affect the RT-PCR results mostly. Collecting accurute respiratory tract sample at the right time at the preanalytical stage is very important for an accurate and rapid molecular diagnosis of Sars-Cov-2 (Lippi, 2019). Number of centers performing the COVID-19 tests was increased shortly after the detection of the first case in Türkiye and this number has reached to 528 laboratories today (RTMH, 2022). The pandemic process still continues in the world and in our country. Some of the laboratories activated in this process have been integrated into existing laboratories and some have been established from scratch (WHO Interim Guidance, 2022). Ankara Molecular Diagnosis Laboratory which is the subject of our study is the highest capacity Sars-Cov-2 diagnostic test laboratory in Ankara. It is setup by repurposing emergency department of an old hospital and contains backups of every area.

Healthcare services have been severely affected by the COVID-19 pandemic and states have had to plan and act quickly. A guide titled "GP36-A, Planning Laboratory Operations During Disaster" was published by the Clinical and Laboratory Standards Institute (CLSI) based on previous experience (Williams et al.; 2014). This guideline published prior to the pandemic states that the annual re-emergence of common, severe, and seasonal influenza is a routine expectation. The possibility of the appearance of an unexpected new influenza strain with pathogenic potential has highlighted the need for each laboratory to carefully review its disaster plan periodically. The tests frequently performed during the pandemic are replaced by the intense Sars-Cov-2 diagnosis, follow-up, and screening tests while one-step reverse transcription and real-time polymerase chain reaction (RT-qPCR) based on the detection of mutated regions in viral RNA and Anti-SARS IgG, IgA, IgM tests have outstripped tests for other diseases (Lippi et al.; 2020). This significantly affected laboratory staff distribution, test load of the analyzers and material supply. In some cases, necessities such as kits and consumables and service requests could not be fulfilled (Lippi and Plebani, 2020). Health institution and the patients it served were affected in such situations. Some of the healthcare workers were reluctant to continue their work due to anxiety, some fell ill, and some passed away from the disease during the pandemic. Legal regulations or rewarding initiatives were implemented to prevent loss of personnel workforce and thus ensuring the healthcare service sustainability (Sharma B et al.; 2021, Tahamtan et al.; 2020). Special precautions had to be taken against viral contamination for the health and safety of laboratory workers with the pandemic. There were conflicts about the measures due to the lack of clear viral transmission routes information or data even though provisional guidelines were published at the beginning of the pandemic. Standards were improved with the increase viral transmission route evidencesduring the pandemic process.

The aim of this study is to evaluate the importance of the Molecular Diagnosis Laboratory which started its activities on October 01, 2020, within the Ankara Public Health, simultaneously authorized as the pandemic laboratory along with the effects on its staff and its operation as an instance of its preparation and setup processes during the pandemic.

MATERIALS AND METHODS

In our study, the preparatory phase in which samples from our laboratory were carried out in the laboratories established to respond to the COVID-19 pandemic, the phase in which the laboratory working system was rearranged, and the management of the personnel and samples were evaluated. COVID-19 (Sars-Cov-2 infection) was evaluated within the scope of contact tracing, epidemic management, patient monitoring at home and sample handling guide while de-identified samples were included in the study within the scope of routine work by the sample handling teams as a Scientific Advisory Board Study. The study was performed by retrospectively scanning the Laboratory Management Information System (LIMS) of the Ankara Molecular Diagnosis Laboratory after obtaining the approval of permission from Yıldırım Beyazit University Yenimahalle Training and Research Hospital Ethics Committee (Date: April 13, 2022, and Decision No: 2022-33). The study was in accordance

with the Declaration of Helsinki and its later amendments as revised in 2013.

Statistical analysis

Statistical Package of Social Sciences 22 (SPSS Chicago, IL, USA) software was used for data analysis and Excel was used to draw graphics. Categorical variables were expressed as numbers and percentages. The differences between the ratios were analyzed by Pearson chi-square analysis while $P<0.05$ was taken as statistical significance level.

Changes in Laboratory Organization

Laboratory Layout and Design

It has been decided to establish Ankara Molecular Diagnosis Laboratory where tests such as RT-qPCR, antigen antibody etc. for Sars-Cov-2 infection diagnosis are planned to be carried out in the emergency services unit of Numune Hospital which has physical and technical infrastructures such as sample reception, staff preparation room, automatic controlled door systems in terms of its layout and design. Personnel preparation areas, rest rooms and laboratory area where the personnel can wear their protective equipment before entering the laboratory have been designed. The Master Mix Preparation Room (Clean room), Extraction room, an Amplification room (Dirty room) and the room where the PCR devices will be placed are built for molecular analysis. It is very important that pre-PCR activities are separated from the amplification and analysis area as separate rooms or separate benches since there is usually a low amount of nucleic acid sample during preparation and a very high concentration after amplification. This means that false positive results can occur because of amplicon contamination if PCR is analyzed in the same area where the master mix and samples were prepared (Ortiz et al.; 2020).

Personnel working area was also made suitable for these conditions to ensure a one-way workflow. Areas that will enable healthcare professionals to change their personal protective equipment (PPE) since they may be contaminated with amplicon aerosols and intermediate sterilization stations where they can sterilize the PPEs under UV have been created for the personnel if they need to return to pre-PCR area from the amplification and analysis areas (Aberaa et al.; 2020). Since the physical conditions are suitable, these rooms are built with identical couple areas as backup so that the laboratory operations are not interrupted in case of possible contamination. Each room has dedicated special devices, equipment, and consumables. Equipment such as Real-Time PCR device, Biosafety cabinet II, refrigerator, freezer, vortex, and pipette set to be used in the COVID-19 test process and consumables such as pipette tips, Eppendorf tubes, gloves are provided by Ankara Public Health Laboratory. A significant increase in the sample density of the laboratory in 2022 is shown in Fig.1.

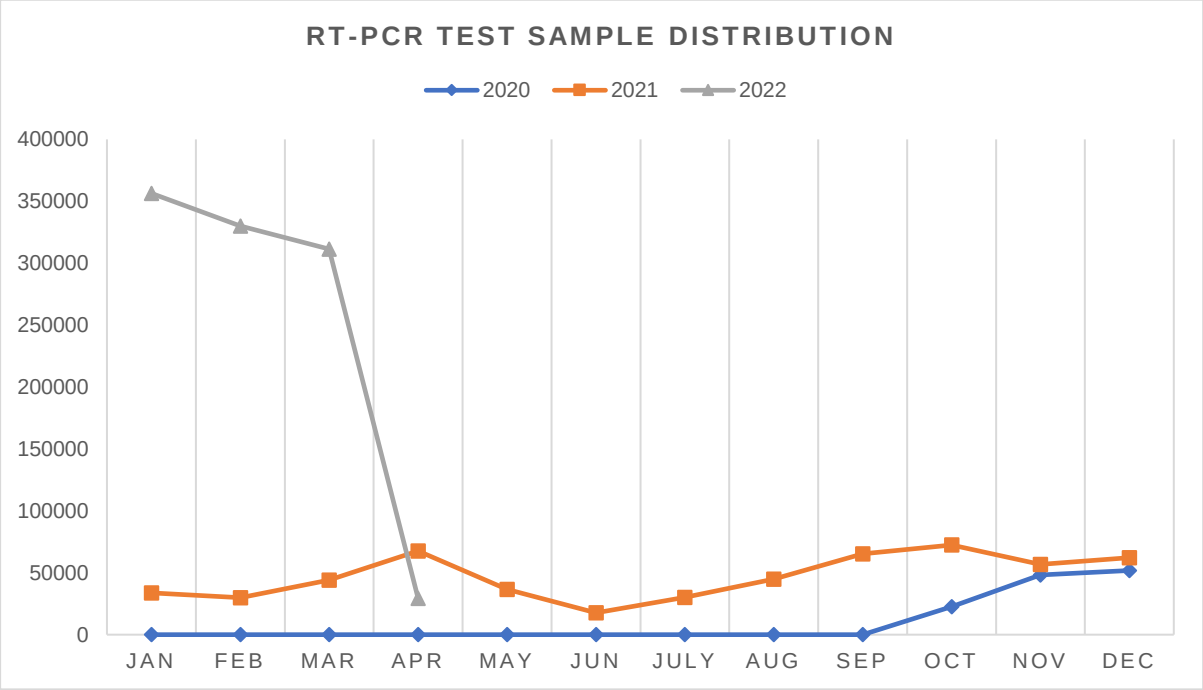

Figure-1 Distribution Chart of the Number of Samples Sent to Ankara *Molecular Diagnosis Laboratory from the Day It Was Opened Until April 2022 and the Comparison of the Total Number of Samples.*

Measures for Personnel Health

Some international and national guides on personnel health were published and updated at short intervals. Among these, the "Laboratory Biosafety Guidelines for Coronavirus Disease" published by WHO is the most up to date (WHO Interim Guidance, 2022). The purpose of this document is to provide provisional guidance on laboratory biosafety during the analysis of biological materials of COVID-19 patients. Each laboratory should take risk control measures by carrying out an institutional risk assessment to perform their analyses safely according to the guide.

Appropriate personal protective equipment (PPE), determined by a detailed risk assessment, should be used by all laboratory personnel analyzing biological material of COVID-19 patients. All technical procedures should be performed in a way to minimize the generation of aerosols and droplets (van Doremalen et al.; 2020). Appropriate disinfectants with proven efficiency against enveloped viruses (for example, hypochlorite, alcohol, hydrogen peroxide, quaternary ammonium compounds, and phenolic compounds) should be consumed during the recommended contact time, at the correct dilution level and within the expiration date after solution preparation. “Good Microbiological Practice and Procedures” should be followed when processing and analyzing all specimens, for PCR testing (WHO Interim Guidance, 2022). It is stated that the lysis buffer in RNA extraction is effective in inactivating the Sars-Cov-2 virus (CDC 2020). Patient specimens from suspected or confirmed cases should be transported as "Biological Substance - Category B (UN3373)". Viral culture or isolates should be transferred as “Infectious Substance Affecting Humans - Category A (UN2814)” (WHO, 2019). It shows that the Sars-Cov-2 virus may be susceptible to disinfectants [1,000 ppm (0.1%) for general surface disinfection and 10,000 ppm (1%) sodium hypochlorite, 62% 71% ethanol for disinfection of sample spills; 0.5% hydrogen peroxide; biocidal agents such as quaternary ammonium compounds or phenolic compounds] with proven activity against enveloped viruses (Chin et al; 2020). In the interim guide published by WHO it is recommended to use PPE for healthcare professionals according to personnel and type of activity during the care of suspected, probable, and confirmed COVID-19 patients (WHO COVID-19, 2020).

Terms and duration of use, the rules to follow when removing, reusability and risks of PPE are specified in cases where there is a shortage of PPE such as medical masks, FFP2, FFP3, N95, N99, N100 or equivalent respiratory masks, protective clothing, protective glasses, face shield, gloves (COVID-19 Laboratory Biosafety Guide, 2020). It is recommended that medical masks and FFP2, FFP3, N95, N99, N100 or equivalent respirators can be used without removing them for up to 6 hours when dealing with COVID-19 patients and are eventually to be destroyed. FFP1 breathing mask without exhalation valve can be used as an alternative in the absence of a medical mask. It is stated that decontamination processes can be performed using disinfection or sterilization methods for FFP2, FFP3, N95, N99, N100 or equivalent respiratory masks while reuse of medical masks is not recommended. It is not recommended to use a respirator together with a medical mask to prolong its use, alternatively, a face shield should be used (WHO COVID-19, 2020).

Cotton uniforms as protective clothing, reusable (washable) patient or laboratory personnel aprons can be washed with detergent at 60 ºC’ and reused. Disposable laboratory personnel aprons or liquid-proof plastic aprons are recommended as an alternative to these clothes. Disinfection for the reuse of goggles and face shields that fully cover the eyes can be used. Cleaning with soap/detergent and water, followed by 0.1% sodium hypochlorite (pursued by rinsing with water) or a 70% alcohol wipe respectively is recommended for disinfection. Safety glasses that partially cover the eyes as an alternative to goggles and transparent binding sheets with rubber bands that can be designed by the personnel as an alternative to the face shield can be used. The use of double gloves and repeated use of the same gloves are not recommended unless surgical intervention is required.

A provisional guide for the laboratory operations has been published by the national health administrators in our country (COVID-19 Laboratory Biosafety Guide, 2020). It is recommended to have separate clothes or uniforms and to wear shoes or closed slippers, and not to go home with these clothes. Uniforms should not be hung in the same place (hanger, closet) as other daily clothes and personnel should refrain from going to resting aras with aprons. It is recommended not to consume food and beverages outside the rest areas. The rest room and technical areas with windows should be ventilated periodically. WHO recommends 6-12 air changes per hour by opening doors and windows in healthcare environments where there are most likely viral load-bearing particles. It is recommended to use "suction mode" and avoid recirculation of air when using the air conditioner (WHO,2020).

It is recommended not to allow anyone other than the personnel to enter the laboratory and to apply the social distance rule by using a security strip in the sample reception unit. Disinfectant should be provided to all rooms, including the rest room, offices and technical rooms, and its use should be encouraged. Personnel meals can be served as disposable rations (COVID-19 Laboratory Biosafety Guide, 2020). Wastes belonging to a possible and identified COVID-19 patient in the laboratory environment where Sars-Cov-2 test is studied should be considered as infectious waste and disposed of as medical waste in accordance with guidelines (Waste Management in the COVID-19 Pandemic, 2022).

Challenges Faced by Laboratory Staff in the COVID-19 Pandemic

Personnel were transferred from other national health institutions/hospital due to the need for experienced technicians for Sars-Cov-2 PCR analysis. Increase in the anxiety and uneasiness of contracting the disease in our country caused some health personnel to retire or resign in this process. Laboratory professionals were assigned to non-laboratory sampling units to collect naso-oropharyngeal swab. Staff lost their motivation and anxiety were created because of these assignments that were not within the scope of their training (Blasco-Belled et al.; 2022). Effective training and competency assessment programs ensure that the perseonel are knowledgeable and competent for the tassk assigned to them and in their responsibilities according to CLSI's guideline "QMS03, Education and Competence Assessment" (CLSI guideline QMS03, 2016)

In this guide, it is recommended the personnel have the necessary knowledge, skills, and behaviors to fulfill their duties and tasks assigned to them with high quality along with a consisten and predictably high performance. Administrative leave was given to personnel who are older (60 and over), pregnant, have cancer, have a disability report, and have chronic diseases in our laboratory. In addition, number of personnel working in laborator was minimized to reduce the risk of contamination. Personnel were divided into teams and worked in shifts to reduce the number of tests, viral load, and exposure. Laboratory technicians were trained to use more than one device or system. However, workload per staff increased despite the rapidly decreasing test load. Laboratory specialists were assigned to outpatient clinics or wards where the COVID-19 patient diagnosis and follow-up outside the laboratory is carried out.

Personnel assignments and shifts dynamically changed during the pandemic process and these changes were adapted to laboratory conditions. Difficulties were experienced at the beginning of the pandemic due to time constraints, uncertainty, insufficient training, irregularity in personnel employment and long shifts even though incentive extra compensation for healthcare personnel due to COVID-19 was paid. Information was collected on satisfaction related to institutional policies implemented during the epidemic including providing PPE, sanitation practices, additional transport arrangements and education with a survey (n=64) of medical laboratory specialists in a developing country [25]. 68% of the participants stated that they were generally satisfied with the measures taken by the institution to deal with the crisis. 56% of the participants were satisfied with the timely, appropriate, and adequate PPE supply and 88% with the general cleaning practices. 18% of staff believed that previous training was lacking to effectively confront the pandemic except 7 unbiased responses. Only 34% of the personnel thought that transportation to/from health institution was sufficient even though ease of transportation is provided for employees to use. Many staff felt significant anxiety and worry as they could carry the virus home (Jafri et al.;2020).

Innovations in Quality Standards

Sars-Cov-2 is considered a Group 4 biological factor that causes severe human diseases, poses danger to employees, has a high risk of spreading to the community but does not have effective prevention and treatment methods. Each laboratory should conduct its own risk analysis within the scope of exposure to the agent and prevention of risks for this reason corrective and preventive measures should be taken in the action plan to reduce the risk. New documents and instructions related to COVID-19 or updates to existing ones should be made in health facilities in accordance with the quality standards in health. "Laboratory Operating Procedure" in our laboratory was updated and new documents such as "COVID-19 Pandemic Preparation and Action Plan", "Highly Infectious Patient Sample Instructions", "Cleaning and Disinfection Recommendations and Products to be Used in Possible/Definite Cases of COVID-19", "Recommended Personal Protective Equipment for COVID-19 Disease and Its Use" and "Occupational Health and Safety Unit COVID-19 Instructions" were introduced.

RESULTS

Sars-Cov-2 RT-qPCR test was performed on 1,710,856 patient samples between October 01, 2020, and May 01, 2022, in our laboratory. 47.5% belonged to female patients and 52.5% to male patients while the median age was determined as 48.0 (age range 1–98) among these samples.When the sample amount rates based by months in 2021 for our laboratory which was opened in November 2020 after being authorized by the Ministry of Health were compared, it was seen that there was an increase in April and October ($p<0.01$; from 50.1% to 66.8%) while the total number of applications for April 2022 was found to be significantly decreased ($p <0.01$; from 49.9% to 33.2%). 68.9% are under 50 years old, 19.6% are between 50-64 years old, 11.5% are over 65 years old and the median was 40.0 (age range 18-96) when the age groups are examined.

CONCLUSIONS

All laboratory professionals have demonstrated an extraordinary effort despite the lack of human and technical resources and gained experience in crisis management. This crisis has proven once again that laboratory medicine is central to clinical decision-making. Therefore, health policy makers and institution management should plan further laboratory discipline more reasonably. The importance and value of laboratories which are not only in the diagnosis of the disease but also in the prognosis and treatment follow-up should be conveyed to the senior management. The medical laboratory community should convene nd share information with each other, communicate with clinicians and strive to work in a multidisciplinary manner.

Since we must live with the pandemic for a while, resources should be invested into mobile laboratories equipped with the necessary devices and equipment along with trained personnel to support local testing operations to prevent health system and laboratory services from overloading and even collapsing in extreme conditions. Current diagnosis and risk estimation conditions should be improved with the identification of new biomarkers specific to the infectious agent. More reliable epidemiological studies should be performed, and the accessibility of these kits should be increased with the availability of licensed test kits and standardization of test protocols. Hygiene rules should be imposed as an indispensable part of our lives in terms of employee health to prevent personnel workforce and regrettable healthcare professional demise.

DISCUSSION

Personnel duties and authorizations should be defined, and it should be determined by whom the relevant process will be managed during the crisis. Mental, social, and economic needs of the personnel should be considered and the efforts to meet these requirements should be standardized to provide sustainable and high-quality performance. Progress will be achieved in processes to determine which individual is infected in the short term and to monitor the progression of the disease while determinining vaccine effectiveness to be developed in the long term with the developments in laboratory medicine.Several contributions can be made to virus research, drugs and vaccines development, service and resource management in health centers and mobility analysis to predict and manage scenarios arising from health problems with artificial intelligence projects based on data science.

In the COVID-19 pandemic which affected the whole world, we were faced with the stages of establishing a laboratory from scratch because of the insufficient number of laboratories for Sars-Cov-2 diagnosis in our country. In general, the inconvenience of physical conditions, small laboratory spaces, insufficient and inappropriate consumables, lack of competent technical personnel to work in the laboratory and long bureaucratic processes in personnel recruitment were the limiting factors in the first place. Pandemics are unpredictable situations. There is a need for multidisciplinary management systems that can make and implement rapid decisions by coordinating the laboratories where the tests in which gold standard tests in diagnosis are carried out to manage disasters such as the COVID-19 pandemic. Most of the Sars-Cov-2 research focus on the identification of the virus and the availability of the laboratory facilities, required equipments and trained personnel are taken for granted. Therefore investigations for Sars-Cov-2 specific laboratory requirements and their specifications are quite scarce in the relevant literature. The safety and design considerations of a mobile biocontainment laboratory for COVID-19 outbreak is presented in a research (Linster et al.;2020) but this is a very specific and minimalistic case when compared to a full-scale pandemic laboratory setup and maintenance effort provided in this study.

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Conflict of Interest

The authors report there are no conflicting interests to declare.

Ethical Approval

The study was performed by retrospectively scanning the Laboratory Management Information System (LIMS) of the Ankara Molecular Diagnosis Laboratory after obtaining the approval of permission from Yıldırım Beyazit University Yenimahalle Training and Research Hospital Ethics Committee (Date: April 13,

2022, and Decision No: 2022-33). The study was in accordance with the Declaration of Helsinki and its later amendments as revised in 2013.

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