

The Effect of Nurses' Fear of Catching COVID-19 on Healthy Lifestyle Behaviors and Vitamin D use during the COVID-19 Pandemic / COVID-19 Salgını Sırasında Hemşirelerin COVID-19 Olma Korkusunun Sağlıklı Yaşam Biçimi Davranışlarına ve D Vitamini Kullanımına Etkisi

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Öz

Giriş: Pandemi sürecinde ön saflarda rol alan hemşireler, çalışma şartlarının zorlaşmasının yanı sıra sürekli ölüm riskiyle yüz yüze olmalarının yarattığı korku nedeniyle ciddi baskı altında çalışmaktadırlar. **Amaç:** Bu araştırma, COVID-19 salgını sırasında hemşirelerin COVID-19 olma korkusunun, sağlıklı yaşam davranışlarına ve D vitamini kullanımına etkisini belirlemek amacıyla yapıldı. **Gereç ve Yöntem:** Araştırma, tanımlayıcı desende düzenlendi. Araştırmanın verileri internet ortamında toplanmıştır. Veriler, bir üniversitenin araştırma ve uygulama hastanesinde görev yapmakta olan 233 hemşireden elde edilmiştir. **Bulgular:** Eğitim düzeyi yüksek olma, kronik fizyolojik bozukluk olması, çocuk sahibi olmama ve meslekten memnun olmanın sağlıklı yaşam biçimi davranışlarını olumlu yönde etkilediği görülmüştür. **Sonuç:** Bu çalışmanın, hemşirelerin COVID-19 korkusuyla baş edebilmeleri ve sağlıklı yaşam biçimi davranışları gösterebilmeleri için desteklenmesi, pandemi süreci ve sonrasında daha sağlıklı bir yaşam tarzı benimsemeleri, bunu sürdürmeleri ve hastalarına örnek olmaları için değerli ipuçları sunacağı düşünülmektedir.

Anahtar kelimeler: D vitamini, COVID-19, korku, sağlıklı yaşam tarzı, hemşirelik

Abstract

Introduction: Nurses, who are at the forefront of the pandemic process, work under serious pressure due to the fear created by the fact that the working conditions in the pandemic conditions are difficult, as well as the constant risk of death. **Purpose:** This study aimed to examine the effect of the nurses' fear of catching COVID-19 on healthy lifestyle behaviors and vitamin D use during the COVID-19 pandemic. **Design and Methods:** This study had a descriptive web-based design. The research population consists of 233 nurses working at a university research and application hospital. **Findings:** It was observed that high education level, chronic physiological disorder, not having children and being satisfied with their profession affect healthy lifestyle behaviors positively. **Conclusion:** It is thought that this study will provide valuable clues for nurses to be supported in order to cope with the fear of COVID-19 and show healthy lifestyle behaviors, to adopt a healthier lifestyle during and after the pandemic process, to maintain it and to set an example for their patients.

Keywords: vitamin D, COVID-19, fear, healthy lifestyle, nursing



1.Introduction

Described as a severe disaster faced by humanity in the age of globalization, COVID-19 has again demonstrated the importance of countries' health systems being agile, adaptable, flexible structures, and nurses' critical position (Australian Healthcare Workforce, 2020; Liu, 2020). Since the beginning of modern nursing, nurses have played a part in evaluating, setting priorities, cooperating, and managing care in epidemics (Kalanlar, 2015). In line with their roles and responsibilities, nurses have been the individuals who are in the closest contact with patients during the care of sick individuals in the COVID-19 pandemic, as in every pandemic (WHO, 2019).

The number of studies showing that nurses, who are at the forefront of the pandemic process, feel themselves under great pressure since the working conditions in the pandemic become difficult (use of protective equipment, prolonged working hours, increased workload due to the inability of their colleagues due to contamination, etc.), as well as being constantly faced with the risk of death is gradually increasing. As a result of nurses isolating themselves due to the risk of infecting their relatives, the loss of social support reduces their resistance, while the increase in stress factors in working conditions causes health problems such as fear, anxiety, depression and insomnia. Fear is one of the important psychological aspects of the COVID-19 pandemic. (Ahorsu et al. 2020; Arpacioğlu, Baltalı, & Ünübol 2021). García-Reyna et al. (2020) conducted a study on the perception of COVID-19 fear of hospital personnel, depending on gender, age, working unit, and shift variables. As a result of the research, they found that in terms of the working unit, the fear of COVID-19 was higher in nurses compared to other employees (García-Reyna, 2020). Moreover, Labrague et al. (2020) found that nurses intensely experienced the fear of COVID-19 and as their level of fear increased, their job satisfaction decreased and they moved away from professional behaviors (Labrague et al. 2020).

As health is an important concept for every individual, it is extremely important for nurses. For nurses to provide an effective service to individuals, they must first keep their own health at a reasonable level, which has become even more critical during the COVID-19 pandemic process. Along with the pandemic, nurses have turned to a healthy lifestyle in order to support their immune systems. In addition to this, the nurses having healthy lifestyle behaviors are also important in setting an example for the individuals they care for (Bostan and Başer, 2017). In addition, there is no antiviral treatment with proven safety and efficacy for COVID-19 yet. WHO recommendations are mainly based on supportive treatment, relief of symptoms, and prevention of respiratory failure. In this direction, supportive treatments come to the fore. One of them is vitamin D. It is well known that vitamin D regulates gene transcription and immune response. A recent review showed that vitamin D improves the inflammatory response in multiple ways, protects against respiratory infections and reduces the risk of influenza and COVID-19. It has been reported that vitamin D can prevent cytokine storm and acute respiratory distress syndrome with its effect on the immune system (Grant et al., 2020). Vitamin D deficiency contributes directly to the acute respiratory distress syndrome (ARDS). In this study, it was planned to determine the effect of nurses' fear of catching COVID-19 on their healthy lifestyle behaviors and vitamin D use during the COVID-19 pandemic. The authors consider that the results of the study will contribute to the subjects, such as nurses continue to remain healthy; living in balance; doing sport; their awareness of adopting healthy lifestyle behaviors like cognitive,



emotional, psychological, physical, or spiritual well-being, and coping with the fear of COVID-19.

2. Material and Methods

2.1. Type of Research

This study had a descriptive web-based design. It was conducted to examine the relationship between the attitudes of the nurses in a university research and application hospital towards their fear of catching COVID-19 on healthy lifestyle behaviors and vitamin D use during the COVID-19 pandemic.

2.2. Population and Sample

The research population consists of 247 nurses working at a university research and application hospital between 01.02.2021 and 21.03.2021. No additional method was used in sample selection, and all of the nurses (233) who agreed to participate in the study were included within the research scope. Post hoc power analysis was performed to determine the power of the study in G Power analysis program. The correlation value (r : 0.072) between the COVID-19 Fear Scale and the Healthy Lifestyle Behavior Scale was used to calculate the power. The effect size was calculated as 0.268 and the power of the study was 0.98. Considering the average score Fear of Catching COVID-19 Scale with the average score Healthy Living Behaviors Scale, the power of the study was found to be 98% at $\alpha=0.05$. *The inclusion criteria were as follows:* Those who were (i) 18 years of age or older (ii) volunteering to participate in the study. *The exclusion criteria were as follows:* Those who were (i) having any psychological problem (ii) refusing to participate in the study.

2.3. Data Collection Tools

Data collection tools consist of Descriptive Information Form, Fear of Catching COVID-19 Scale and Healthy Living Behaviors Scale.

Introductory Information Form: This form composed of three parts that was developed by researchers by examining the relevant literature, consists of a total of 23 questions that include the socio-demographic characteristics (Gender, age, marital status, child situation, educational status, chronic illness, professional experience, and clinical status) of nurses related to COVID-19 (Have a COVID-19 test, Getting COVID-19 training, monthly work hours during pandemic period, working in COVID-19 service during pandemic period, keeping in close contact with patients with COVID-19) and of nurses related to supportive therapies (García-Reyna, 2020; Ahorsu et al. 2020; Arpacioğlu, Baltalı, & Ünübol 2021).

Fear of COVID-19 Scale (FCV-19S): The scale was developed by Ahorsu et al. (2020) to measure the fear levels of individuals caused by COVID-19. The scale items were created based on a comprehensive review of existing scales on fear, expert evaluations, and participant interviews. The scale has a single factor structure and consists of seven items of five-point Likert type (1 = Strongly disagree; 5 = Strongly agree). There is no test-oriented item on the scale. Internal consistency of the scale was found as 0.82 and test-retest reliability as 0.72. The high scores obtained from the scale indicate that the level of COVID-19 fear is high. In the study where the Turkish validity and reliability of the scale was made



by Ladikli et al. (2020), the Cronbach's alpha internal consistency coefficient was found to be 0.86. The Cronbach's alpha value of the scale was 0.89 in the study.

Healthy Life Style Behavior Scale: The healthy behaviors were collected with the "Healthy Lifestyle Behaviors Scale". The scale was developed by Walker et al. (1987) and revised again in 1996 (Walker et al., 1996). The scale measures health-promoting behaviors associated with an individual's healthy lifestyle. The scale consists of 52 items and has 6 sub-factors. Subgroups are spiritual development, health responsibility, physical activity, nutrition, interpersonal relationships, and stress management. The overall score of the scale gives the score for healthy lifestyle behaviors. All the items of the scale are positive. It is accepted as never (1), sometimes (2), often (3), regularly (4). The Alpha reliability coefficient of the scale is 0.94. Alpha coefficient reliability value of the scale's sub-factors varies between 0.79-0.87 (Bahar et al, 2008). The Cronbach's alpha value of the scale was 0.96 in the study. Alpha coefficient reliability value of the scale's sub-factors varies between 0.77-0.88 in this study.

2.4. Data Collection

Research data were collected by google form (https://docs.google.com/forms/u/0/d/e/1FAIpQLSfhuriihJuxXFxBKYzuqMKGMSTMGdE_s8LXepCALXUvSWWCw/formResponse). The link became active in January 2021 and remain online until March 2021 in order to reach those nurses. After the forms prepared in the online environment by the researchers were sent to the nurses' e-mail addresses (The nurses' mails were accessed through hospital records), the nurses who wanted to respond to the forms sent the form to the e-mail address determined by the researchers. The researchers shared the link via e-mail every week on Monday, Wednesday and Friday. The participants were asked to fill in the questionnaire after providing their e-mail accounts (Hotmail, Gmail, Outlook, etc.) and those who did not fully complete the questionnaire were not allowed to submit it. It took approximately 15-20 minutes to complete the questionnaire.

2.5. Ethical Considerations

Yozgat Bozok University Ethical Committee reviewed and approved the study protocol (2017-KAEK-189-2021.02.24-01). Institutional permission was granted from a research and application hospital where the study took place. In addition, nurses were informed about the purpose and process of the research and the questionnaire by the researcher through their e-mail accounts. It was stated that participation in the research was voluntary and the patients' consent was obtained online. During the study, the principles of the Declaration of Helsinki were complied with.

2.6. Statistical Analysis

IBM SPSS Statistics 21 package program (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp) was used for statistical analyses and calculations of the data obtained from the research. The number, percentage distribution, mean, range, standard deviation, and maximum and minimum values were determined using descriptive statistical tests in the analysis of the nurses' personal characteristics in the study. Whether the data had a normal distribution or not was determined by the Kolmogorov-Smirnov (K-S) test. Cronbach's alpha of the scale was calculated with reliability analysis. The mean scores, standard deviations, maximum and minimum values of the



scales, and their sub-dimensions were calculated. Student's t-test, One-way Anova, and Pearson Correlation Coefficient analysis were used for the relationships between variables in the research. The significance level was accepted as $p < 0.05$ in the evaluation of the data.

3. Results

The research findings conducted in a descriptive design to determine the factors affecting nurses' healthy lifestyle behaviors, fear of COVID-19 and vitamin D use are shown. When the demographic characteristics of the nurses are examined; it was determined that the mean age was 28.34 ± 6.06 (21-50), 83.3% are women, 75.1% have bachelor's degree, 56.7% are married, 42.2% work in inpatient service, 82.0% are non-smokers, 88.0% not having any changes in smoking during the pandemic, 63.5% not having any child, 86.3% do not have any chronic diseases, 95.7 % not having any chronic psychological diseases, 40.3% live with an individual at home who has a chronic disease. Only 13.3% live with an individual over 65 years old at home.

Of the nurses, 60.5% worked for 1-5 years, 66.1% of them worked in the form of daytime + shift, 63.5% worked in the COVID-19 service during the pandemic period, 29.6% of the nurses were diagnosed with COVID-19, 58.8% had close contact with COVID-19 patients and 44.2% of the nurses stated that they were satisfied with their profession

Table1. Distribution of Vitamin D and Other Supportive Therapies Used by Nurses

Usage of D Vitamin ¹		
I have been using it regularly since the pandemic started.	15	6.4
I've been using it from time to time since the pandemic started.	62	26.6
I used it regularly before the pandemic, I still continue.	12	5.2
Never used	144	61.8
Getting Supportive Care		
User	23	9.9
Non-user	210	90.1
Distribution of Other Supportive Cares Used *		
Vitamin C	12	52.2
Antiagregant	6	26.1
Zinc	5	21.7

* It has been evaluated over n: 23. ¹48.2% of the nurses use Vitamin D.

It was determined that 26.6% of the nurses occasionally used vitamin D since the epidemic started (48.2% used vitamin D at least once during the epidemic process). It was observed that 9.9% used supportive treatment and preferred vitamin C (52.2%) the most among the supportive treatments used (Table 1).

Table 2. Nurses' COVID-19 Fear Scale and Healthy Lifestyle Behavior Scale and Sub-Dimensions

	XX+SD
COVID-19 Fear Scale (Min: 7- Max: 35)	17.6±6.3
Healthy Lifestyle Behaviors Scale (Min: 52- Max: 208)	125.0±25.8
Moral Development (Min: 9- Max: 36)	24.9±5.2
Health Responsibility (Min: 9- Max: 36)	21.3±5.4
Nutrition (Min: 9- Max: 36)	19.9±4.9
Interpersonal Relationship (Min: 9- Max: 36)	24.5±5.0
Physical Activity (Min: 8- Max: 32)	16.0±5.2
Stress Management (Min: 8- Max: 32)	18.2±4.2



Nurses' COVID-19 Fear Scale mean score was 17.6±6.3, The mean Health Lifestyle Behaviors Scale Total score was 125.0±25.8, the mean score of spiritual development, health responsibility, nutrition, interpersonal relationships, physical activity and Stress management was 24.9 ±5.2, 21.3±5.4, 19.9±4.9, 24.5±5.0, 16.0±5.2 and 18.2±4.2, respectively (Table 2).

Table 3. Relationship between Nurses' COVID-19 Fear Scale and Healthy Lifestyle Behavior Scale and Its Sub-Dimensions

	COVID-19 Fear Scale	
	r _p	p
Healthy Lifestyle Behaviors Scale	0.072	0.274
Moral Development	0.019	0.771
Health Responsibility	0.115	0.079
Nutrition	0.053	0.419
Interpersonal Relationship	0.110	0.095
Physical Activity	-0.012	0.850
Stress Management	0.089	0.173

r_p: pearson correlation test. p < 0.05 was accepted as significant

There was no significant relationship between the nurses' COVID-19 Scale scores and the Healthy Lifestyle Behaviors Scale and sub-dimension scores (p>0.05) (Table 3).

Table 4. COVID-19 Fear Scale and Healthy Lifestyle Behavior Scale and Sub-Dimensions According to The Introductory Characteristics Of The Nurses

	COVID-19 Fear Scale	Moral Development	Health Responsibility	Nutrition	Interpersonal Relationships	Physical Activity	Stress Management	Healthy Lifestyle Behaviors Scale
Gender								
Female	18.33±6.20	24.95±5.37	21.46±5.53	20.03±4.84	24.72±5.11	15.82±5.28	18.36±4.34	125.36±26.25
Male	14.30±5.99	25.10±4.65	20.87±4.91	19.33±5.96	23.38±4.68	17.28±4.97	17.53±3.78	123.51±23.89
p*	0.0001	0.860	0.504	0.455	0.114	0.106	0.232	0.666
Educational Status								
High School and Associate Degree	18.67±6.99	23.53±5.39	19.10±5.41	17.21±4.39	23.03±5.50	13.78±4.57	14.87±3.69	113.73±25.29
Bachelor's Degree	17.40±6.34	24.86±5.07	21.34±5.14	20.05±4.60	24.50±4.77	16.23±5.05	15.83±3.43	125.17±23.91
Master's Degree and Above	18.20±5.78	26.96±5.69	23.60±6.33	21.60±6.25	25.83±6.05	17.26±6.41	17.00±4.94	134.96±32.95
p**	0.542	0.038	0.007	0.002	0.110	0.029	0.087	0.007
Having children								
Those who have	17.69±6.78	24.32±5.62	21.05±5.52	19.96±5.25	24.12±5.26	15.09±5.31	15.43±3.79	122.27±27.84
Those who don't have	17.63±6.10	25.35±5.00	21.54±5.38	19.88±4.75	24.72±4.95	16.63±5.14	16.11±3.65	126.65±24.55
p*	0.947	0.167	0.519	0.908	0.404	0.032	0.184	0.229
Chronic Physiologic Disease								
Yes, there is	19.18±7.09	25.37±5.37	22.15±5.89	21.56±4.96	25.28±5.23	16.46±5.69	17.03±4.19	130.31±28.59
No, there is not	17.41±6.20	24.91±5.24	21.23±5.36	19.65±4.88	24.37±5.03	16.01±5.18	15.68±3.61	124.21±25.34
p**	0.189	0.655	0.413	0.049	0.368	0.671	0.093	0.263

p*: Student's t-test, p** One-way Anova



Table 4. contains the mean scores of COVID-19 scale, Healthy lifestyle behaviors scale and sub-dimensions according to the introductory characteristics of the nurses. It was determined that the mean scores for fear of COVID-19 were statistically higher in women compared to men and in the nurses working for 11 years and over compared to the ones in other groups ($p < 0.05$) Nurses with a postgraduate degree have significantly higher total mean scores on spiritual development, health responsibility, nutrition, physical activity, stress management and healthy lifestyle behaviors compared to the other groups. It was determined that the physical activity score averages of nurses who cannot have children are statistically higher than those who have children. It was observed that the nutritional score averages of nurses with chronic physiological disorders were significantly higher than those without a physiological disorder. It has been observed that those who are satisfied with doing the nursing profession have higher mean scores on spiritual development, interpersonal relationships, and healthy lifestyle scale statistically than those in the other groups. It was found that nurses using vitamin D had a significantly higher mean score of the fear of COVID-19, health responsibility, nutrition, and Healthy lifestyle Behaviors Scale than those who did not use it (Table 4).

4. Discussion

Nurses are at the forefront in the fight against the COVID-19 pandemic. Nurses continue to work with increasing workload, intense fear and risk of being infected in this extraordinary process (Adhanom, 2020). Stress and mental health problems and difficult working conditions can weaken the immune system like a vicious circle. For this reason, it is very important that nurses who take an active role in the fight against COVID-19 and will continue to do so, maintain mental health and a healthy life (Ghasempour & Purabdollah, 2020). Nurses, who are at the forefront of combating this epidemic, should first of all protect their health and strengthen their immune system. Vitamins and trace elements are needed for the immune system to be strong. It is a known fact that vitamins affect the immune system positively (Zabetakis, Lordan, Norton, & Tsoupras 2020). One of these vitamins is Vitamin D. Vitamin D has been reported that it has an effect to impair viral cellular infection by interacting with angiotensin converting enzymes (ACEs) (Iddir et al., 2020). Within this scope, vitamin D use of nurses was questioned in this study. It was observed that 48.2% of the nurses preferred vitamin D at least once during the epidemic process. In this study, it was found that nurses using Vitamin D have a high fear of COVID-19. This result showed that as the fear against the pandemic increases the tendency to take precautions develops. Studies have shown that vitamin D has an important role in the COVID-19 process (Grant et al., 2020; Shiravi et al., 2020; Çimke & Gürkan Yıldırım, 2020). In this study, it was found that the healthy lifestyle behavior scores of the nurses using vitamin D were higher. This relationship between vitamin D usage and healthy lifestyle behavior suggests that nurses took protective measures against the pandemic for their immune system by using vitamin D and showing healthy behavioral characteristics during the COVID-19 epidemic. Adequate vitamin D levels can help protect the respiratory epithelium from pathogenic spread and reduce the risk of infection. There are studies showing that COVID-19 patients have lower vitamin D levels. In the light of these findings, we can say that Vitamin D supplementation has gained a strong place among the prior recommendations in the fight against COVID-19 (D'Avolio et al. 2020; Mercola, Grant, & Wagner, 2020; Annweiler et al., 2020)

In this study, female nurses have more fear of COVID-19 than men. Similar to this study, Arpacioğlu et al. (2021) found that the mean scores fear of COVID-19 anxiety and



depression are significantly higher than that of men. Frederiksen et al. (2020) stated that 68% of women and 56% of men are concerned about coronavirus. Özdin and Bayrak Özdin (2020) found that coronavirus has more negative psychological effects on women. Women are more likely to experience fear and similar emotions in the face of traumatic events (Bal, Çakmak, & Uğuz, 2013; Karatas & Uzun, 2018). In a traumatic process such as the pandemic, where uncertainties increase and life becomes more complex, it is inevitable for women to experience situations such as anxiety and fear at a higher level than men.

In this study, it was observed that nurses whose education level is postgraduate have better healthy lifestyle behaviors. In the study conducted by Özdemir and Arpacioğlu, when the education levels of the participants were considered, it was found that the traditional health seeking, health perception, control center and certainty levels of the participants who received higher education were higher. This may be due to the fact that the higher the level of education, the higher the health status, the awareness of the seriousness of the virus, and the fact that people trust in modern medicine more. In a study in the literature, it was emphasized that education results in medical education (Shaikh & Hatcher, 2005).

One of the healthy lifestyle behaviors is physical activity. In this study, it was found that individuals who do not have children have more physical activities than those who have children. There are studies in the literature that match these results. Kitiş and Gümüş (2015) stated in their study with women over the age of 20 that, women who both work and are housewife, spend less time on physical activity. Also, the addition of a major role such as having a child can further limit the time women spend for physical activity.

In this study, it was determined that nurses with chronic physiological disorders pay more attention to their eating habits. With the disease, there is a radical change in the life style of the person. The symptoms of the disorder are controlled by compliance with diet. Therefore, this study is thought to be similar to the literature (Efe & Kocaöz, 2015).

5. Conclusion and Suggestions

In this study, it was observed that high education level, chronic physiological disorder, not having children and being satisfied with their profession affect healthy lifestyle behaviors positively. In order for nurses to adopt a healthier lifestyle during and after the pandemic process, to maintain this, to be an example to their environment and patients; Health education programs can be suggested by considering the variables that are effective in developing a healthy lifestyle. Moreover, COVID-19 fear levels of those who are female and have been nursing for a long time were found to be high. In this direction, it may be suggested to establish psychological support units where nurses can express their feelings and to facilitate their access to these units. One of the striking results of this study was the increased use of vitamin D by nurses during the pandemic process, and individuals who use vitamin D show healthy lifestyle behaviors. In this context, it may be suggested to continue the use of vitamin D in terms of the protective effects in the fight against COVID-19 and to carry out awareness activities for the group who does not use it.

It is considered that this study will provide valuable clues about the points that nurses should be supported to cope with the fear of COVID-19 and show healthy lifestyle behaviors during the COVID-19 pandemic process.



Declarations

It was presented as an oral presentation at International Congress of Health Research 25-28 August 2021. Not produced from the thesis study. The authors have not declared any conflict of interest. Ethical Explanations: Yozgat Bozok University Ethical Committee reviewed and approved the study protocol (2017-KAEK-189-2021.02.24-01). Institutional permission was granted from a research and application hospital where the study took place. In addition, nurses were informed about the purpose and process of the research and the questionnaire by the researcher through their e-mail accounts. It was stated that participation in the research was voluntary and the patients' consent was obtained online. During the study, the principles of the Declaration of Helsinki were complied with. Author Contributions: The authors confirmed that all listed authors meet the authorship criteria and that all authors are in agreement with the content of the manuscript. All authors made critical revisions to the manuscript for important intellectual content and approved the final version to be published. Idea: DEA, EC, Design: EC, Data Collection or Processing: DEA, EC, Analysis / Interpretation: EC, Literature Search: DEA, EC, Writer: DEA, EC, Critical Review: DEA, EC.

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