ORIGINAL RESEARCH ARTICLE

Determining the relationship between the fear of Coronavirus and healthy lifestyle behaviors in midwifery students in Türkiye

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Abstract

The new coronavirus (COVID-19) pandemic, midwifery students, who are usually more interested in face-to-face practical learning, have shifted to online learning, changing their fear and healthy lifestyle behaviors. The present research aimed to determine the relationship between the fear of COVID-19 and healthy lifestyle behaviors in midwifery students in Türkiye. This cross-sectional study was performed on 313 midwifery students in the midwifery department of a university in Türkiye from April to June 2021. The data were collected with the student descriptive information form, Fear of Coronavirus Scale (FCV-19S), and Health-Promoting Lifestyle Profile-II(HPLP-II). The data were analyzed with mean score, standard deviation, number and percentage values, independent sample t-test, ANOVA, Pearson's correlation test. The FCV-19S total mean score was moderate with 17.37±5.61. The total mean score on the HPLP-II was 129.93±21.50, students received the highest mean score on the spiritual development sub-dimension (26.17±5.01) and the lowest mean score on the physical activity sub-dimension (17.05±5.08). It was found that midwifery students had a moderate fear of COVID-19 and displayed moderate healthy lifestyle behaviors. *(Afr J Reprod Health 2024; 28 [10]: 39-51).*

Keywords: COVID-19; midwifery; students; fear of coronavirus; healthy lifestyle behaviors; pandemic

Résumé

Face à la nouvelle pandémie de coronavirus (COVID-19), les étudiantes sages-femmes, qui sont généralement plus intéressées par l'apprentissage pratique en présentiel, se sont tournées vers l'apprentissage en ligne, modifiant ainsi leurs peurs et leurs modes de vie sains. La présente recherche visait à déterminer la relation entre la peur du COVID-19 et les comportements sains en matière de mode de vie chez les étudiantes sages-femmes en Turquie. Cette étude transversale a été réalisée sur 313 étudiantes sages-femmes dans le département de sages-femmes d'une université de Turquie d'avril à juin 2021. Les données ont été collectées à l'aide du formulaire d'informations descriptives des étudiants, Fear of COVID-19 Scale (FCV-19S), et Profil de mode de vie favorisant la santé-II (HPLP-II). Les données ont été analysées avec le score moyen, l'écart type, les valeurs en nombre et en pourcentage, le test t pour échantillon indépendant, l'ANOVA et le test de corrélation de Pearson. Le score moyen total FCV-19S était modéré avec 17,37 ± 5,61. Le score moyen total au HPLP-II était de 129,93 ± 21,50, les étudiants ont reçu le score moyen le plus élevé pour la sous-dimension du développement spirituel (26,17 ± 5,01) et le score moyen le plus bas pour la sous-dimension de l'activité physique (17,05 ± 5,08). Il a été constaté que les étudiantes sages-femmes avaient une peur modérée du COVID-19 et affichaient des comportements modérés en matière de mode de vie sain.. *(Afr J Reprod Health 2024; 28 [109]: 39-51).*

Mots-clés: COVID-19; sage-femme; étudiants; peur du coronavirus; comportements sains; pandémie

Introduction

The coronavirus disease 2019 (COVID-19)[1,2] infection has been threatening the world's population for over three years since the declaration of the novel COVID-19 pandemic by the World Health Organization(WHO). Due to its high contagiousness, COVID-19 causes psychological problems such as fear, anxiety in individuals. With the beginning of quarantine in Türkiye, students of higher education institutions had to participate in online lectures and install home offices. Areas where students spend time and relax, including gyms, were closed mandatorily. Citizens were allowed to shop for food by complying with hygiene measures. Such severe restrictions may affect healthy lifestyles.

Although the number of cases and the burden on the healthcare system have decreased with the suspension of face-to-face education in

universities and the transition to distance education, it has caused many situations that affect health behaviors such as fear, eating disorders and weight gain on midwifery students receiving applied training. A number of international studies have shown that lifestyle changes during quarantine cause changes in individuals' bodies. In Italy, perceived weight gain was determined in 48.6% of the population, while a slight increase in physical activity was reported[3]. There is limited information about lifestyle habits, including physical inactivity, nutrition and alcohol consumption habits, sleep behavior in university students during the quarantine[4]

The pandemic has also been challenging for universities, leading to the disappearance of the traditional education system. Quarantine measures implemented during COVID-19 prevented students and faculty from traveling to university campuses and interrupted students' participation in clinical practice.

The effort to adapt to both the pandemic and distance education processes has caused students to experience psychological problems and postpone showing healthy life behavior [5]. Social isolation, restrictions on physical and social contact, fear of illness, and loss of close relatives have increased the risk of students developing anxiety and depression[6].

The midwifery undergraduate program is full-time, and practices occur in the hospital and practice laboratories. Students spend most of their university life in practice since theoretical knowledge is supported by practice. Undergraduate students have experienced lifestyle changes with this quarantine.Although the number of cases and the burden on the healthcare system have decreased with the suspension of face-to-face education in universities and the transition to distance education, it has caused many situations that affect health behaviors such as fear, eating disorders and weight gain on midwifery students receiving applied training. It was stated that in departments where applied courses such as midwifery are given, education can be provided online to prevent students from suffering and learning losses. According to the Board of Higher Education, there are conditions that students must fulfill in order to graduate from the midwife program. These are; performing at least 100 prenatal examinations and consultancies, follow-up and caring for at least 40 pregnancies, performing at least 40 risky follow-ups during pregnancy, performing 40 normal spontaneous births, follow-up and caring for at least 100 postpartum mothers, at least there are conditions such as follow-up and caring for at least 100 healthy newborns. To complete these practices, midwifery students must actively participate in field and clinical internships. It is not possible to receive and track cases online. During the COVID-19 epidemic, distance education processes for the midwifery program had the possibility of students not being able to participate in internships actively, and practices such as pregnancy follow-up and labor not being carried out, thus these criteria would be missing and the period would be extended.

Some studies have shown the relationship between the fear of COVID-19 and healthy lifestyles[2,7-9]. However, studies have yet to be conducted with midwifery and university students. the best of our knowledge, a quantitative study to investigate determining the relationship between the fear of COVID-19 and healthy lifestyle behaviors in midwifery students is an innovation in the Turkish context.

Questions of the study

In the study, answers to the following questions were sought:

- What is the level of fear of COVID-19 and health-promoting lifestyle behaviors of midwifery students?
- What are the factors affecting the level of fear of COVID-19 and health-promoting lifestyle behaviors of midwifery students?
- Is there a correlation between midwifery students' fear of COVID-19 and health-promoting lifestyle behaviors?

Objectives

The objective of the present research was to determine the relationship between the fear of COVID-19 and healthy lifestyle behaviors in midwifery students in Türkiye

Methods

Study design and participants

A cross-sectional study was performed in the midwifery department of the faculty of health

sciences at a state university in Türkiye between April and June 2021. The study population comprised 330 students receiving education at the Faculty of Health Sciences of a state university in the 2020-2021 academic year who volunteered to take part in the research were included in the study sample. In the research, no sample selection was made and it was aimed to reach the entire universe. All (330) students registered and continuing education in the midwifery department constituted the research sample. The aim of the research was to reach all students. However, 17 students did not agree to participate in the research were excluded from the scope of the research. A total of 313(95%) students participated in the research. The inclusion criteria for this study were as follows: (a) being a midwifery student, (b) volunteered to participate. The exclusion criterion was being unwilling to participate. The student descriptive information form, Fear of COVID-19 Scale(FCV-19S), and Healthy Lifestyle Behaviors Scale II(HLBS-II) were employed to collect data.

The student descriptive information form: includes 12 questions about the gender, age, education information, economic status, place of residence, general health status, coronavirus diagnosis and treatment status of students.

Fear of COVID-19 Scale (FCV-19S): This scale was developed by Ahorsu et al. (2020) to determine fear of COVID-19[10]. The validity and reliability study in Türkiye was carried out by Haktanır et al. (2020) [11]. This scale consists of a total of seven items and a single dimension. The scale is a Likert-type scale, and grading from 1 to 5 (1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly agree) is used in its calculation. All items of the scale are positive. The total score that can be obtained from the scale is between 7-35, and as the scores increase, it shows that the fear of COVID-19 increases. Cronbach's alpha internal consistency coefficient of the scale was 0.86 [11]. In this study, Cronbach's alpha internal consistency coefficient of the scale was found to be 0.85.

Health-Promoting Lifestyle Profile II (HPLP-II): The Turkish validity and reliability study of the scale developed by Walker et al. [12] was carried out by Bahar et al. (2008)[13]. The scale consists of a total of 52 items and six sub-dimensions The sub-dimensions of the scale include health responsibility (3rd, 9th, 15th, 21st, 27th, 33rd, 39th, 45th, and 51st items), physical activity (4th, 10th, 16th, 22nd, 28th, 34th, 40th, and 46th items), nutrition (2nd, 8th, 14th, 20th, 26th, 32nd, 38th, 44th, and 50th items), spiritual growth (6th, 12th, 18th, 24th, 30th, 36th, 42nd, 48th, and 52nd items), interpersonal relations (1st, 7th, 13th, 19th, 25th, 31st, 37th, 43rd, and 49th items) and stress management (5th, 11th, 17th, 23rd, 29th, 35th, 41st, and 47th items). In the evaluation of the four-point Likert-type scale, “never” as 1 point, “sometimes” as 2 points, “often” as 3 points, and “always” as 4 points are used. All items of the scale are positive. The lowest score that can be obtained from the scale is 52, and the highest score is 208. The lowest and highest scores for the sub-dimensions are (9-36) for health responsibility, nutrition, spiritual growth and interpersonal relations, and (8-32) for physical activity and stress management. An increase in the scores obtained from the scale indicates that the individual applies the specified health behaviors at a high level. Cronbach's alpha internal consistency coefficient of the scale was 0.92[13]. In this study, Cronbach's alpha internal consistency coefficient of the scale was found to be 0.93.

Ethical considerations

Approval for the study was acquired from the university(Approval Number: 2021/276), written research approval from the Faculty of Health Sciences(number: E-72517064-044-44441),consent from the students taking part in the research. The students who volunteered to take part in the research were informed about the study’s aim and content, that any information obtained would be used confidentially, and that the data would be utilized within the scope of scientific research, and their consent was received through an online questionnaire. The data in the study were collected online via Google Surveys. The link address was sent to all midwifery students via e-mail. The informed consent form was presented to students on the first page of the questionnaire, and the students who accepted it continued with the questionnaire

Statistical analysis

Data normality was checked with the Kolmogorov–Smirnov test and skewness and kurtosis values, and the data were determined to be normally

distributed. Mean, standard deviation, number and percentage values, and one-way analysis of variance were used in the data analysis. The independent sample t-test was conducted to compare the *FCV-19* and *HPLP-II* scores and some characteristics of students and compare some students' characteristics and the mean scores on the HPLP-II sub-dimensions. Pearson's correlation test was also used in the data analysis. A value of $p<0.05$ was considered as statistically significant.

Results

Table 1 contains the demographic and other characteristics of midwifery students participating in the study during the pandemic.

Table 2 The total mean FCV-19S score of the students was moderate with 17.37±5.61. The total mean HLBS-II score of the students was 129.93±21.50, and they received the highest mean score on the spiritual growth sub-dimension(26.17±5.01) and the lowest mean score on the physical activity sub-dimension(17.05±5.08).

Table 3 compares the demographic and health characteristics of the students participating in the research and the mean scores on the FCV-19S and HLBS-II. The mean score on the health responsibility sub-dimension of first-grade students was lower. Compared to those at the other grade levels, and the difference was statistically significant(p-value < 0.05). The nutrition, spiritual growth, interpersonal relations, and stress management mean scores of students who evaluated their physical health as very good were higher(p-value < 0.05).

The spiritual growth, interpersonal relations, and stress management mean scores of students who stated their mood as depressed during the pandemic were lower(p=0.000, p=0.037, p=0.000, respectively). The mean score on the spiritual growth sub-dimension of the students diagnosed with COVID-19 was statistically lower(p-value < 0.05)(Table 4). There was no significant correlation between the total mean score on the FCV-19S and the total mean-19S and the total mean score on the HLBS-II and its sub-dimensions(p-value < 0.05)(Table 5).

Table 1: The demographic and other characteristics of midwifery students (n=313)

CHARACTERISTICS	N(%)
Age	Mean±SD
	20.73±2.26
	(min:18-max:42)
Grade	
First	83 (26.5)
Second	84 (26.8)
Third	63 (20.2)
Fourth	83 (26.5)
Place of residence	
City center	184 (58.8)
District	86 (27.5)
Village	43 (13.7)
Income-generating job status	
Yes	26 (8.3)
No	287 (91.7)
Evaluation of physical health during the pandemic	
Very good	34 (10.9)
Good	253 (80.8)
Bad	26 (8.3)
Evaluation of emotional state during the pandemic	
Happy	31 (9.9)
Energetic	8 (2.6)
Depressed	122 (39.0)
Furious	13 (4.2)
Anxious	56 (17.9)
Worried	83 (26.5)
The status of having a diagnosed chronic disease	
Yes	78 (24.9)
No	235 (75.1)
The status of having a chronic respiratory disease (n=78)	
Yes	26 (33.4)
No	52 (66.6)
The status of presenting to a health institution due to COVID-19	
Yes	72 (23.0)
No	241 (77.0)
The status of being diagnosed with COVID-19	
Yes	42 (13.4)
No	271 (86.6)
The way of treating COVID-19 (n=42)	
At hospital	2 (4.8)
At home	30 (71.4)
Untreated	10 (23.8)

Table 2: Students' mean scores on the fear of coronavirus scale (FCV-19) and healthy lifestyle behaviors Scale II (HPLP-II)

Scales	**Mean±SD**	**Min-Max**
FCV-19	17.37±5.61	7-35
HPLP-II	129.93±21.50	70-191
Health responsibility	21.31±5.54	9-36
Physical activity	17.05±5.08	8-32
Nutrition	20.41±4.13	10-32
Spiritual development	26.17±5.01	11-36
Interpersonal relations	25.31±4.49	10-36
Stress management	19.64±4.27	8-32

Table 3: Comparison of the FCV-19 and HPLP-II scores with some characteristics of students

Characteristics	**Scales** **FCV-19** Mean±SD	**HPLP-II** Mean±SD
Grade		
First (n=83)	17.06±5.74	127.06±22.01
Second (n=84)	16.46±5.39	130.06±22.65
Third (n=63)	18.68±5.79	132.06±23.33
Fourth (n=83)	17.62±5.45	129.83±18.19
F/p	2.039/0.108	0.703/0.551
Place of residence		
City center (n=184)	17.30±5.73	130.19±19.52
District (n=86)	17.56±5.21	129.69±23.67
Village (n=43)	17.30±5.97	129.33±25.23
F/p	0.069/0.933	0.036/0.965
Income-generating job status		
Yes (n=26)	16.38±6.93	134.15±23.89
No (n=287)	17.46±5.48	129.55±21.27
t/p	-0.941/0.347	1.046/0.297
Evaluation of physical health during the pandemic		
Very good (n=34)	16.05±5.82	**143.53±18.06**
Good (n=253)	17.30±5.43	128.97±20.53
Bad (n=26)	**19.80±6.48**	121.50±27.47
F/p	3.449/**0.033**	9.547/**0.000**
Evaluation of emotional state during the pandemic		
Happy (n=31)	**13.93±5.49**	139.29±17.34
Energetic (n=8)	15.87±5.91	137.50±22.77
Depressed (n=122)	17.65±5.94	**123.99±24.62**
Furious (n=13)	16.69±5.17	125.54±18.06
Anxious (n=56)	18.23±5.49	132.41±18.37
Worried (n=83)	17.92±4.89	133.46±18.02
F/p	3.061/**0.010**	4.137/**0.001**
The status of having a diagnosed chronic disease		
Yes (n=78)	17.92±6.60	131.62±20.40
No (n=235)	17.19±5.24	129.37±21.86
t/p	0.991/0.322	0.797/0.426
The status of having a chronic respiratory disease (n=78)		
Yes (n=26)	19.61±6.75	133.54±20.99
No (n=52)	17.07±6.42	130.65±20.24
t/p	1.617/0.110	0.586/0.560
The status of presenting to a health institution due to COVID-19		
Yes (n=72)	18.20±5.92	128.67±23.48

No (n=241)	17.12±5.50	130.31±20.90
t/p	1.434/0.152	-0.569/0.570
The status of being diagnosed with COVID-19		
Yes (n=42)	18.42±6.40	125.50±23.74
No (n=271)	17.21±5.47	130.62±21.09
t/p	1.306/0.192	-1.438/0.151
The way of treating COVID-19 (n=42)		
At hospital (n=2)	29.00±4.24	128.50±24.74
At home (n=30)	17.96±6.19	124.80±24.92
Untreated (n=10)	18.40±6.00	128.90±21.19
F/p	3.065/0.058	0.120/0.887

t: independent sample t-test
p: statistically significant value
F: one-way analysis of variance

Discussion

This study demonstrated the relationship between fear of COVID-19 and healthy lifestyle behaviors in midwifery students. Answers were sought to the research questions and answers were found about the relationship between midwifery students' COVID-19 fear levels and health-promoting lifestyle behaviors, and the factors affecting midwifery students' COVID-19 fear levels and health-promoting lifestyle behaviors. It was agreed that distance education would be the most suitable environment to ensure continuity in education during the COVID-19 epidemic, and that social distance, restrictions and regulations would be made to prevent contagion. Distance education in higher education in Türkiye started as of March 23, 2020[14]. According to the latest data from the United Nations, 770 million students (students, etc.) in the world have been affected by the closure of schools and universities[15].

The total mean score of the FCV-19S of midwifery students participating in the study is at a moderate level with 17.37±5.61. The mean scores of the FCV-19S of university students in Spain (16.79±6.04) and university students in another studies conducted in Türkiye were similar to this study [1]When the current national and international literature is examined in terms of the pandemic period, females experience a higher degree of fear of COVID-19 than males [16-19] and moderate degree of fear of COVID-19[20,21].

Martínez-Lorca *et al*. found that first-grade students perceive a higher degree of fear of COVID-19 than second-, third-, and fourth-grade students[1] . In the study, no statistically significant difference was found between the grade level and the fear of COVID-19, but the fear level of third-grade midwifery students was found to be higher than the other grade levels. Fear is linked to the pandemic.

When the pandemic started, the midwifery curriculum had the highest number of hospital practices in the 3rd grade, but the practices could not be completed due to restrictions. They were dealing with undiagnosed patients. Converting the information learned in the hospital environment to the online environment may also have increased fear in students.

During the pandemic, it was determined that the youth in the 15-20 age group were psychologically affected by the pandemic more than other age groups and that the youth in this age group had an anxious mood[19]. In an international study, it was reported that university students

experienced boredom (45.2%), anxiety (39.8%), and frustration (39.1%) the most during the pandemic[18]. On the other hand, 24.9% of Chinese university students stated that they experienced anxiety[22]. It was determined that students (midwifery, nursing, etc.) studying in applied departments related to health experienced anxiety and concern the most in this process[23-25]. The Australian study showed that almost half of the

Table 4: Comparison of some students' characteristics and mean scores on the HPLP-II sub-dimensions

Characteristics	HPLP-II Sub-Dimensions **Health Responsibility** Mean±SD	**Physical Activity** Mean±SD	**Nutrition** Mean±SD	**Spiritual Development** Mean±SD	**Interpersonal Relations** Mean±SD	**Stress Management** Mean±SD
Grade						
First (n=83)	**20.09±4.80**	16.77±5.06	19.83±3.90	26.06±5.47	25.10±4.89	19.44±4.14
Second (n=84)	21.82±4.39	17.25±5.07	20.98±4.27	26.22±5.30	25.27±4.56	19.35±4.37
Third (n=63)	21.95±5.14	17.95±5.13	20.42±4.68	26.30±5.00	25.95±4.25	19.61±5.13
Fourth (n=83)	21.55±3.71	16.46±5.05	20.40±3.72	26.14±4.26	25.09±4.19	20.15±3.55
F/p	2.880/**0.036**	1.150/0.329	1.092/0.353	0.032/992	0.547/0.651	0.582/0.628
Place of residence						
City center(n=184)	21.17±4.39	17.19±4.67	20.26±4.00	26.40±4.84	25.42±4.28	19.72±4.08
District (n=86)	21.40±4.60	17.31±5.64	20.58±4.29	25.70±5.03	25.17±4.66	19.50±4.57
Village (n=43)	21.74±5.10	15.97±5.54	20.72±4.38	26.13±5.67	25.13±5.08	19.60±4.53
F/p	0.290/0.748	1.145/0.320	0.305/0.737	0.560/0.572	0.134/0.875	0.81/0.922
Income-generating job status						
Yes (n=26)	22.84±5.06	17.76±4.55	20.09±5.63	26.80±4.76	25.50±4.68	20.03±5.47
No (n=287)	21.18±4.47	16.99±5.13	20.34±3.97	26.11±5.03	25.30±4.48	19.60±4.16
t/p	1.796/0.073	0.745/0.457	1.001/0.318	0.671/0.503	0.214/0.831	0.489/0.625
Evaluation of physical health during the pandemic						
Very good (n=34)	22.00±4.06	18.70±5.47	**21.97±4.35**	**29.32±4.10**	**28.67±3.56**	**22.85±3.97**
Good (n=253)	21.25±4.55	16.96±4.97	20.33±3.94	25.96±4.92	24.94±4.35	19.50±3.95
Bad (n=26)	21.03±5.11	15.84±5.28	19.15±5.12	24.07±5.36	24.61±5.14	16.76±4.27
F/p	0.454/0.636	2.598/0.076	3.730/**0.025**	9.713/**0.000**	11.432/**0.000**	17.194/**0.000**
Evaluation of emotional state during the pandemic						
Happy (n=31)	22.16±4.00	18.64±4.69	21.16±4.54	29.03±4.58	26.45±3.54	21.83±4.06
Energetic (n=8)	22.12±5.89	19.37±6.30	21.00±5.75	28.87±3.18	25.12±4.64	21.00±4.59
Depressed (n=122)	20.68±5.14	16.42±5.23	19.79±4.43	**24.44±5.57**	**24.36±4.89**	**18.27±4.65**
Furious (n=13)	19.92±4.57	15.84±4.54	18.92±3.17	27.23±4.74	24.30±5.49	19.30±3.54
Anxious (n=56)	21.41±3.75	17.08±4.84	21.19±3.65	26.71±4.25	25.73±4.34	20.26±3.97
Worried (n=83)	22.02±4.03	17.33±5.02	20.69±3.67	26.86±4.06	26.19±3.87	20.33±3.42
F/p	1.405/0.222	1.525/0.182	1.617/0.155	6.478/**0.000**	2.396±**0.037**	5.318/**0.000**

The status of having a diagnosed chronic disease						
Yes (n=78)	22.03±4.43	17.46±5.22	20.52±4.21	26.20±4.56	25.21±4.13	20.16±4.11
No (n=235)	21.08±4.56	16.92±5.04	20.37±4.11	26.165.16	25.35±4.61	19.47±4.32
t/p	1.617/0.107	0.810/0.419	0.272/0.786	0.060/0.952	-0.230/0.818	1.244/0.215
The status of having a chronic respiratory disease (n=78)						
Yes (n=26)	22.38±4.58	18.53±4.81	20.73±3.76	26.23±4.72	25.42±4.19	20.23±4.29
No (n=52)	21.86±4.38	16.92±5.37	20.42±4.45	26.19±4.52	25.11±4.14	20.13±4.07
t/p	0.485/0.629	1.294/0.200	0.302/0.764	0.035/0.972	0.308/0.759	0.097/0.923
The status of presenting to a health institution due to COVID-19						
Yes (n=72)	21.44±5.25	17.27±5.07	20.43±4.26	25.26±5.06	24.83±4.62	19.41±4.45
No (n=241)	21.28±4.31	16.99±5.09	20.41±4.09	26.44±4.97	25.46±4.45	19.71±4.22
t/p	0.266/0.791	0.418/0.676	0.036/0.972	-1.765/0.079	-1.047/0.296	-0.517/0.606
The status of being diagnosed with COVID-19						
Yes (n=42)	20.90±5.41	16.71±5.58	20.21±4.52	24.69±4.85	24.42±4.29	18.54±4.85
No (n=271)	21.38±4.40	17.11±5.01	20.44±4.07	26.40±5.00	25.45±4.51	19.81±4.16
t/p	-0.635/0.526	-0.470/0.639	-0.338/0.735	-2.075/**0.039**	-1.384/0.167	-1.795/0.074
The way of treating COVID-19 (n=42)						
At hospital (n=2)	21.50±0.70	22.50±7.77	18.50±0.70	24.00±8.48	23.00±0.00	19.00±8.48
At home (n=30)	20.63±5.85	15.70±5.27	20.26±4.63	24.73±5.02	24.36±4.58	19.10±5.04
Untreated (n=10)	20.80±5.59	18.30±5.71	20.70±4.80	25.90±4.14	25.20±3.70	18.88±3.80
F/p						
	0.023/0.977	2.058/0.141	0.190/0.828	0.248/0.781	0.264/0.770	0.189/0.828

t: independent sample t-test
p: statistically significant value
F: one-way analysis of variance

Table 4: The relationship between students' FCV-19 and HPLP- II mean scores

1	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
	r;p	r;p	r;p	r;p	r;p	r;p	r;p	r;p
1. FCV-19	-							
2. HPLP- II Total	0.035;0.539	-						
3. Health Responsibility	0.063;0.268	0.781;0.000	-					
4. Physical activity	-0.004;0.948	0.698;0.000	0.454;0.000	-				
5. Nutrition	0.070;0.219	0.763;0.000	0.570;0.000	0.508;0.000	-			
6. Spiritual development	-0.054;0.341	0.817;0.000	0.516;0.000	0.379;0.000	0.494;0.000	-		
7. Interpersonal relations	0.067;0.235	0.792;0.000	0.564;0.000	0.369;0.000	0.461;0.000	0.733;0.000	-	
8. Stress management	0.038;0.500	0.842;0.000	0.579;0.000	0.517;0.000	0.599;0.000	0.688;0.000	0.587;0.000	-

r=Pearson's correlation test

participants reported at least moderate symptoms of depression; and more than a third reported at least moderate symptoms of anxiety or stress[26]. The mean age of the students in this study was 20.73±2.26. Similar to other studies, this study determined that the majority of midwifery students felt depressed (39%) and anxious (26.5%). Cao *et al*. (2020) reported in their study that students stated the possibility of infection as the most important cause of anxiety in the pandemic, and therefore they experienced stress and had to postpone their academic studies[27]. Research has revealed that the uncertainty created by the epidemic and the pandemic and anxiety about how to protect themselves make it difficult for students to continue distance education. There is a possibility that they may not be able to fully implement healthy lifestyle behaviors due to this depression and anxiety.

Health-promoting lifestyle behaviors mean that the individual controls all his/her behaviors (nutrition, sports, exercise, spirituality, coping with stress, etc.) that may affect his/her health and chooses and regulates behaviors appropriate for his/her health status in arranging daily activities[28]. Bulguroğlu et al. on the other hand, found that the level of physical activity in university students was quite low during the pandemic and that students' depression and quality of life levels were adversely affected in this process[29]. In two studies conducted in Türkiye before and during the COVID-19 pandemic, it was determined that the health-promoting lifestyle behaviors of nursing students were at a moderate level[30]. In this study, the mean HPLP-II score of midwifery students was also found to be at a moderate level (129.93±21.50).

It was concluded that lockdowns and social isolation affected the physical activity and mental health of the participants[31]. Likewise, studies were encountered showing that reductions in sleep duration and exercise were associated with higher perceived stress levels. It was observed that the risk of increased perceived stress was higher, especially in females and economically disadvantaged students[32]. In the study conducted in Italy, 34% of university students did not change their smoking habits during the pandemic period, while 48% reported a decrease in physical activity[33]. In the USA, college students reported reductions in exercise (39.1%) and sleep duration (21.2%) after the onset of the pandemic. In this study, students who evaluated their physical health as very good had a higher mean HPLP-II score, and students who felt depressed had a lower mean HPLP-II score. In the study performed by Kilani *et al*., a positive correlation was determined between physical activity and mental health[31]. According to the study results, students' fear can be explained by their HPLP-II score being at a moderate level.

Higher fear of COVID-19 was determined in persons who attached more importance to health-seeking behaviors. It was found that persons with a high perception of health had a lower fear of COVID-19[34]. The study conducted in China found that fear associated with COVID-19 was significantly associated with the prevalence of insomnia, depression, and anxiety symptoms[35]. Among the unhealthy lifestyle changes examined in participants during the pandemic in a study conducted in the United Arab Emirates, the most common changes were dietary changes (31.8%), decreased physical activity (30%), weight gain (29.4%), decreased sleep duration (20.8%), and increased smoking (21%)[36]. In our study, the fear of COVID-19 was perceived more in students who evaluated their physical health as poor, while it was perceived less in students who felt happy.

In the literature, health literacy is important in maintaining health-promoting lifestyle behaviors during COVID-19. In a cross-sectional study, students with high health literacy experienced a lower fear of COVID-19. In the same study, it was determined that students with a high fear of COVID-19 continued to smoke and consume alcohol[37]. Our study found no significant correlation between the total mean scores of the FCV-19S and HPLP-II and its sub-dimensions. According to the results of the study conducted with elderly individuals in the last stages of the COVID-19 epidemic, unlike our study, weak, positive, and statistically significant relationships were identified between the FCV-19 S scores of the participants and their scores in the overall HLSBS-II and its health responsibility, physical activity, nutrition, and interpersonal relationships dimensions[7]. The fact that COVID-19 threatens the entire population, students becoming partially or completely dependent on their families in their daily lives due to quarantine, the precautions taken against the pandemic, and their inability to practice can be considered as factors that play a role in the impact of midwifery students on healthy lifestyle behaviors.

The study had limitations. First, the findings cannot be generalized because the sample consisted of students of midwifery departments. Second, the fear of COVID-19 was assessed based on self-report, which might have led to a biased result. Three; due to the non-experimental nature of the study, no causal inferences were drawn. Four, who could only be online during the time period when the data were collected and with access to the internet, can be considered as a limitation in terms of the representation of the population of the sample. There may be reasons such as biases created by the online data collection process, not answering correctly, or not being able to access data collection tools. And causality cannot be drawn from this study, which used a cross-sectional design. Test–retest reliability could not be assessed because of the nature of the study design.

Future studies should use different methods to assess students' fear of COVID-19 and exclude those with Health-Promoting Lifestyle Profile. This study had two strengths. First, the participation rate was high. Second, the study looked into the effect of fear of COVID-19 on Health-Promoting Lifestyle Profile.

Conclusion

According to the findings from this study, midwifery students had a moderate fear of COVID-19, and their mean score of healthy lifestyle behaviors was also moderate. Most students stated that they felt depressed, anxious, and concerned during this period. Students who evaluated their physical health as very good were found to have a lower fear of COVID-19 and a higher score for healthy lifestyle behaviors. Students who felt happy had a low fear of COVID-19, whereas students who felt depressed had a low score for healthy lifestyle behaviors. In this period, student's physical activity levels were found to be low.

Our study carried out with midwifery students found no significant relationship between fear of COVID-19 and healthy lifestyle behaviors. Identifying the concerns and fears of midwifery students who are healthcare professional candidates, determining changes in healthy lifestyle behaviors, and offering solutions in this regard are vital for maintaining a healthy workforce and quality of patient care during the current COVID-19 pandemic and a possible pandemic they may encounter in the future. Midwifery students can receive training to alleviate their fears and receive consultancy from faculty members. Identifying the concerns and fears of midwifery students who are healthcare professional candidates, determining changes in health-promoting lifestyle behaviors, and offering solutions in this regard are of vital importance for maintaining a healthy workforce and quality of patient care during the current COVID-19 pandemic and a possible pandemic period they may encounter in the future.

Moreover, it is recommended that universities or related units, As future health professionals, who will be the adults of the future study, should provide online counseling services that will increase their health-promoting lifestyle behaviors and psychological well-being in this process. The responsibility of the state, society, educators, healthcare professionals, and families is very high in maintaining healthy generations.

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