Research article

Assessment of Lifestyle Behaviors of Nursing Students During the COVID-19 Pandemic

COVID-19 Pandemisinde Hemşirelik Öğrencilerinin Yaşam Tarzı Davranışlarının Değerlendirilmesi

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Abstract
Aim: The objective of this study is to evaluate the changes in lifestyle-related behaviors of nursing students in the fourteenth and fifteenth months of the COVID-19 pandemic.
Material and Method: This research was conducted in descriptive type. 489 nursing students studying at 25 universities randomly selected, stratified by region and proportionally, participated in the research. Data were collected using the sociodemographic characteristics questionnaire and the Lifestyle Behavior Questionnaire. Data were analyzed using Kolmogorov-Smirnov, Mann-Whitney U, Kruskal Wallis-H, Mann-Whitney U with Bonferroni correction and Pearson chi-square tests.
Results: The results showed that participants adopted healthier diets and struggled with stress and anxiety. Female participants adopted healthier diets, received more social support, and participated in physical activities more often but experienced more anxiety and stress than their male counterparts. Fourth-year students ate less junk food and experienced less anxiety and stress than first- and second-year students. Participants in big cities adopted more unhealthy diets than those in small towns. Participants who had tested positive for COVID adopted healthier diets than those who had not ($p<0.05$).
Conclusion: The results showed that participants had adopted both healthy and unhealthy lifestyle-related behaviors since the pandemic began. Guidelines should be provide on healthy lifestyles in times of crisis, such as pandemics and, also develop strategies and interventions to encourage students to follow those guidelines. Universities should offer training and support to help students cope with stress, stay physically active, and eat healthily.
Keywords: Lifestyle, nursing students, pandemics, Türkiye

Özet
Amaç: Bu çalışmanın amacı, COVID-19 pandemisinin on dördüncü ve on beşinci aylarında hemşirelik öğrencilerinin yaşam tarzına ilişkin davranışlarındaki değişiklikleri değerlendirmektir.
Gereç ve Yöntem: Bu araştırma tanımlayıcı tipte gerçekleştirilmiştir. Araştırmaya, bölgelere göre tabakalı ve orantılı olarak rastgele seçilen 25 üniversitede öğrenim gören 489 hemşirelik öğrencisi katılmıştır. Veriler, sosyodemografik özellikler anketi ve Yaşam Biçimine İlişkin Davranış Anketi kullanılarak toplanmıştır. Veriler Kolmogorov-Smirnov, Mann-Whitney U, Kruskal Wallis-H, Bonferroni düzeltmeli Mann-Whitney U ve Pearson ki-kare testleri kullanılarak analiz edilmiştir.
Bulgular: Sonuçlar, katılımcıların daha sağlıklı beslenmeyi benimsediğini ve stres ve kaygıyla mücadele ettiğini göstermiştir. Kadın katılımcılar, erkek katılımcılara göre daha sağlıklı beslenmişlerdir, daha fazla sosyal destek almışlardır ve fiziksel aktivitelere daha sık katılmışlardır ancak daha fazla kaygı ve stres yaşamışlardır. Dördüncü sınıf öğrencileri, birinci ve ikinci sınıf öğrencilerine göre daha az sağlıksız beslenmişlerdir ve daha az kaygı ve stres yaşamışlardır. Büyük şehirlerdeki katılımcılar küçük kasabalardaki katılımcılara göre daha sağlıksız beslenmişlerdir. COVID-19 geçirenler, geçirmeyenlere göre daha sağlıklı beslenmişlerdir ($p<0,05$).
Sonuç: Sonuçlar, katılımcıların salgının başlangıcından bu yana hem sağlıklı hem de sağlıksız yaşam tarzıyla ilgili davranışları benimsediklerini göstermiştir. Pandemi gibi kriz zamanlarında sağlıklı yaşam tarzlarına ilişkin kılavuzlar oluşturulmalı ve öğrencileri bu yönergelere uymaya teşvik edecek stratejiler ve müdahaleler geliştirilmelidir. Üniversiteler öğrencilerin stresle baş etmelerine, fiziksel olarak aktif kalmalarına ve sağlıklı beslenmelerine yardımcı olacak eğitim ve destek sunmalıdır.
Anahtar Kelimeler: Yaşam tarzı, hemşirelik öğrencileri, pandemik, Türkiye

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1. Introduction

The novel coronavirus disease 2019 (SARS-CoV-2) erupted in Wuhan/China at the end of 2019 and has taken effect the whole world since then. Coronavirus spreads from person to person through droplets (Rothan & Byrareddy, 2020; Zu et al., 2020). In 2020, the coronavirus spread worldwide, resulting in a global pandemic (WHO, 2020). Almost all countries took numerous preventive measures and enforced restrictions (social distancing, quarantine, curfews, school closures, etc.) to prevent the spread of the coronavirus. The pandemic has impacted every aspect of life and changed all our daily routines (Viner et al., 2020).

Lifestyle is defined as all controlled behaviors, including optional ones that affect one's health (Walker, Sechrist & Pender, 1987). A healthy lifestyle is a way of living that preserves and enhances one's health and welfare (Maville & Huerta, 2012). Healthy lifestyle-related behaviors are acquired behaviors that change over time. They help one maintain and enhance one's health, protect oneself from diseases, and realize oneself (Komduur, Korthals & Molder, 2009). A healthy lifestyle is a multidimensional and complex phenomenon affected by sociocultural, demographic, and psychological factors (Ochieng, 2006). A healthy lifestyle includes eating regularly, exercising, getting adequate rest, and managing stress, while an unhealthy lifestyle includes behaviors that threaten life and health, such as a diet rich in saturated fat and cholesterol, insufficient physical activity, tobacco, alcohol, and substance use, and high-speed driving (Pender, 1990). According to Balanzá-Martínez et al. (2020), healthy lifestyle-related behaviors also encompass social support.

Unhealthy lifestyle behaviors and epidemic-induced conditions such as stress, anxiety, and fear are the leading causes of Non-Communicable Diseases (NCDs). They are also important precursors of NCDs, which account for 71% of global deaths (Stanaway et al., 2018). Each year, 15 million people between the ages of 30 and 69 die from NCDs. Globally, NCDs are responsible for more than 80% of premature deaths. To prevent deaths from NCDs, major risk factors (tobacco use, exposure to cigarette smoke, sedentary lifestyle, unbalanced diet, excessive salt and alcohol consumption) should be reduced (WHO, 2021). In Turkey, three in ten people use tobacco (31.5%), whereas only one in five people gets enough exercise (18.7%). Almost nine in ten people denote two or more adverse health effects of any NCDs (87.3%) (SB, 2021). Can and Aktürk (2022) conducted research on college students and reported three findings. First, more than a quarter of college students smoke cigarettes (28%). Second, less than a quarter consume alcohol (14.5%). Third, they scored lowest on the "physical activity" subscale (Can & Aktürk, 2022).

Young people are generally the healthiest segment of the population. They believe that they will always be healthy, so they engage in risky behaviors that affect not only their immediate well-being but also their long-term health. During their college years, they enter a new environment and acquire new habits. Far from their families, university students experience physical and social changes and witness unusual living conditions, resulting in changes in their lifestyles (Lanier, Nicholson & Duncan, 2001). It is no

surprise that people have been more vulnerable to behavioral risk factors since the pandemic because they have endured preventive measures, experienced stress and anxiety, and suffered economic losses and uncertainties. As universities shifted to online learning, many students returned to their hometowns. Therefore, they missed an extended amount of time away from their schools and peers and spent most of their time indoors in front of screens. During this period, they adopted more sedentary lifestyles and engaged in less physical activity. They also experienced stress, anxiety, and sleep problems due to the uncertainty of the pandemic. All these factors have affected lifestyle-related behaviors (Balanzá–Martínez, et al., 2020). Research shows that students have adopted both healthy and unhealthy lifestyle-related behaviors since the onset of the pandemic (Dragun et al., 2021; Romero-Blanco et al., 2020). Human been will likely face more pandemics in the coming decades, but do not known exactly when. For this reason, measures that prioritize youth should be taken to protect and improve public health in times of crisis. To achieve this, it is necessary to determine the lifestyle changes of university students during the pandemic period. Nursing students should be aware of their lifestyle-related behaviors to fulfill their profession's demands effectively and efficiently. Nursing students with healthy lifestyle-related behaviors are more likely to pay attention to their health and be role models for the public.

1.1. Aim of Research

The objective of this study is to evaluate the changes in lifestyle-related behaviors of nursing students in the fourteenth and fifteenth months of the COVID-19 pandemic.

1.2. Research Questions

1- Have there been any changes in the lifestyle behaviors (nutrition, physical activity, sleep, stress management, harmful habits and interpersonal relationships) of nursing students during the COVID-19 pandemic?

2- Is there a relationship between changes in lifestyle behaviors and students' sociodemographic characteristics?

2. Materıals and Methods

2.1. Research Type

The type of this research is descriptive

2.2. Time and setting

This study was conducted between May and June 2021, that is, in the fourteenth and fifteenth months of the pandemic

2.3. Population and Sample of Research

The study population consisted of 62.824 first, second, third and fourth-year nursing students in the 2020-2021 academic year in Turkey (Yüksek Öğretim Bilgi Yönetimi Sistemi, 2021). The sample size

was calculated as 382 by random sampling method with known universe. Nursing students studying at randomly selected universities, stratified by region and proportionally, participated in the research.
With the stratified and proportional selection method according to regions, 100 from the Central Anatolia Region, 140 from the Marmara Region, 65 from the Aegean Region, 45 from the Mediterranean Region, 60 from the Black Sea Region, 44 from the Eastern Anatolia Region and 44 from the Southeastern Anatolia Region. It was calculated that 35 students should be reached. By proportional and random selection method; 5 universities from the Central Anatolia Region, 14 universities from the Marmara Region, one university from the Aegean Region, one university from the Mediterranean Region, two universities from the Black Sea Region, one university from the Eastern Anatolia Region and one university from the Southeastern Anatolia Region the university has been selected. Taking into account possible data loss, 489 people from 25 universities were reached.
Criteria for inclusion in the research are being a nursing student at the university where the research is conducted and agreeing to participate in the research.

2.4. Data Collection Tools

The data were collected using a sociodemographic characteristics questionnaire and the Lifestyle-related Behavior Questionnaire.

2.4.1. Sociodemographic Characteristics Questionnaire

The socio-demographic characteristics questionnaire was based on a literature review conducted by the researchers (Dragun et al., 2021; Romero-Blanco et al., 2020). The questionnaire comprised 11 items on age, gender, grade level, and place of residence during the pandemic, etc.

2.4.2. Lifestyle-Related Behavior Questionnaire (LRBQ)

The Lifestyle-Related Behavior Questionnaire (LRBQ) was developed by Kumari et al. (2020) to assess whether there has been a change in people's lifestyle-related behaviors before and during the pandemic. The instrument was adapted into Turkish by Hepokur and Kitiş (2021). The Turkish version has six more items than the original questionnaire. The scale consists of 6 sub-dimensions and 18 items. The unhealthy nutrition sub-dimension consists of 4 items, the healthy nutrition sub-dimension consists of 4 items, the social support sub-dimension consists of 3 items, the anxiety and stress sub-dimension consists of 3 items, the harmful habits sub-dimension consists of 2 items, and the physical activity sub-dimension consists of 2 items. The “healthy eating,” “physical activity,” and “social support” subscales are rated on a five-point Likert-type scale (+2=significantly increased; +1=slightly increased; 0=grossly similar; -1=slightly decreased; -2=significantly decreased). The “unhealthy eating,” “anxiety and stress,” and “bad habits” subscales are reverse scored (+2=significantly decreased; +1=slightly decreased; 0=grossly similar; -1=slightly increased; -2=significantly increased). The total score ranges

from -36 to +36, with higher scores indicating healthier lifestyle-related behaviors (Hepokur & Kitiş, 2021). The original scale has a Cronbach's Alpha of 0.72, which was the same in this study.

2.5. Collection of Data

The data was collected online via Google Forms from students studying at 25 state or foundation Students were included in the study through the survey link sent to the universities included in the study with an official letter by the Health Sciences Institute. Students were not randomly selected. When a targeted number of students filled out the questionnaire the survey was automatically closed.. Participation in the survey was closed when the number of students determined on a university basis was completed.

2.6. Ethical Considerations

Before starting the implementation of the research, ethics commission approval was received from Gazi University Ethics Commission with the decision dated 20.04.2021 and numbered E-77082166-302.08.01-83732. Institution permission was obtained from 25 universities determined to conduct the research. There was no university that refused to participate in the research. The informed consent form was added to the first page of the online survey and confirmation of participation was obtained online.

2.7. Data Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, IBM, v. 20). BMI values were calculated on a computer according to the formula "body weight (kg)/height (m2)". The obtained values are categorized according to the WHO classification (WHO, 2021). Frequency and percentage were used for descriptive data. The Kolmogorov-Smirnov test was used for normality testing. The results showed that the data were nonnormally distributed. The Mann-Whitney U test was used to compare two independent groups, while the Kruskal Wallis-H was used to compare more than two independent groups. The Mann-Whitney U test with Bonferroni correction was used to determine the source of significant differences. Pearson's Chi-square test was used to determine the relationship between categorical variables.

3. Results

Most participants were women (81.4%). More than a quarter of the participants were first-year students (38.2%). Less than half the participants lived in big cities (41.7%). Most participants had no chronic diseases (93%). Less than a quarter of the participants had tested positive for COVID-19 before (19.8%). More than half of the participants had a normal Body Mass Index (BMI) (67.1%). More than half the participants had a normal BMI (64.8%) and engaged in physical activity (54.6%) before the pandemic. Most participants did not use tobacco (88.1%) or alcohol (86.9%) before the pandemic (Table 1).

Table 1. Sociodemographic characteristics and pre-pandemic BMI values and habits (n=489)

Sociodemographic Characteristics and Variables		
Age (years (X̄±SD)	20.84±1.89 (Min:18, Max:32)	
	No (n)	%
Gender		
Man	91	18.6
Woman	398	81.4
Grade Level (year)		
1	187	38.2
2	105	21.5
3	87	17.8
4	110	22.5
Place of Residence		
Big city	204	41.7
City	87	17.8
District	134	27.4
Town/village	64	13.1
Chronic Diseases		
Yes	34	7.0
No	455	93.0
Having tested positive for COVID-19		
Yes	97	19.8
No	392	80.2
BMI		
<18.5	65	13.3
18.5-24.9	328	67.1
25-29.9	79	16.2
≥30	17	3.4
BMI before the pandemic		
<18.5	70	14.3
18.5-24.9	317	64.8
25-29.9	79	16.2
≥30	23	4.7
Tobacco use before the pandemic		
Yes	58	11.9
No	431	88.1
Alcohol consumption before the pandemic		
Never	425	86.9
Rarely	36	7.4
Sometimes	22	4.5
Often	6	1.2

X̄: Mean, SD: Standard Deviation, Min: Minimum, Max: Maximum

Participants had a mean total LRBQ score of -1.59±6.98 (Table 2).

Table 2. LRBQ total and subscale scores (n=489)

LRBQ		**X̄±SD**	**Min-Max**
Total Score		-1.59±6.98	-20, +20
Healthy lifestyle-related behaviors	Physical activity	0.83±1.64	-4, +4
	Healthy eating	1.97±2.33	-8, +8
	Social support	-0.09±2.11	-6, +6
Unhealthy lifestyle-related behaviors	Anxiety and stress	-3.53±1.73	-6, +3
	Bad habits	0.09±1.03	-4, +4
	Unhealthy eating	-0.85±3.61	-8, +8

X̄: Mean, SD: Standard Deviation, Min: Minimum, Max: Maximum

Participants stated that they were more interested in healthy diets. They noted that they consumed more fruits, vegetables, and supplements (Vitamins C and D, zinc, etc.). However, they added that they consumed more junk food (fast food, fried food, sugar-sweetened beverages, dessert, candy, chocolate, etc.). They were more involved in leisure-time activities and household chores. On the other hand, they noted that they were more sedentary, spent much more time in front of screens, and consumed more caffeinated drinks (tea, coffee, etc.). They also added that they experienced more stress (Table 3).

Table 3. Changes in behavior (n=489)

During the COVID pandemic	Decreased Number (%)	Similar Number (%)	Increased Number (%)
How has your daily intake of fruits and vegetables changed?	64 (13.1)	230 (47.0)	195 (39.9)
How has your consumption of junk food/fast food and fried food changed?	157 (32.2)	132 (27.0)	200 (40.8)
How has your intake of sugar-sweetened beverages (carbonated soft drinks, sugar-sweetened juices) changed?	134 (27.4)	187 (38.2)	168 (34.4)
How has your consumption of sweets/candies/chocolate changed?	92 (18.8)	178 (36.4)	219 (44.8)
How has your consumption of unhealthy food when you are bored or stressed or upset changed?	72 (14.8)	180 (36.8)	237 (48.4)
How has your intake of immunity-boosting foods (lemon, turmeric, garlic, citrus fruits, and green leafy vegetables) in the diet changed?	26 (5.3)	212 (43.4)	251 (51.3)
How has your intake of nutrition supplements to boost immunity changed?	25 (5.1)	282 (57.6)	182 (37.3)
How has your interest in learning healthy eating tips from the media (newspaper articles/magazines, blogs/videos/TV shows/text messages) changed?	18 (3.6)	191 (39.1)	280 (57.3)
How has your participation in aerobic exercise changed?	133 (27.2)	244 (49.9)	112 (22.9)
How has your participation in leisure and household chores changed?	49 (10.0)	82 (16.8)	358 (73.2)
How has your sitting and screen time changed?	7 (1.4)	54 (11.0)	428 (87.6)
How have your stress and anxiety levels changed?	13 (2.6)	67 (13.7)	409 (83.7)
How has your tobacco use changed?	30 (6.1)	413 (84.5)	46 (9.4)
How has your alcohol consumption changed?	44 (9.0)	425 (86.9)	20 (4.1)
How much has the frequency of consuming caffeinated beverages (tea and coffee) changed?	24 (4.9)	153 (31.3)	312 (63.8)
How has support from friends changed?	157 (32.1)	226 (46.2)	106 (21.7)
How has support from family changed?	48 (9.8)	283 (57.9)	158 (32.3)
How has support from relatives changed?	105 (21.5)	333 (68.1)	51 (10.4)
How have your hours of sleep changed?	81 (16.6)	150 (30.7)	258 (52.8)

Female participants were more interested in healthy eating tips, received more social support, and engaged more in physical activities than their male counterparts. However, female participants experienced more anxiety and stress than male participants. Fourth-year students ate less unhealthy foods and experienced less anxiety and stress than first- and second-year students. Participants in big cities consumed more unhealthy foods than those in small towns. Participants who had tested positive for COVID consumed more healthy foods than those who had not ($p<0.05$) (Table 4).

Table 4. The effect of variables on LRBQ scores (n=489)

	Unhealthy Eating	Healthy Eating	Social Support	Anxiety and Stress	Bad Habits	Physical Activity	Total
Variable and Category				**Median (Min-Max)**			
Gender							
Man	-1 (-8, +8)	1 (-8, +6)	0 (-6, +6)	-3 (-6, +3)	0 (-3, +4)	0 (-4, +4)	-3 (-20, +19)
Woman	-1 (-8, +8)	2 (-7, +8)	0.5 (-6, +6)	-4 (-6, +2)	0 (-4, +4)	1 (-4, +4)	-1 (-19, +20)
p[1]	0.354	**<0.001***	**0.002***	**0.015***	0.056	**0.002***	**0.001***
Grade Level							
1	-1 (-8, +8)[b]	2 (-8, +8)	0 (-6, +6)	-4 (-6, +3)[c]	0 (-4, +4)	1 (-4, +4)	-3 (-20, +12)[e]
2	-1 (-8, +8)[b]	1 (-6, +8)	0 (-6, +6)	-4 (-6, +1)[c]	0 (-2, +4)	1 (-4, +4)	-1 (-19, +17)[e]
3	-1 (-8, +8)[ab]	2 (-7, +7)	0 (-6, +5)	-3 (-6, +2)[cd]	0 (-4, +4)	1 (-4, +4)	-1 (-18, +20)[ef]
4	0 (-8, +8)[a]	2 (-3, +8)	0 (-6, +6)	-3 (-6, +2)[d]	0 (-3, +4)	1 (-4, +4)	1 (-19, +29)[f]
P[2]	**0.001***	0.112	0.319	**0.005***	0.525	0.327	**<0.001***
Place of Residence							
Big city	-1.5 (-8, +8)[b]	2 (-6, +8)	0 (-6, +6)	-4 (-6, +1)	0 (-4, +4)	1 (-4, +4)	-2 (-20, +19)
City	-1 (-8, +8)[ab]	2 (-5, +8)	0 (-6, +6)	-3 (-6, +3)	0 (-4, +4)	1 (-4, +4)	-1 (-19, +16)
District	0 (-8, +8)[a]	1.5 (-3, +7)	0 (-6, +6)	-4 (-6, +2)	0 (-2, +4)	1 (-4, +4)	-1 (-18, +20)
Town/Village	0 (-8, +8)[a]	2 (-8, +8)	0 (-6, +6)	-4 (-6, +2)	0 (-2, +4)	1 (-4, +4)	-1.5 (-18, +12)
P[2]	**<0.001***	0.411	0.393	0.053	0.704	0.374	0.477

Having Tested Positive for COVID-19							
Yes	0 (-8, +8)	3 (-6, +6)	0 (-6, +6)	-4 (-6, +2)	0 (-2, +4)	1 (-4, +4)	0 (-20, +19)
No	-1 (-8, +8)	2 (-8, +8)	0 (-6, +6)	-4 (-6, +3)	0 (-4, +4)	1 (-4, +4)	-1 (-19, +20)
p[1]	0.529	**0.020***	0.057	0.609	0.272	0.900	0.076

[1] Mann Whitney-U test, [2] Kruskal Wallis-H test, * p<0.05, Min: Minimum, Max: Maximum
a-f: There is no difference between groups with the same letter for the measurement value in each column.

Participants who did regular exercise before the pandemic stated that they had done less regular exercise since the pandemic. Participants who smoked before the pandemic noted that they had smoked more since the pandemic. Participants who consumed alcohol before the pandemic remarked that they had consumed more alcohol since the pandemic ($p<0.05$) (Table 5).

Table 5. Physical activity and tobacco and alcohol use before and during the pandemic

	During the Pandemic					
Before the Pandemic	**Decreased Number (%)**	**Similar Number (%)**	**Increased Number (%)**	**Total Number (%)**	**Chi-square**	**p[1]**
Physical activity (n=489)						
Yes	108 (40.4)	109 (40.8)	50 (18.8)	267 (54.6)	54.278	**<0.001****
No	25 (11.3)	135 (60.8)	62 (27.9)	222 (45.4)		
Tobacco Use (n=459)						
Yes		15 (34.9)	28 (65.1)	43 (9.4)	160.338	**<0.001****
No		398 (95.7)	18 (4.3)*	416 (90.6)		
Alcohol Consumption (n=445)						
Yes		27 (73.0)	10 (27.0)	37 (8.3)	51.833	**<0.001****
No		398 (97.5)	10 (2.5)*	408 (91.7)		

[1] Pearson Chi-Square Test, ** $p<0.05$, * Those who started using tobacco and alcohol

4. Discussion

The COVID-19 pandemic has affected every segment of society. It has led to dramatic changes in university students' lifestyles. This study investigated the impact of the pandemic on the lifestyle-related behaviors of nursing students. The results showed that participants had adopted both healthy and unhealthy lifestyle-related behaviors since the pandemic began. This section discussed the results.

4.1. Changes in Healthy Lifestyle-Related Behaviors

4.1.1. Physical Activity

Participants had a relatively high mean LRBQ "physical activity" subscale score (Table 2). Most participants reported that they had been more involved in physical activity since the pandemic (Table 2). Female participants reported more physical activity than their male counterparts (Table 4). The LRBQ "physical activity" subscale also focuses on house chores. Therefore, female participants engaged in more physical activity for two reasons. First, they had been doing more house chores since the pandemic. Second, they were more interested in home exercises, such as Pilates and Yoga. Romero-Blanco et al. (2020) found that female college students had been physically more active than their male counterparts since the pandemic.

4.1.2. Healthy Eating

Participants had a high mean LRBQ “healthy eating" subscale score, indicating that they had been consuming healthier foods since the pandemic (Table 2). More than half of the participants stated that they had been more interested in healthy and immunity-boosting foods (Table 3), which is consistent with the literature (Dragun et al., 2021; Ünal, Özdemir & Yüksel Kaçan, 2020). Research shows that women have better dietary habits than men (Alzahrani et al., 2019; Bakouei, Jalil Seyedi-Andi, Bakhtiari & Khafri, 2018; Bülbül et al., 2020). Our female participants also had more healthy dietary habits than their male counterparts. Participants who had tested positive for COVID also had more healthy dietary habits than those who had not (Table 4). Infections are related to immunity, especially nutrition. Therefore, having tested positive for COVID probably made our participants more conscious of healthy eating habits. As stated by the Health Belief Model, behavior is associated with increased risk perception (Green, Murphy & Gryboski, 2020).

4.1.3. Social Support

Participants had a low mean LRBQ “social support” subscale score, indicating that they have received less social support since the pandemic (Table 2). Participants who reported reduced social support stated that they received less support from friends and relatives (Table 3). School closures and online learning have caused students to stay away from their peers. Moreover, preventive measures have prevented them from getting together with their relatives. However, female participants noted that they had received more social support since the pandemic. Research shows that women have better interpersonal skills than men (Alzahrani et al., 2019; Bakouei, Jalil Seyedi-Andi, Bakhtiari & Khafri, 2018). Our result may be related to this. It shows that men should be supported more.

4.2. Changes in Unhealthy Lifestyle-Related Behaviors

4.2.1. Anxiety and Stress

Participants had a very low LRBQ “anxiety and stress" subscale score, indicating that they have experienced higher anxiety and stress levels since the pandemic (Table 2). Many factors may have affected our participants’ anxiety and stress levels. First, they underwent dramatic changes in their daily routines. Second, they had to use technological tools they had never used before for online education. Third, they were worried about their futures because of the uncertainties of the pandemic. Fourth, they faced financial problems. Fifth, they were afraid of getting infected with the virus. Sixth, they were concerned about stepping into professional life without adequate training. A similar research also shows that university students have been experiencing more stress since the pandemic (Dragun et al., 2021). Our female participants reported more anxiety and stress than their male counterparts. Some studies before the pandemic found that men were better at coping with stress than women (Bakouei, Jalil Seyedi-Andi, Bakhtiari & Khafri, 2018; Bülbül et al., 2020). Kalkan Uğurlu et al. (2021) determined that male

nursing students had lower stress levels than their female counterparts. Our results also showed that first- and second-year students had higher levels of anxiety and stress than fourth-year students during the pandemic. This is probably because first- and second-year students are at the beginning of a new educational cycle. Therefore, they face more uncertainties and have a lower sense of belonging.

4.2.2. Bad Habits

Participants had a relatively high mean LRBQ "bad habits" subscale score, indicating that they have kept themselves away from bad habits since the pandemic (Table 2). Forty-six participants reported increased levels of tobacco use, whereas thirty participants reported decreased levels of tobacco use. Twenty participants reported increased levels of alcohol consumption, whereas forty-four participants reported decreased levels of alcohol consumption (Table 3). Studies have reported increased levels of tobacco and alcohol use since the pandemic (Kolokotroni et al., 2021; Malta et al., 2020; Radwan et al., 2021). Actually, only one in ten participants used tobacco (11.9%) and alcohol (13.1%) (Table 1). According to the Turkish Statistical Institute (2021), one in four people is a smoker in Turkey (23.8%). Turkish people consume less alcohol than the European average (WHO, 2021). People consumed less alcohol during the pandemic because they could not socialize with friends and could not find any open stores to buy alcohol. On the other hand, people smoked more during the pandemic because they had difficulty coping with stress.

4.2.3. Unhealthy Eating

Participants had a low LRBQ "unhealthy eating" subscale score, suggesting that they have adopted unhealthy dietary habits since the pandemic (Table 2). They stated that they consumed more dessert/candy/chocolate during the pandemic (Table 3). Dragun et al. (2021) found that medical students consumed more snacks and desserts during the pandemic. Our participants consumed more junk food because they were bored, upset, and stressed (Table 3). People consume more junk foods and sugary or acidic drinks when they are unhappy, nervous, and stressed. The type of food and the amount of energy taken in can change one's health and mental state (Schwartz et al., 2004). The results also showed that grade level and place of residence affected our participants' unhealthy eating behaviors. First- and second-year students exhibited more unhealthy eating behaviors than fourth-year students. Fourth-year students exhibit healthier lifestyle-related behaviors probably because they know more about health protection and treatments (Bülbül et al., 2020). This study was conducted during the fourteenth and fifteenth months of the pandemic. First- and second-year students received very little to no face-to-face education during this period. Therefore, they probably have never had the opportunity to adopt healthy lifestyle-related behaviors, which begs further research. Participants in big cities also exhibited more unhealthy eating behaviors than those in small towns (Table 4). People living in big cities are probably more likely to adopt unhealthy eating behaviors because it is easier for them to access fast food.

4.2.4. Physical Activity, Tobacco and Alcohol Use Before and During the Pandemic

More than half of the participants were physically active before the pandemic (54.6%) (Table 1). Physical activity is generally low among adults in Turkey (SB, 2021). Research shows that half of university students do not do regular physical exercise, including healthcare students (Oğuz, Çamcı & Yılmaz, 2018). More than half of the healthcare students do not do regular physical exercise (Özden & Parlar Kılıç, 2021). Özden and Parlar Kılıç (2021) determined that more than half of the nursing students were not physically active during the pandemic (56.7%). Our participants who reported regular physical exercise before the pandemic stated that they were less physically active during the pandemic (Table 5). This is probably because they could not be as physically active at home as they did outdoors before the pandemic. On the other hand, participants who did not do regular physical exercise before the pandemic noted that they were more physically active during the pandemic (Table 5). This is probably because they were more motivated to spend more time doing physical exercise at home during the pandemic.

Most participants did not smoke before the pandemic (88.1%) (Table 1). Research shows that the majority of the healthcare students were non-smokers (84.5%) (22,24). Romero-Blanco et al. (2020) found that nine in ten health science students (n=213) were non-smokers (90.1%). More than half of our participants who smoked before the pandemic stated that they smoked more during the pandemic (65.1%). On the other hand, only eighteen participants who did not smoke before the pandemic noted that they started smoking during the pandemic (4.3%) (Table 5). There was a significant difference in tobacco use between the two groups.

The majority of our participants remarked that they did not consume alcohol during the pandemic (86.9%) (Table 1). On the other hand, Romero-Blanco et al. (2020) reported that one in five college students did not consume alcohol (18.3%). More than a quarter of our participants who reported alcohol consumption before the pandemic stated that they consumed more alcohol during the pandemic (27%). Ten participants who did not consume alcohol before the pandemic started consuming alcohol during the pandemic (Table 5). There was a significant difference in alcohol consumption between the two groups.

Tobacco and alcohol use is an ineffective coping strategy. Research also shows that people from different age groups have used more tobacco and alcohol since the pandemic (Kolokotroni et al., 2021; Radwan et al., 2021). In Turkey, smoking is considered more acceptable than consuming alcohol. Turkish people consume less alcohol than the European average (WHO, 2021). Only six participants stated they consumed alcohol frequently (1.2%) (Table 1). The other participants who reported alcohol consumption were social drinkers. Alcohol consumption did not increase because the participants could not meet with their friends and go to bars or clubs as they were all closed down during the pandemic.

4.3. Limitations of Research

The sample consisted of nursing students from 25 universities in different regions of Turkey. However, this study had three limitations. First of all, although random, proportional and stratified sampling was used, participants could not be selected proportionally according to gender and grade level. Second, the data were based on self-reports. Third, due to the pandemic, data were collected online.

5. Conclusıon and Suggestions

The COVID-19 pandemic has affected nursing students' healthy lifestyle-related behaviors. The pandemic has encouraged nursing students to eat more healthy foods. However, they have had difficulty coping with anxiety and stress since the pandemic. Female participants have adopted healthier diets, received more social support, and participated in physical activities more often but experienced more anxiety and stress than their male counterparts. Fourth-year students have consumed less unhealthy foods and experienced less anxiety and stress than first- and second-year students. Participants in big cities have consumed more unhealthy foods than those in small towns. Participants who had tested positive for COVID before consumed more healthy foods than those who had not ($p<0.05$). Participants who did regular exercise before the pandemic have engaged in less regular exercise since the pandemic. Participants who smoked before the pandemic have smoked more since the pandemic. Participants who consumed alcohol before the pandemic have consumed more alcohol since the pandemic ($p<0.05$).
It is not known when the epidemic will end. Therefore, universities should provide students with training in how to cope with stress, stay physically active, and maintain healthy diets. They should encourage students to participate in group activities where they can support each other. They should set up online clubs where students can develop a strong sense of belonging and receive peer support. They should introduce mentorship by which older students can guide younger students. Curricula should address healthy lifestyle-related behaviors, such as physical activity, healthy eating, stress management, and healthy habits. Authorities should develop special interventions to promote healthy lifestyle-related behaviors among young people.

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Conflict of Interest
No conflict of interest has been declared by the authors.

Ethical Statement
Before starting the study, permission was obtained from Gazi University Ethics Committee at its meeting dated 20.04.2021 and numbered E-77082166-302.08.01-83732. Since the Turkish validity-reliability of the scale used in the research was made by Hepokur and Kitiş (2021), there is no need for permission to use the scale (Link: https://a67936ff-16a7-4cf0-8088-1a0014e72ef7.filesusr.com/ugd/b713f8_ef5fdc529744459cbefc7aafa2a1f1f1, pages: 120-133)

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Concept and design of the study: *ŞNH, YK;* ***Data collection:*** *ŞNH;* ***Data analysis and interpretation:*** *ŞNH;* ***Writing:*** *ŞNH, YK;* ***Critical revision:*** *YK*

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