



Examining the relationship between COVID-19 phobia and health-promoting and protective behaviors during the pandemic

 Cemile Kütmeç Yılmaz^{*1},  Fahriye Şeyma Kara²

¹Department of Internal Diseases Nursing, Faculty of Health Sciences, Aksaray University, Aksaray, Türkiye

²Department of Nursing, Kırıkkale University Faculty of Medicine Hospital, Kırıkkale, Türkiye

Cite this article as: Kütmeç Yılmaz C., & Kara F.Ş. (2026). Examining the relationship between COVID-19 phobia and health-promoting and protective behaviors during the pandemic. *J Nurs Care Res*, 3(1), 15-22.

Received: 17.08.2025

Accepted: 15.11.2025

Published: 29.01.2026

ABSTRACT

Aims: The study aimed at analyzing the relationship between COVID-19 phobia and health promoting and protective behaviors during the pandemic.

Methods: This was a web-based cross-sectional survey. A total of 800 individuals responded to the survey between September 2020 and March 2021. Data was collected using Personal Information Form, COVID-19 Phobia Scale, and the Promotive and Protective Health Behaviors Scale.

Results: In this study, 66.1% of the participants were aged between 18 and 24, 78.9% were female, 77.5% were single, and 49.1% had a bachelor's degree. The participants' mean COVID-19 Phobia Scale score was 52.57 ± 14.54 , and the mean Promotive and Protective Health Behaviors Scale score was 65.95 ± 6.65 . There was no statistically significant relationship between this two scales scores ($p > 0.05$). It was determined that the mean score of the Promoting and Protective Health Behaviors Scale was low during the pandemic period.

Conclusion: We recommend that nurses playing a role in primary health care services continue to provide education and counseling for the importance and maintenance of healthy lifestyles after the COVID-19 outbreak.

Keywords: COVID-19, phobia, health promotion, health behavior.

INTRODUCTION

The COVID-19 outbreak quickly spread around the world, and the World Health Organization (WHO) proclaimed it a global pandemic (Değirmenci, 2020). In Turkey, the first COVID-19 case was reported on March 10, 2020, and the first death due to COVID-19 was reported on March 15, 2020 (Budak & Korkmaz, 2020). COVID-19 is transmitted through contact with droplets spread by the coughing and sneezing of infected people, which then reach the mucous membranes. Transmission is mostly through infected persons, and asymptomatic cases play an important role in the spread of the disease. It can be asymptomatic or mild in many people and can be severe and fatal in some, leading to pneumonia, acute respiratory failure, and death (Uğraş Dikmen et al., 2020).

The COVID-19 pandemic is one of the major global pandemics. It has serious negative physiological, social, psychological, and economic effects worldwide. Studies reported that people experienced psychological problems in particular due to many factors such as the rapid transmission and spread of COVID-19, high mortality rates, insufficient data on its treatment in the early period of the pandemic, and the emergence of different mutants of the virus (Değer, 2022; Duan & Zhu, 2020; Kaçer et al., 2022; Şavkın et al., 2022).

Moreover, studies reported that people experienced intense fear of being infected with COVID-19 and started to develop phobic reactions due to the multiple problems experienced in the pandemic (Sun et al., 2021; Şavkın et al., 2022). Thus, the concept of COVID-19 phobia emerged in the pandemic. Phobia is defined as an excessive and persistent fear of any situation or object; in this sense, COVID-19 phobia is the emotional response to COVID-19-related risks. People may experience despair, anxiety, fear, phobia, panic, irritability, anger, distress, frustration, guilt, and loneliness as a result of restrictive situations caused by the pandemic (Ammar et al., 2020; Değirmenci, 2020; Eime et al., 2022). Several studies indicated that individuals have a high rate of fear of catching COVID-19, and they also worry that their families and friends will catch the virus and spread it to them (Doğan & Düznel, 2020; Mertens et al., 2020). Individuals' lifestyle behaviors and habits may change due to these intense reactions, emotions, and lockdown measures.

The WHO defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Therefore, each individual should be assessed holistically from a biopsychosocial perspective.

*Corresponding Author: Cemile Kütmeç Yılmaz, cemilekutmec@aksaray.edu.tr



Health promotion and protection, which emphasize the holistic understanding of health, come into play at this stage. Health promotion strengthens individuals' awareness, shapes their attitudes, and establishes their alternatives. On the other hand, health protection entails improving the biological, physical, and social environments. Health-promoting and protective behaviors include concepts such as adequate nutrition, physical activity, regular sleep, stress management, regular health check-ups, and interpersonal relationships (Bostan et al., 2016). Maintaining health-promoting and protective behaviors is crucial for protecting public health, and especially for the prevention of chronic diseases (Lee et al., 2020). Studies reported that the pandemic process had a negative impact on individuals' eating habits and sleep patterns, and that the quarantine periods led to a significant decrease in physical activity levels and an increase in anxiety and stress levels (Dilber & Dilber, 2020; Matsungo & Chopera, 2020; Yang et al., 2022). A study reported that fear of COVID-19 positively affects health-promoting behaviors (İnci & Çelik, 2022). Similarly, it was found that health-protective and health-promoting behaviors were higher in students with low health anxiety (Yıldız et al., 2022). In this regard, assessing individuals' ability to perform health-promoting and protective behaviors during the pandemic period is important in terms of maintaining public health. The literature contained a limited number of studies on this subject (Ersin et al., 2021). Therefore, this study aimed to examine the relationship between COVID-19 phobia and health-promoting and protective behaviors during the pandemic.

METHODS

Ethics

The study was conducted with the permission of the Aksaray University Human Researches Ethics Committee (Date: 31.08.2020, Decision No: 2020/01/34). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki. It was obtained from the COVID-19 Scientific Research Studies Commission on the Turkish Ministry of Health website. In addition, permission was obtained from the authors of the scales used in the study. All participants were informed about the content of the study. The informed consent form was added to the first section of the online survey, and thus the participants declared that they voluntarily participated in the study. In addition, participants answered the following questions.

Aim and Type of Study

This web-based descriptive cross-sectional survey was conducted to examine the relationship between COVID-19 phobia and health-promoting and protective behaviors during the pandemic between September 2020 and March 2021.

Study Design and Sampling

The study population consisted of individuals over 18 years old in Turkey without any provincial restrictions. The study sample consisted of 800 adults who were accessible online who could fill out the online data collection forms, who met the study inclusion criteria, and who consented to participate in the study. The inclusion criteria were: being over 18 years old, being literate, having physical and cognitive health

suitable for filling out the online data forms, and consenting to participate in the study.

Sample Size

The study sample size was calculated using GPower V3.1.9.7, using a correlation approach. Accordingly, if the two scales had a low Cohen's effect size correlation ($\rho=0.10$), the minimum sample size required for a power of 0.85 ($1-\beta$ error probability) and a type I error of 0.05 (α error probability) was calculated as 714 individuals. The study was conducted with 800 participants to reveal the relationship between the scales and to take into account possible losses in the data collected online.

Data Collection

The study data were collected by delivering the online questionnaire form created on Google Forms to individuals through social media groups (WhatsApp groups and Facebook accounts) due to the social distancing rule and physical restrictions during the pandemic process. When participants clicked the link to the questionnaire, they first saw the information about the study, and then the question asking whether they consented to participate in the study. The participants were able to access the questions in the questionnaire after giving their consent.

Data Collection Instruments

We collected the study data by using a "Personal Information Form," which contained questions about the socio-demographic characteristics of participants, the "COVID-19 Phobia Scale (C19P-S)," and the "Promotive and Protective Health Behaviors Scale (PPHBS)."

Personal Information Form: A Personal Information Form was created by the researchers based on the literature (Faasse & Newby, 2020; Matsungo & Chopera, 2020). It consisted of questions about participants' age, gender, marital status, educational status, perception of income level, employment status during the pandemic, presence of chronic diseases, COVID-19 infection status, and the measures taken during the pandemic.

COVID-19 Phobia Scale (C19P-S): This scale was developed by Arpacı et al. (2020) to assess phobia against COVID-19. Its validity and reliability study was conducted by the same authors. It is a 5-point Likert-type self-report instrument. It measures psychological, psychosomatic, social, and economic sub-factors. The sum of the factor scores gives us the C19P-S score, which ranges between 20 and 100. Higher scores indicate increased coronavirus-related phobia (Arpacı et al., 2020). The Cronbach alpha value was reported as 0.92; in our study, it was 0.93.

Promotive and Protective Health Behaviors Scale (PPHBS): The PPHBS was developed by Bostan et al. (2016). Its validity and reliability study was conducted by the same authors (Bostan et al., 2016). It was developed based on the theoretical infrastructure of four trans-theoretical models. It consists of 24 items in three sub-dimensions (Physical, psychosocial and protection). It is designed as a five-point Likert scale scored as "never 1," "very rarely 2," "sometimes 3," "mostly 4," and "always 5". A minimum of 24 and a maximum of 120 points can be obtained from the scale. A low score indicates

protective behaviors (such as exercising regularly, meeting physiological needs such as eating and drinking, making time for himself and his environment) (Bostan et al., 2016). The Cronbach alpha value of the scale was 0.83 in the scale development study; it was 0.72 in our study.

Statistical Analysis

IBM SPSS Statistics V21 package program was used for data analysis. The Kolmogorov Smirnov (K-S) test was used to test the normality assumption of the sample distribution; it showed that the sample was not normally distributed. Descriptive variables were summarized using number, frequency, and percentage, and ordinal data were summarized using the mean and standard deviation. For the data not suitable for normal distribution, Mann Whitney U and Kruskal Wallis tests were used according to the groups in the variables. The Spearman correlation test was used to determine the relationship between the two scales. In the study, $p < 0.05$ level was considered statistically significant.

RESULTS

In this study, 66.1% of the participants were aged between 18 and 24, 78.9% were female, 77.5% were single, and 49.1% had a bachelor’s degree. 67.1% reported not working during the pandemic, 43.5% had an income less than expenses, 82.5% were non-smokers, and 11% had at least one chronic disease. We found that 12.6% took at least one medication regularly; 4.8% had caught COVID-19; 19.1% had a history of contact with a COVID-19 patient; 23.3% had spent 14 days in quarantine due to COVID-19; and 66.1% had a family member diagnosed with COVID-19. For the main measures taken to protect themselves from COVID-19, they checked: “I go out wearing a mask and keep a distance of 1.5 meters when it is necessary” and “I go out wearing a mask and keep a distance of 1.5 meters when I want to.” Participants also stated that their levels of fear (53.1%), stress (58.8%), and anxiety (61.8%) increased during the pandemic (Table 1).

The participants’ mean C19P-S score was 52.57 ± 14.54 and their mean PPHBS score was 65.95 ± 6.65 (Table 2). We compared the participants’ descriptive characteristics and the mean C19P-S score. We found that mean C19P-S scores were higher for the following groups: females; those whose income was less than their expenses; those who had chronic diseases and took medication regularly; those with high levels of stress, fear, and anxiety; and those who took measures to protect themselves from COVID-19 in the pandemic. The difference was statistically significant ($p < 0.05$) (Table 3).

We compared the participants’ descriptive characteristics and the mean PPHBS score and found that the difference in the mean PPHBS score was statistically significant according to the variables of age, gender, marital status, level of fear and anxiety about COVID-19, and taking measures to protect against COVID-19.

In this study, the correlation analysis examining the relationship between the participants’ COVID-19 phobia and health-promoting and protective behaviors showed that there was no statistically significant relationship between COVID-19 phobia and mean the PPHBS score ($p > 0.05$) (Table 4).

Table 1. Characteristics of the participants (n=800)

Variables	n	%
Age (years)		
19-24	529	66.1
25-34	149	18.6
35-44	78	9.8
45 and above	44	(5.6)
Gender		
Female	631	78.9
Male	169	21.1
Marital status		
Married	180	22.5
Single	620	77.5
Education level		
Primary school	37	4.6
High school	231	28.9
University	459	57.4
Master's/PhD graduate	73	9.1
Income level		
Income>expense	143	17.9
Income<expense	348	43.5
Income=expense	309	38.6
Use of drugs		
Yes	101	12.6
No	699	87.4
Presence of chronic disease		
Yes	88	11.0
No	712	(89.0)
Diagnosis of COVID-19		
Yes	38	4.8
No	762	95.3
Measures taken during the pandemic		
I'm definitely not leaving the house	34	4.3
In mandatory situations, I gout by following the mask and 1.5meters distance rule.	509	63.6
I go out whenever I want by following the mask and 1.5meters distance rule.	254	31.8
I gout like before without taking any precautions.	3	0.4
Total	800	100

Table 2. Total mean scores of Promotive and Protective Health Behaviors Scale and COVID-19 Phobia Scale

Scales	Mean±SD	Min.-max.
Total PPHBS score	65.95±6.65	35-84
Physical sub-dimension score	30.93±3.02	20-40
Psychosocial sub-dimension score	19.49±2.29	11-25
Protection sub-dimension score	25.80±3.15	15-34
Total C19P-S score	52.57±14.54	20-100
Psychological sub-dimension score	20.09±5.47	6-30
Psycho-somatic sub-dimension score	9.74±3.81	5-25
Economic sub-dimension score	14.29±4.61	5-25
Social sub-dimension score	8.43±3.28	4-20

PPHBS: Promotive and Protective Health Behaviors Scale, C19P-S: COVID-19 phobia scale, SD: Standard eviation, Min: Minimum, Max: Maksimum.

Table 3. Comparison of the socio-demographic variables promotive and protective health behaviors and COVID-19 phobia levels of participants during the COVID-19 pandemic

Variables	PPHBS		C19P-S	
	Mean±SD	Test value/p value	Mean±SD	Test value/p value
Age (years)				
19-24	75.43±5.89	KW=29.069 p<0.001***	52.48±14.80	KW=0.738 p=0.864
25-34	77.51±6.09		51.65±14.01	
35-44	77.76±6.07		53.34±13.80	
45 and above	79.29±5.06		58.88±13.46	
Gender				
Female	76.58±5.82	Z=-2.587 p=0.010*	53.13±14.21	Z=-2.321 p=0.020*
Male	74.92±6.51		50.48±15.58	
Marital status				
Married	78.77±5.51	Z=-6.650 p<0.001***	54.23±14.05	Z=-1.885 p=0.059
Single	75.49±5.95		52.09±14.65	
Education level				
Primary school	78.29±6.60	KW=8.989 p=0.059	55.64±13.71	KW=3.561 p=0.313
High school	75.69±5.95		52.64±14.05	
University	76.22±5.98		52.18±14.77	
Master's/PhD graduate	77.013±5.84		53.23±15.07	
Income level				
Income>expense	76.19±6.677	KW=5.860 p=0.053	50.17±14.541	KW=6.959 p=0.031*
Income<expense	75.63±6.145		53.79±14.717	
Income=expense	76.93±5.459		52.31±14.242	
Use of drugs				
Yes	77.09±6.342	Z=-1.577 p=0.115	55.41±14.669	Z=-2.134 p=0.033*
No	76.11±5.958		52.16±14.490	
Presence of chronic disease				
Yes	76.89±7.053	Z=-1.269 p=0.204	57.38±16.598	Z=-3.073 p=0.002**
No	76.15±5.872		51.97±14.170	
Diagnosis of COVID-19				
Yes	77.18±6.96	Z=-1.441 p=0.150	54.89±14.21	Z=-1.104 p=0.270
No	76.18±5.96		52.45±14.56	
Measures taken during the pandemic				
I'm definitely not leaving the house	77.70±5.83	KW=20.145 p<0.001***	55.44±18.32	KW=18.178 p<0.001***
In mandatory situations, I go out by following the mask and 1.5 meters distance rule.	76.83±5.68		53.65±14.44	
I go out when ever I want by following the mask and 1.5 meters distance rule.	74.82±6.34		49.83±13.78	
I go out like before without taking any precautions.	76.66±14.57		69.33±11.93	
The level of fear in the pandemic				
Increased	76.78±5.90	KW=9.601 p=0.022*	58.15±13.72	KW=169.572 p<0.001***
Decrease	75.69±6.07		49.23±10.28	
Not changed	76.16±5.96		47.90±11.986	
I do not experience fear.	74.52±6.23		39.95±14.46	
Stress level in pandemic				
Increased	76.54±5.90	KW=7.180 p=0.066	57.59±13.77	KW=157.231 p<0.001***
Decrease	74.54±6.11		49.26±9.56	
Not changed	76.58±5.26		45.72±10.79	
I do not experience stress.	75.36±7.34		41.96±15.89	
Anxiety level in the pandemic				
Increased	76.67±5.86	KW=8.115 p=0.044*	57.05±13.84	KW=146.600 p<0.001***
Decrease	74.71±6.49		48.74±9.43	
Not changed	76.27±5.41		46.47±10.82	
I do not experience anxiety.	74.90±7.01		40.71±16.01	

*p <0.05; **p<0.01; ***p<0.001; PPHBS: Promotive and Protective Health Behaviors Scale, C19P-S: COVID-19 Phobia Scale, SD: Standard deviation, KW: Kruskal- Wallis test, Z: Mann-Whitney U test

Table 4. Correlation between health-promoting and protective behaviors and COVID-19 phobia levels of participants during the COVID-19 pandemic (n=800)

Scales	C19P-S mean	Psychological	Psycho-somatic	Social	Economic
Total PPHBS score					
r	0.038	0.056	0.004	0.024	0.033
p	0.289	0.114	0.918	0.489	0.355
Physical sub-dimension					
r	0.053	0.070	0.011	0.052	0.049
p	0.132	0.047	0.753	0.140	0.169
Psychosocial sub-dimension					
r	0.005	0.004	-0.013	-0.001	0.028
p	0.890	0.899	0.723	0.984	0.428
Protection sub-dimension					
r	0.010	0.038	-0.027	-0.007	-0.005
p	0.785	0.287	0.441	0.843	0.898

PPHBS: Promotive and Protective Health Behaviors Scale, C19P-S: COVID-19 Phobia Scale

DISCUSSION

The COVID-19 pandemic is an important global public health problem that affects people's lives in many ways due to its effects on health, social, psychological, and economic fields. It has been reported that the rapid spread of COVID-19 and its lethal effects have caused individuals to experience intense fear, stress, and anxiety among individuals (Çay, 2021; Peker & Cengiz, 2021). We thought that the fear experienced due to COVID-19 may have also affected individuals' health-promoting and protective behaviors. From this point of view, we conducted this study to examine the relationship between COVID-19 phobia and the implementation of health-promoting and protective behaviors during the pandemic.

In current study, we can say that the participants' COVID-19 phobia was at a moderate level. In addition, we found that individuals with increased levels of fear, stress, and anxiety about COVID-19 during the pandemic period had higher levels of COVID-19 phobia. The study conducted by Akarsu et al. (2022) reported that the COVID-19 phobia of individuals under the age of 65 was above average. Another study conducted with adults found that COVID-19 phobia was at a moderate level (55.28 ± 15.00) (Turan et al., 2022). We thought that these differences in the results may be due to many variables, such as the difference in the populations and dates of the studies, the start of COVID-19 vaccination practices, and the mortality and morbidity risks of COVID-19 (Turan et al., 2022).

As phobias are both the conditions that individuals have and emotions affected by these conditions, they might have a relationship with some demographic characteristics of individuals. Similarly, our study found that women had higher COVID-19 phobia than men did. Another study reported that women had a higher fear of the coronavirus and were more affected by it (Çay, 2021). The study conducted by Karaaslan et al. (2021) found that gender was an important factor affecting coronaphobia and that women had higher COVID-19 phobia. Another study found that women's COVID-19 phobia was significantly higher than men's (Zorlu et al., 2021). Another study conducted with women during the pandemic period reported that gender was an independent risk factor for

anxiety and depression, and women had a higher risk (Özdin & Bayrak Özdin, 2020). In addition, the literature reported that the disease and the loss of loved ones were very effective in causing COVID-19 phobia (Mertens et al., 2020). We think that women in Turkish society have more responsibilities, especially in the field of childcare and housework, and therefore their phobias may be higher in parallel with their efforts to protect themselves from COVID-19.

In terms of the perception of income level, we found that those whose income was less than their expenses had higher COVID-19 phobia than those whose income was more than their expenses. Similarly, the literature reported that the COVID-19 pandemic increased economic concerns (Gashi, 2020; Thunström et al., 2020). Different results were obtained in studies on economic status and COVID-19 phobia. The study by Gashi (2020) found no significant relationship between economic status and COVID-19 phobia, but also found that individuals with poor economic status had higher anxiety levels than individuals with good economic status. Another study reported that there was a significant difference between coronavirus phobia and income level in Turkey and that individuals with low income status had higher levels of coronavirus phobia (Akarsu et al., 2022). This can be explained by the fact that individuals with better economic status can access services that can be purchased with financial power in crisis situations and better treatment opportunities when needed (Gashi, 2020).

It is known that individuals with chronic diseases are among the groups most affected by the pandemic. In our study, we found that individuals with chronic diseases and regular medication use had higher COVID-19 phobia. Similarly, the studies conducted by Karaaslan et al. (2021) and Zorlu et al. (2021) found that the presence of chronic disease was associated with coronaphobia and individuals with chronic diseases had higher COVID-19 phobia. The literature reported that individuals with chronic diseases are more likely to experience coronaphobia than those without chronic diseases (Gökkaya et al., 2022). This may be a result of the emotional reactions caused by the more severe course of COVID-19 and the high risk of complications and mortality in individuals with chronic diseases (Gökkaya et al., 2022).

The study found that the health-protective and health-promoting behavior score was at a moderate level. Studies conducted with different groups obtained different results in terms of PPHBS scores.

A study conducted with nurses (Ersin et al., 2021) and nursing students (Yıldız et al., 2022) during the pandemic period found the PPHBS score to be above average. In a study conducted in the pre-pandemic period, the mean PPHBS score was 84.82 ± 11.05 (Caz & Yildirim, 2019). The PPHBS scores in other studies were higher than the one in our study. This may be the result of the lockdown and social distancing restrictions imposed during the pandemic and the focus on compliance with COVID-19 protection measures rather than health-promoting and protective behaviors.

This study found that age was an important factor in implementing health-promoting and protective behaviors and that such behaviors increased with increasing age. The literature reported that individuals' tendency towards

health-promoting and protective behaviors increased with age (Sanaati et al., 2021; Tan et al., 2018). Similarly, the literature reported that the level of compliance with behaviors to prevent COVID-19 was lower, especially in younger age groups (Kucukkarapinar et al., 2022). We think that increased disease prevalence and disease risk perception with advanced age may be effective in increasing compliance with health protective behaviors.

We found that women had higher mean PPHBS scores than men, and married individuals had higher mean PPHBS scores than single individuals. Studies in the literature obtained similar results (Yıldız et al., 2022; Yiğitbaş, 2022). The study by Yiğitbaş (2022) with working individuals found that women had healthier lifestyle behaviors than men. Another study conducted during the pandemic reported that men had a lower tendency towards health-protective behaviors (Faasse & Newby, 2020). The study by Küçükpınar et al. (2022) found that women exhibited more COVID-19 protection behaviors than men, as was the case at the start of the pandemic. There were also studies reporting that singles had more positive health behaviors (Bostan & Beser, 2017). These findings showed that marital status affected health-promoting behaviors.

Our assessment of the measures taken by participants to prevent COVID-19 revealed that there was a significant difference in terms of COVID-19 phobia and the mean PPHBS score for individuals in the group who never left home. Individuals in this group had higher COVID-19 phobia and PPHBS scores. It was expected that the participants who did not leave the house and went out by taking measures when necessary would have a high COVID-19 phobia score. It has been reported that individuals with high COVID-19 phobia took more measures, such as using masks and gloves (Tural, 2020). In addition to the increased number of cases and deaths due to COVID-19, restrictions to contain the pandemic have led to the emergence of many psychosocial problems such as anxiety, fear, increased stress levels, social isolation, and loneliness (Eime et al., 2022; Rubio-Tomás et al., 2022; Yang et al., 2022). Studies reported a positive relationship between fear and infection prevention behaviors (Harper et al., 2021; Xu et al., 2021). In our study, we found that individuals who reported increased levels of fear, stress, and anxiety during the pandemic period had higher PPHBS scores. However, there was no statistically significant relationship between the participants' COVID-19 phobia and their health-promoting and protective behaviors. We found only one study in the literature examining the relationship between COVID-19 phobia and health-promoting and protective behaviors in adults (Ersin et al., 2021). This study found that there was a positive and moderately significant relationship between COVID-19 phobia and PPHBS among nurses (Ersin et al., 2021). When we examined the studies on compliance with health-promoting and protective behaviors during the pandemic period, we saw that they mostly focused on behaviors including infection control measures to protect against COVID-19 (Faasse & Newby, 2020; Xu et al., 2021). A study in China found that infection prevention behaviors were implemented more than health protection behaviors between the new year period when the COVID-19 outbreak started and the summer period of 2020, when the number of cases increased rapidly (Xu et al., 2021). Considering these results, we think that measures such as lockdown and the closure of many places to contain the pandemic, as well as the

psychological problems experienced with the rapid increase in the number of cases and deaths, prevented people from implementing health-promoting activities.

A study conducted with adults in Zimbabwe during the pandemic found that physical activity level decreased, unhealthy eating behaviors and obesity risk increased, and alcohol consumption, sedentary lifestyle (screen time), stress, and anxiety levels increased because of the COVID-19 quarantine measures (Matsungu & Chopera, 2020). Similarly, a study reported that physical and mental health were affected because of decreased healthy lifestyle behaviors such as physical inactivity, weight gain, and sleep disturbance during the pandemic period (Azzouzi et al., 2022). Another study examining the status of healthy lifestyle behaviors before and during the pandemic period reported that people's body mass index increased, physical activity level decreased, sedentary lifestyle increased, and quality of life decreased during the pandemic (Deiedhiou et al., 2021).

Considering the period in which the study was conducted, the lack of a significant relationship between COVID-19 fear and health-promoting and protective behaviors can be explained by the fact that people were more focused on measures to protect themselves from COVID-19 and were unable to engage in many health-promoting activities because of quarantine and restrictions.

Limitations

This study has several limitations. First, this study was conducted online and illiterate individuals were not included in the study and this may affect the results. Second, the research data was self-reported by the participants' and may be affected by recall bias. Finally, the results of this study cannot be generalized to other countries. In addition, we recommend that studies be conducted with larger sample groups, especially with older individuals.

CONCLUSION

We found that the COVID-19 phobia and health-promoting and protective behaviors of adults were at a moderate level during the pandemic. There was no statistically significant relationship between the participants' COVID-19 phobia and health-promoting and protective behaviors. In line with this result, we think that, due to the phobia caused by the pandemic, people focused on the measures to protect against COVID-19, which caused stress, anxiety, and phobia in people. In our opinion, people moved away from the health-promoting and protective behaviors, which are important for preventing chronic diseases that may occur especially in advanced ages and pose a great risk to public health. In this regard, it is important to evaluate COVID-19 phobia and health-promoting and protective behaviors and to encourage health-protective and improving behaviors during pandemic periods. We recommend carrying out trainings and plans to maintain health-promoting and protective behaviors by using different communication technologies within the conditions of the pandemic period. We recommend that you continue to inform the public about the importance of healthy lifestyles during and after the COVID-19 pandemic and develop guidelines to encourage individuals to engage in health-promoting and protective behaviors in case similar situations occur again.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was conducted with the permission of the Aksaray University Human Researches Ethics Committee (Date: 31.08.2020, Decision No: 2020/01/34).

Informed Consent

Written informed consent was obtained from all individual participants prior to their inclusion in the study. Participants were fully informed about the study's aims, procedures, potential risks and benefits, and their rights-including the right to withdraw at any time without consequence. All participants voluntarily signed a written informed consent form.

Peer Review Process

This manuscript was subject to external peer review.

Conflict of Interest

The authors declare no conflicts of interest related to this study.

Financial Disclosure

The authors received no financial support for the conduct or publication of this research.

Author Contributions

Concept: C.K.Y., F.Ş.K.; Design: C.K.Y., F.Ş.K.; Control: C.K.Y., F.Ş.K.; Data collection and/or processing: C.K.Y., F.Ş.K.; Analysis and/or interpretation: C.K.Y.; Literature review: C.K.Y., F.Ş.K.; Article writing: C.K.Y., F.Ş.K.; Critical review: All authors.

REFERENCES

- Akarsu, T., Akgüllü, C., & Şengül, F. (2022). Comparison of Coronavirus-19 phobia levels in adult age groups. *Genel Tıp Dergisi*, 32(3), 310-316. <https://doi.org/10.54005/geneltip.1086710>.
- Ammar, A., Mueller, P., Trabelsi, K., Chtourou, H., Boukhris, O., Masmoudi, L., Bouaziz, B., Brach, M., Schmicker, M., & Bentlage, E. (2020). Psychological consequences of COVID-19 home confinement: the ECLB-COVID-19 multicenter study. *PLoS One*, 15(11), e0240204. <https://doi.org/10.1371/journal.pone.0240204>
- Arpacı, I., Karataş, K., & Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences*, 164, 110108. <https://doi.org/10.1016/j.paid.2020.110108>
- Azzouzi, S., Stratton, C., Muñoz-Velasco, L. P., Wang, K., Fournass, M., Hong, B.-Y., Cooper, R., Balikudembe, J. K., Palomba, A., & Peterson, M. (2022). The impact of the COVID-19 pandemic on healthy lifestyle behaviors and perceived mental and physical health of people living with non-communicable diseases: an international cross-sectional survey. *International Journal of Environmental Research and Public Health*, 19(13), 8023. <https://doi.org/10.3390/ijerph19138023>.
- Bostan, N., Örsal, Ö., & Karadağ, E. (2016). Developing promotive and protective health behaviors scale: methodological study. *Türkiye Klinikleri Journal of Nursing*, 8(2), 102-111. <https://doi.org/10.5336/nurses.2014-41578>
- Bostan, Nalan, & Beser, A. (2017). Factors affecting the healthy lifestyle behaviors of nurses/Hemşirelerin sağlıklı yaşam biçimi davranışlarını etkileyen faktörler. *Journal of Education and Research in Nursing*, 14(1), 38-45. <https://doi.org/10.5222/HEAD.2017.038>
- Budak, F., & Korkmaz, Ş. (2020). COVID-19 Pandemi sürecine yönelik genel bir değerlendirme. *Türkiye Örneği. Sosyal Araştırmalar ve Yönetim Dergisi*, 1, 62-79. <https://doi.org/10.35375/sayod.738657>
- Caz, Ç., & Yildirim, M. (2019). Evaluation of health promotive and protective behaviors in terms of different qualities: a study on physical education teachers. *World Journal of Education*, 9(1), 64-69. <https://doi.org/10.5430/wje.v9n1p64>.
- Çay, M. (2021). Yaşlılar ve yetişkinlerde Koronavirüs (COVID-19) salgınının etkileri ve koronavirüs korkusu. *Toplum Ve Sosyal Hizmet, COVID-19 Özel Sayı*, 1, 87-102. <https://doi.org/10.33417/tsh.985703>
- Değer, V. B. (2022). Perspective chapter: psychological effects of COVID-19 pandemic. In psychosocial, educational, and economic impacts of COVID-19 *IntechOpen*. <https://doi.org/10.5772/intechopen.101498>
- Değirmenci, B. (2020). COVID-19 algısının sosyal değişimler üzerindeki etkisinde "sıkıntıya dayanmanın" aracılık etkisinin incelenmesi. *Balkan and Near Eastern Journal of Social Sciences*, 06, 83-93.
- Deiedhiou, A. B., Yılmaz, F., & Yılmaz, A. (2021). The effect of COVID-19 pandemic on healthy lifestyle behaviors and quality of life in Turkey. *Trends in Sport Sciences*, 28(4). <https://doi.org/10.23829/TSS.2021.28.4-3>
- Dilber, F., & Dilber, A. (2020). Koronavirüs (COVID-19) salgınının bireylerin beslenme alışkanlıkları üzerindeki etkisi: Karaman ili örneği. *Journal of Tourism and Gastronomy Studies*, 8(3), 2144-2162. <https://doi.org/10.21325/jotags.2020.653>
- Doğan, M. M., & Düzel, B. (2020). COVID-19 özelinde korku-kaygı düzeyleri. *Turkish Studies*, 15(4), 739-752. <http://dx.doi.org/10.7827/TurkishStudies.44678>
- Duan, L., & Zhu, G. (2020). Psychological interventions for people affected by the COVID-19 epidemic. *The Lancet Psychiatry*, 7(4), 300-302. [https://doi.org/10.1016/S2215-0366\(20\)30073-0](https://doi.org/10.1016/S2215-0366(20)30073-0)
- Eime, R., Harvey, J., Charity, M., Elliott, S., Drummond, M., Pankowiak, A., & Westerbeek, H. (2022). The impact of COVID-19 restrictions on perceived health and wellbeing of adult Australian sport and physical activity participants. *BMC Public Health*, 22(1), 848. <https://doi.org/10.1186/s12889-022-13195-9>
- Ersin, F., Dedeoğlu, G. K., & Kürümlüoğlu, R. (2021). The effect of nurses coronavirus fear on health promoting and protective behaviors. *Harran Üniversitesi Tıp Fakültesi Dergisi*, 18, 504-509. <https://doi.org/10.35440/hutfd.987517>
- Faasse, K., & Newby, J. (2020). Public perceptions of COVID-19 in Australia: perceived risk, knowledge, health-protective behaviors, and vaccine intentions. *Frontiers in Psychology*, 11, 1-11. <https://doi.org/10.3389/fpsyg.2020.551004>
- Gashi, F. (2020). Kosova toplumunda COVID-19 korkusu, anksiyete ve bireysel dindarlık üzerine bir araştırma. *Trabzon İlahiyat Dergisi*, 7(2), 227-262. <https://doi.org/10.33718/tid.800472>
- Gökkaya, D., Gürkan, D. Y., & Yorulmaz, R. (2022). Investigation of the relationship between fear of coronavirus, coronaphobia and personality traits. *Eastern Journal of Medicine*, 27(1), 173-181. <https://doi.org/10.5505/ejm.2022.24992>
- Harper, C. A., Satchell, L. P., Fido, D., & Latzman, R. D. (2021). Functional fear predicts public health compliance in the COVID-19 pandemic. *International Journal of Mental Health and Addiction*, 19(5), 1875-1888. <https://doi.org/10.1007/s11469-020-00281-5>
- İnci, F., & Çelik, F. (2022). Adölesanlarda COVID-19 korkusunun sağlıklı geliştirme davranışlarına etkisi. *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*, 7(2), 253-259.
- Kaçer, İ., Çağlar, A., Öztürk, B., & Hacımustafaoğlu, M. (2022). COVID-19 pandemisi sırasında Türk toplumunun ruh sağlığı. *Journal of Contemporary Medicine*, 12(4), 1-1. <https://doi.org/10.16899/jcm.1057608>
- Karaaslan, Y., Mete, O., Karadağ, M., Ozer Kaya, D., & Toprak Celenay, S. (2021). An investigation of potential coronaphobia-related factors in adults and sleep quality relations. *Sleep Medicine*, 84, 356-361. <https://doi.org/10.1016/j.sleep.2021.06.016>
- Kucukkarapinar, M., Karadağ, F., Budakoglu, I., Aslan, S., Ucar, O., Pence, A. Y., Timurcin, U., Tumkaya, S., Hocaoglu, C., & Kiraz, I. (2022). The relationship between COVID-19 protection behaviors and pandemic-related knowledge, perceptions, worry content, and public trust in a Turkish sample. *Vaccines*, 10(12), 2027. <https://doi.org/10.3390/vaccines10122027>
- Lee, M., Park, S., & Lee, K. S. (2020). Relationship between morbidity and health behavior in chronic diseases. *Journal of Clinical Medicine*, 9(1), 121. <https://doi.org/10.3390/jcm9010121>
- Matsungu, T. M., & Chopera, P. (2020). Effect of the COVID-19-induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe. *BMJ Nutrition, Prevention and Health*, 3(2), 205-212. <https://doi.org/10.1136/bmjnp-2020-000124>

- Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, 102258. <https://doi.org/https://doi.org/10.1016/j.janxdis.2020.102258>
- Özdin, S., & Bayrak Özdin, Ş. (2020). Levels and predictors of anxiety, depression and health anxiety during COVID-19 pandemic in Turkish society: the importance of gender. *International Journal of Social Psychiatry*, 66(5), 504-511. <https://doi.org/10.1177/0020764020927051>
- Peker, A., & Cengiz, S. (2021). Covid-19 fear, happiness and stress in adults: the mediating role of psychological resilience and coping with stress. *International Journal of Psychiatry in Clinical Practice*, 1-9. <https://doi.org/10.1080/13651501.2021.1937656>
- Rubio-Tomás, T., Skouroliaou, M., & Ntountaniotis, D. (2022). lockdown due to COVID-19 and its consequences on diet, physical activity, lifestyle, and other aspects of daily life worldwide: a narrative review. *International Journal of Environmental Research and Public Health*, 19(11), 6832. <https://doi.org/10.3390/ijerph19116832>
- Sanaati, F., Geranmayeh, M., Behboodi Moghadam, Z., Zareiyani, A., Samadaee Gelehkolae, K., & Mirghafourvand, M. (2021). A population-based study of health-promoting behaviors and their predictors in Iranian males, 2019. *Archives of Public Health*, 79(1), 1-7. <https://doi.org/10.1186/s13690-021-00543-1>
- Sun, L., Sun, Z., Wu, L., Zhu, Z., Zhang, F., Shang, Z., Jia, Y., Gu, J., Zhou, Y., Wang, Y., Liu, N., & Liu, W. (2021). Prevalence and risk factors for acute posttraumatic stress disorder during the COVID-19 outbreak. *Journal of Affective Disorders*, 283, 123-129. <https://doi.org/10.1016/j.jad.2021.01.050>
- Şavkın, R., Öztop, M., Bayrak, G., & Büker, N. (2022). Factors affecting fear, obsession, and anxiety associated with COVID-19: a cross-sectional study in patients admitted to university hospital outpatient clinics. *Erciyes Medical Journal*, 44(3), 263-269. <https://doi.org/10.14744/etd.2021.57527>
- Tan, S. L., Storm, V., Reinwand, D. A., Wienert, J., De Vries, H., & Lippke, S. (2018). Understanding the positive associations of sleep, physical activity, fruit and vegetable intake as predictors of quality of life and subjective health across age groups: a theory based, cross-sectional web-based study. *Frontiers in Psychology*, 9, 977. <https://doi.org/10.3389/fpsyg.2018.00977>
- Thunström, L., Newbold, S. C., Finnoff, D., Ashworth, M., & Shogren, J. F. (2020). The benefits and costs of using social distancing to flatten the curve for COVID-19. *Journal of Benefit-Cost Analysis*, 11, 179-195. <https://doi.org/10.1017/bca.2020.12>
- Tural, E. (2020). COVID-19 Pandemi dönemi ev karantinasında fiziksel aktivite düzeyinin yaşam kalitesine etkisi. *Van Sağlık Bilimleri Dergisi*, 13(COVID-19 Özel Sayı), 10-18.
- Turan, G. B., Aksoy, M., Özer, Z., & Demir, C. (2022). The association between coronaphobia and attitude towards COVID-19 vaccine: a sample in the east of Turkey. *Lencephale*, 48(1), 38-42. <https://doi.org/10.1016/j.encep.2021.04.002>
- Uğraş Dikmen, A., Kına, M., Özkan, S., & İlhan, M. N. (2020). COVID-19 epidemiyolojisi: pandemiden ne öğrendik. *Journal of Biotechnology and Strategic Health Research*. <https://doi.org/10.34084/bshr.715153>
- Xu, Y., Chen, H.-F., Yeung, W. K. J., Hsieh, C.-W., Yuan, H.-Y., & Chang, L. Y.-C. (2021). Health-promoting behaviors, risk perceptions, and attention to COVID-19-related information: comparing people's responses to the COVID-19 pandemic across times of chinese New Year and Summer 2020 in Hong Kong. *Frontiers in Public Health*, 9. <https://doi.org/10.3389/fpubh.2021.688300>
- Yang, H., Zhao, Q., Zhang, Z., & Jia, W. (2022). Associations between lifestyle changes, risk perception and anxiety during COVID-19 lockdowns: a case study in Xi'an. *International Journal of Environmental Research and Public Health*, 19(20), 13379. <https://doi.org/10.3390/ijerph192013379>
- Yıldız, E., Çevik, B. E., & Güler, N. (2022). Health anxiety level and health-promoting and protective behaviors of nursing students. *Journal of Education and Research in Nursing* 19, 422-428. <https://doi.org/10.5152/jern.2022.36675>
- Yiğitbaş, Ç. (2022). Çalışan bireylerin sağlıklı yaşam biçimi davranışları ve onları etkileyen faktörler. *Sağlık Akademisi Kastamonu*, 7(2), 275-285. <https://doi.org/10.25279/sak.799024>
- Yoğurtcu, H., & Oztürk Haney, M. (2022). The relationship between e-health literacy and health-promoting behaviors of Turkish hospital nurses. *Global Health Promotion*, 29(4), 54-62. <https://doi.org/10.1177/17579759221093389>
- Zorlu, M., Kiskac, N., & Kiskac, M. (2021). Phobia of COVID-19 on people who aged 18 and older. *Revista Da Associação Médica Brasileira*, 67, 1461-1465.