

## Menopoz Dönemindeki Kadınlarda COVID-19 Korkusu ve Besin Takviyesi Kullanımı Fear of COVID-19 and Dietary Supplement Use in Menopausal Women

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### ÖZET

**Amaç:** Bu çalışmanın amacı, menopoz dönemindeki kadınlarda COVID-19 korkusu ile besin takviyesi kullanımı arasındaki ilişkiyi belirlemektir. **Gereç ve Yöntemler:** Veriler sosyal medya aracılığıyla 14 Mart 2022 - 1 Temmuz 2022 tarihleri arasında çevrimiçi olarak toplandı. Çalışma dahil etme kriterlerini karşılayan 197 kadınla tamamlanmıştır. Kişisel tanıtım formu ve Koronavirüs Fobi Ölçeği veri toplama araçları olarak kullanılmıştır. **Bulgular:** Koronavirüs Fobi Ölçeği'nden alınan toplam puan  $52,84 \pm 15,59$ 'du. Katılımcıların yaş ortalaması  $57,01 \pm 8,25$  yıldır. %90,9'unda COVID-19 geçirmemişti, COVID-19 salgını sırasında kadınların %18,8'i bir yakını kaybetmişti, %1,0'ı psikolojik destek almış ve %13,7'si ilaç takviyesi kullanmıştı. Yaygın olarak kullanılan ilaç takviyeleri arasında multivitaminler (%40,8), C vitamini (%18,5), D vitamini (%18,5) ve C ve D vitamini kombinasyonu (%22,2) yer almaktaydı. Kadınların %14,7'si COVID-19'u önlemek için takviye kullanmış, takviye kullananların %61,1'ine sağlık profesyonelleri tarafından önerilmiş ve %75,0'ı COVID-19 önlenmesi için tercih edilen takviyeyi eczaneden temin etmiştir. **Sonuç:** Araştırma sonuçlarına göre menopozdaki kadınların COVID-19'dan orta düzeyde korktuğu ve COVID-19 salgını sırasında besin takviyesi kullanımının düşük olduğu belirlenmiştir.

**Anahtar Kelimeler:** COVID-19, korku, menopoz, SARS-CoV-2, takviye, besin takviyesi, kadınlar

### ABSTRACT

**Objective:** The aim of this study is to determine the relationship between fear of COVID-19 and dietary supplement use among menopausal women. **Materials and Methods:** The data were collected online via social media between March 14, 2022 and July 1, 2022. The study was completed with 197 women who met the inclusion criteria. The Personal Information Form and the Coronavirus Phobia Scale were used as data collection tools. **Results:** The total mean score obtained from the Coronavirus Phobia Scale was  $52.84 \pm 15.59$ . The mean age of the participating women was  $57.01 \pm 8.25$  years. 90.9% did not have COVID-19. During the COVID-19 pandemic, 18.8% of the women lost a relative, 1.0% received psychological support, and 13.7% used medication supplementation. The commonly used medication supplements included multivitamins (40.8%), vitamin C (18.5%), vitamin D (18.5%), and a combination of vitamin C and D (22.2%). Of women, 14.7% used supplements to prevent COVID-19, 61.1% of those using supplements were recommended by healthcare professionals, and 75.0% obtained the preferred supplement from the pharmacy for COVID-19 prevention. **Conclusion:** According to the results of the research, it was determined that women in menopause had a moderate level of fear of COVID-19, and the use of nutritional supplements during the COVID-19 epidemic was low.

**Keywords:** COVID-19, fear, menopause, SARS-CoV-2, supplement, nutritional supplement, women

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## INTRODUCTION

According to the World Health Organization (WHO), menopause is defined as the permanent cessation of menstruation due to the loss of ovarian activity (1). According to the Turkish Menopause and Osteoporosis Society, menopause is clinically diagnosed after 12 consecutive months of amenorrhea (2). During menopause, women experience various physiological and psychological changes due to the cessation of ovarian activity, which can lead to some problems (3, 4). Physiologically, they may experience hot flashes, sweating, vaginal atrophy and dryness, dyspareunia, dizziness, palpitations, musculoskeletal pains, and dry skin (3). In contrast, psychologically, they may experience anxiety, depression, irritability, forgetfulness, sleep problems (5, 6), panic attacks, attention deficits, and mood swings (7).

The COVID-19 pandemic, defined as a pandemic by the WHO (8), is reported to cause various psychological effects such as stress, depression, anxiety, and fear (9- 12). During pandemics, individuals may experience multiple psychological disorders such as fear, panic, or phobias (13) COVID-19 affects the immune system by creating a systemic inflammatory response or cytokine storm. It is known that the virus's damaging effects increase when immunity against COVID-19 is insufficient (14). There is currently no definitive treatment for Covid-19. Therefore, the immune system must be strong against the COVID-19 disease (15). Including the micro and macronutrients that the body needs in the diet program is essential for the healthy functioning and maintenance of the immune system (16). It has been indicated that vitamins A, C, D, and E, along with zinc, copper, selenium, iron, and probiotics, play a significant role in supporting healthy immune function and reducing the risk of respiratory tract infections (15- 19). During the pandemic, there has been increased interest in vitamin use in Turkey, with vitamins C and D among the most preferred (20). The use of supplements to increase resistance against COVID-19 in Turkey has increased from 29.0% at the beginning of the pandemic to 43.0% recently (21). In a literature review, no research was found regarding the fear of COVID-19 among menopausal women. Therefore, this study aims to determine the relationship between the fear of COVID-19 and the use of dietary supplements among menopausal women.

## METHOD

### Study Design and Participants

This descriptive study aims to determine the relationship between fear of COVID-19 and the use of dietary supplements among menopausal women. The data were collected online via

social media platforms (WhatsApp, Instagram, and Facebook) from all volunteer women who met the study's inclusion criteria. Since the study population was unknown, the sample consisted of 200 women recruited between March 14, 2022, and July 1, 2022. Three women were excluded from the study due to having psychiatric illnesses, leaving the study completed with a total of 197 women. The sample was not limited to any specific institution or city.

The study included women with at least one year of menopausal status, at least minimum literacy, and smartphone use who volunteered to participate. Women with psychiatric disorders (Bipolar Disorder, Depression, Obsessive-Compulsive Disorder) were excluded from the study. As the research data were collected online, there was no missing data from the volunteers.

### **Measures**

The data were collected using a Personal Information Form, which included questions about women's socio-demographic and obstetric characteristics and their use of dietary supplements. Additionally, the Coronavirus 19 Phobia Scale (C19P-S) was utilized.

Personnel information form consisted of a total of 24 questions, encompassing socio-demographic characteristics, obstetric and gynecological information, as well as statements related to the COVID-19 pandemic. The Coronavirus 19 Phobia Scale developed by Arpacı et al. (2020), is a scale designed to assess the phobia developed against Covid-19. It consists of 20 questions rated on a 5-point Likert scale. The items on the scale are scored from 1 to 5. The scale comprises four subscales (psychological, somatic, social, and economic). Subscale scores are obtained by summing the scores of the items belonging to that subscale, while the total C19P-S score is obtained by summing the subscale scores. The scale yields scores ranging from a minimum of 20 to a maximum of 100. Higher scores indicate increased phobia in both the subscales and overall coronavirus phobia. For internal consistency, the Cronbach's Alpha reliability coefficient of the C19P-S is 0.925, and for internal validity, it is 0.926. The internal consistency coefficients for the subscale range from 0.85 to 0.90 (13).

### **Statistical analysis**

The data were analyzed using IBM SPSS Statistics 25.0 (IBM Corp. Released 2017, IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). Descriptive statistics, including the number of units (n), percentage (%), mean  $\pm$  standard deviation ( $\bar{x} \pm SD$ ), median (Med), minimum (min), and maximum (max) values were provided. The normal distribution of numerical variables was assessed using the Shapiro-Wilk normality test and Q-Q plots. For data not showing a normal distribution, the Mann-Whitney U test was used for independent two-

group comparisons, and the Kruskal-Wallis test was used for comparisons involving more than two independent groups. Spearman correlation analysis was conducted to determine the relationship between scales. A significance level of  $p < 0.05$  was considered statistically significant.

## RESULTS

It was determined that 90.9% of the women had not contracted COVID-19 and 98.0% reported no change in their duties during the pandemic. During this period, 18.8% lost a relative, 1.0% received psychological support, and 13.7% reported using dietary or medication supplements. The most commonly used supplements were multivitamins (40.8%), vitamin C (18.5%), vitamin D (18.5%), and a combination of vitamins C and D (22.2%). Most participants (94.9%) reported no change in dietary habits during the pandemic. Among those who used supplements, 61.1% did so based on healthcare professionals' recommendations, and 75.0% obtained these products from pharmacies.

Table 2 presents the mean scores of the C19P-S. The mean scores were  $18.94 \pm 6.17$  for the Psychological Subscale,  $10.82 \pm 4.28$  for the Somatic Subscale,  $14.79 \pm 4.69$  for the Social Subscale,  $8.28 \pm 2.95$  for the Economic Subscale, and  $52.84 \pm 15.59$  for the total scale score.

As shown in Table 3, Psychological Subscale scores were significantly higher among women aged 51–55 years, those who were not working, perceived their income as low, did not smoke, and had not experienced COVID-19 (respectively;  $p=0.015$ ,  $p=0.005$ ,  $p<0.001$ ,  $p=0.005$ ,  $p=0.034$ ).

Somatic Subscale scores were significantly lower among women who had graduated from high school compared with middle school graduates ( $p=0.049$ ). Social Subscale scores were higher among women who perceived their income as low, did not smoke, and had not had COVID-19 (respectively;  $p<0.001$ ,  $p=0.004$ ,  $p=0.018$ ). Economic Subscale scores were significantly lower among literate women compared with those who had graduated from middle school or high school ( $p=0.035$ ). Finally, total C19P-S scores were significantly higher among women who perceived their income status as low and did not smoke (respectively;  $p=0.001$ ,  $p=0.034$ ) (Table 3).

**Table 1. Descriptive characteristics of the participants**

<b>Characteristic</b>	<b>Number (n)</b>	<b>Percent (%)</b>
<b>Age</b> ( $\bar{X}\pm Sd$ :57,01±8,25) years		
≤ 50	48	24,4
51-55	55	27,9
56-60	25	12,7
60 ≥	69	35,0
<b>Marital status</b>		
Married	166	84,3
Single	31	15,7
<b>Family type</b>		
Nuclear family	163	82,7
Extended family	27	13,7
Divorced family	7	3,6
<b>Educational status</b>		
Literate	33	16,8
Primary school	70	35,5
Middle school	25	12,7
High school	48	24,3
Higher education	21	10,7
<b>Working status</b>		
Working	27	13,7
Not working	170	86,3
<b>Job</b>		
Housewife	141	71,7
Officer	17	8,6
Employee	6	3,0
Retired	30	15,2
Self-employment	3	1,5
<b>Income status</b>		
Low	48	24,3
Middle	142	72,1
High	7	3,6
<b>Pregnancy number</b> ( $\bar{X}\pm Sd$ :3,60±2,07)		
≤3	103	52,3
>3	94	47,7
<b>Time to menopause</b> ( $\bar{X}\pm Sd$ :9,45±7,77)		
≤15 years	153	77,7
>15 years	44	22,3
<b>Type of menopause</b>		
Natural menopause	172	87,3
Surgical menopause	25	12,7
<b>Smoking status</b>		
Yes	26	13,2
No	171	86,8
<b>Alcohol use status</b>		
Yes	1	0,5
No	196	99,5
<b>Continuously used medication</b>		
Yes	39	19,8
No	158	80,2
<b>Chronic disease</b>		
Yes	34	17,3
No	163	82,7
<b>Have you ever had Covid-19?</b>		
Yes	18	9,1
No	179	90,9

**Table 1. Descriptive characteristics of the participants (continued)**

<b>Has there been any change regarding duties during the Covid-19 outbreak?</b>		
Yes	4	2,0
No	193	98,0
<b>Have you lost a relative due to Covid-19?</b>		
Yes	37	18,8
No	160	81,2
<b>Did you receive psychological support during Covid-19?</b>		
Yes	2	1,0
No	195	99,0
<b>Have you used vitamin supplements during the Covid-19 epidemic?</b>		
Yes	27	13,7
No	170	86,3
<b>Vitamin supplements (n=27)</b>		
Multivitamin	11	40,8
C vitamin	5	18,5
D vitamin	5	18,5
C and D vitamin	6	22,2
<b>Have you changed your diet during Covid-19?</b>		
Yes	10	5,1
No	187	94,9
<b>Have you used herbal supplements* to protect yourself from Covid-19?</b>		
Yes	29	14,7
No	168	85,3
<b>Person(s) recommending multivitamin/herbal supplement (n=36)**</b>		
Neighbor/relative	14	38,9
Health professionals	22	61,1
<b>Where did you obtain the preferred supplements to protect against Covid-19? (n=36)</b>		
Market	1	2,8
Pharmacy	27	75,0
Internet	8	22,2
<b>Total</b>	<b>197</b>	<b>100,0</b>

\* Herbal Supplement: mint lemon-linden, thyme tea, green tea

\*\* People who were recommended multivitamin/herbal supplements obtained them but did not use them.

**Table 2. Participants' scores on the C19P-S**

<i>C19P-S</i>	$\bar{X} \pm Sd$	<i>Med (min-max)</i>	<b>Cronbach alpha</b>
Psychological Sub-Dimension	18,94±6,17	20 (6-30)	0,917
Somatic Sub-Dimension	10,82±4,28	10 (5-25)	0,906
Social Sub-Dimension	14,79±4,69	15 (5-25)	0,829
Economic Sub-Dimension	8,28±2,95	8 (4-17)	0,790
<b>Total</b>	<b>52,84±15,59</b>	<b>52 (20-94)</b>	<b>0,945</b>

Tablo 3. C19P-S scores according to participants' descriptive characteristics

Characteristics	Psychological Sub-Dimension <i>Med (min-max)</i>	Somatic Sub-Dimension <i>Med (min-max)</i>	Social Sub-Dimension <i>Med (min-max)</i>	Economic Sub-Dimension <i>Med (min-max)</i>	Total <i>Med (min-max)</i>
<b>Age</b>					
≤ 50	17,5 (6-30)	10 (5-23)	14 (5-25)	8 (4-16)	48,5 (20-90)
51-55	19 (6-25)	10 (5-18)	14 (5-23)	8 (4-13)	47 (23-68)
56-60	19 (6-30)	10 (5-25)	15 (5-22)	8 (4-17)	55 (20-94)
60 ≥	22 (8-30)	10 (5-18)	16 (6-24)	8 (4-16)	53 (24-81)
<b>Test*</b>	<b>0,015</b>	<b>0,089</b>	<b>0,243</b>	<b>0,161</b>	<b>0,166</b>
<b>Marital status</b>					
Married	19,5 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
Single	20 (6-28)	11 (5-17)	16 (5-22)	8 (4-12)	57 (23-69)
<b>Test**</b>	<b>0,496</b>	<b>0,542</b>	<b>0,567</b>	<b>0,191</b>	<b>0,675</b>
<b>Educational status</b>					
Literate	20 (12-29)	10 (5-17)	15 (9-23)	7 (4-16)	51 (35-76)
Primary school	21 (6-30)	10 (5-25)	15 (5-25)	8 (4-16)	54 (20-90)
Middle school	19 (6-30)	10 (5-25)	17 (5-25)	8 (4-17)	55 (23-94)
High school	19 (6-30)	10 (5-21)	14 (5-25)	8 (4-15)	49 (20-87)
Higher education	17 (6-30)	10 (5-18)	13 (5-19)	8 (4-17)	47 (20-79)
<b>Test*</b>	<b>0,096</b>	<b>0,049</b>	<b>0,144</b>	<b>0,035</b>	<b>0,197</b>
<b>Working status</b>					
Working	17 (6-25)	10 (5-18)	14 (5-19)	8 (4-17)	50 (20-79)
Not working	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52,5 (20-94)
<b>Test**</b>	<b>0,005</b>	<b>0,337</b>	<b>0,111</b>	<b>0,026</b>	<b>0,288</b>
<b>Income status</b>					
Low	22,5 (8-30)	10 (5-25)	17,5 (10-25)	8 (6-17)	58 (30-94)
Middle	19 (6-30)	10 (5-21)	14 (5-25)	8 (4-17)	50,5 (20-87)
High	13 (6-22)	6 (5-16)	15 (5-16)	6 (4-13)	40 (20-67)
<b>Test*</b>	<b>&lt;0,001</b>	<b>0,222</b>	<b>&lt;0,001</b>	<b>0,205</b>	<b>0,001</b>
<b>Time to menopause</b>					
≤15 years	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	53 (20-94)
>15 years	19,5 (8-29)	10 (5-17)	15 (6-23)	7,5 (4-16)	49 (24-76)
<b>Test**</b>	<b>0,800</b>	<b>0,093</b>	<b>0,824</b>	<b>0,001</b>	<b>0,251</b>
<b>Type of menopause</b>					
Natural menopause	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
Surgical menopause	19 (6-30)	10 (5-21)	15 (5-25)	8 (4-16)	53 (20-87)

Table 3. C19P-S scores according to participants' descriptive characteristics (continued)

<b>Test**</b>	0,784	0,998	0,778	0,336	0,948
<b>Smoking status</b>					
Yes	17 (6-24)	10 (5-18)	13 (5-17)	8 (4-13)	48,5 (20-67)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	53 (24-94)
<b>Test**</b>	<b>0,005</b>	0,098	<b>0,004</b>	0,473	<b>0,034</b>
<b>Continuously used medication</b>					
Yes	19 (8-26)	10 (5-20)	14 (6-21)	8 (4-17)	51 (24-80)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	53 (20-94)
<b>Test**</b>	0,574	0,883	0,293	0,262	0,415
<b>Chronic disease</b>					
Yes	20,5 (9-26)	10 (5-20)	14,5 (6-21)	8 (4-17)	51,5 (28-80)
No	19 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
<b>Test**</b>	0,782	0,907	0,578	0,488	0,858
<b>Have you ever had Covid-19?</b>					
Yes	17 (8-26)	10 (5-17)	13 (7-18)	8 (4-16)	48,5 (24-76)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	53 (20-94)
<b>Test**</b>	<b>0,034</b>	0,466	<b>0,018</b>	0,958	0,072
<b>Have you lost a relative due to Covid-19?</b>					
Yes	20 (6-28)	10 (5-18)	15 (5-25)	8 (4-14)	53 (20-79)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
<b>Test**</b>	0,893	0,556	0,914	0,281	0,969
<b>Have you used vitamin supplements during the Covid-19 epidemic?</b>					
Yes	22 (9-30)	11 (5-20)	15 (6-24)	8 (4-16)	51 (28-81)
No	19 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52,5 (20-94)
<b>Test**</b>	0,275	0,137	0,695	0,513	0,333
<b>Have you changed your diet during Covid-19?</b>					
Yes	16 (6-30)	9,5 (5-25)	13,5 (5-22)	8 (4-13)	48 (23-90)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
<b>Test**</b>	0,259	0,617	0,288	0,780	0,296
<b>Have you used herbal supplements* to protect yourself from Covid-19?</b>					
Yes	20 (8-30)	11 (5-20)	15 (6-24)	8 (4-16)	52 (24-81)
No	20 (6-30)	10 (5-25)	15 (5-25)	8 (4-17)	52 (20-94)
<b>Test**</b>	0,688	0,339	0,968	0,822	0,689

\* Kruskal Wallis test ( $\chi^2$ ;p) was used. \*\*Mann-Whitney U test (z;p) was used.

Superscripts a, b, and c indicate intra-group differences in each group, and measurements with the same letters were similar.

## DISCUSSION

In our study, the average COVID-19 fear score of menopausal women was found to be moderate (52.84). This is believed to be due to the decrease in case numbers and the growing acceptance of the pandemic period. In our study, no significant relationship was found between COVID-19 fear and dietary supplement use.

Vitamins and minerals are known to have positive effects on the immune system. These nutrients should primarily be obtained through natural dietary sources, although some are also available as supplements. High-dose use of dietary supplements can be harmful rather than beneficial, and is associated with toxicity and drug interactions (22).

According to Mishra et al. (2021), NHANES 2017–2018 data indicate that dietary supplement use increases with age, with an exceptionally high rate of 80.2% among women aged 60 and older (23). As age increases, the prevalence of health problems and vitamin-mineral deficiencies also rises, which in turn increases dietary supplement use (24). Statistical data also show that dietary supplement intake is higher in women during the menopausal period (23).

However, in our study, the rate of dietary supplement use among menopausal women after the COVID-19 pandemic was 13.7%. The possible reasons for this low rate may include the relatively young average age of participants (57 years), low prevalence of chronic disease and continuous medication use, very few smokers and alcohol consumers, and a small number of women who had COVID-19. These factors may suggest that the women participating in the study exhibit positive health behaviors and do not feel the need for dietary supplementation.

The literature also indicates an increase in dietary supplement use during the pandemic. For instance, 36.1% of individuals started using one or more supplements during the pandemic, with vitamins C and D being the most commonly used (25). In Spain, the rate of dietary supplement use during the COVID-19 pandemic was reported as 21.3% (26). In China, the use of nutritional supplements was reported at 37.7% (27). Another study found that during the pandemic, 44.3% of participants used vitamin D, and vitamin C was the second most preferred supplement after vitamin D (28). In the same study, having had COVID-19 was not significantly associated with starting supplement use. Additionally, in another study among adults, no significant relationship was found between COVID-19 fear and dietary supplement use; however, 61.9% of participants started using supplements after the COVID-19 pandemic. The leading supplements were vitamin D, multivitamins, and vitamin C (29).

Moreover, the study by Cil et al. (2025) showed that adherence to the Mediterranean diet during the COVID-19 pandemic had positive effects on health-related quality of life, and that diet adherence was associated with mental health (30). This finding suggests that dietary habits can influence health-related quality of life during the pandemic and may indirectly shape COVID-19 fear.

These findings indicate that while the COVID-19 pandemic increased dietary supplement use, attributing this increase solely to COVID-19 fear may be difficult.

Our study results suggest that dietary habits and health behaviors among menopausal women may have an indirect effect on COVID-19 fear. Healthy nutrition and appropriate use of dietary supplements may play a protective role against COVID-19-related anxiety by supporting the immune system and reducing disease-related worry.

The strengths of this study include its focus on menopausal women, addressing the effects of COVID-19 as a current and socially relevant issue, and interpreting the findings in relation to existing literature. The limitations include the cross-sectional design, which prevents establishing causal relationships, the sample being drawn from a specific region or platform, limiting generalizability, and the use of self-reported data, which may introduce bias.

## CONCLUSION

According to our study's results, the level of fear of COVID-19 among menopausal women is moderate, and the use of dietary supplements during the COVID-19 pandemic is low. No relationship was found between the fear of COVID-19 and the use of dietary supplements. Based on these study results, it is recommended that studies be conducted aimed at determining pandemic fears such as COVID-19 among menopausal women and identifying the levels of dietary supplement use during the menopausal period.

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