

## PAPER DETAILS


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PAGES: 145-161

ORIGINAL PDF URL: <https://dergipark.org.tr/tr/download/article-file/2889810>

## The Relationships among Fear of Covid-19, Health Consciousness, Attitude toward Supplements, and Purchase Intention Using a Moderated Mediation Analysis

Adem Uysal<sup>1</sup> 

<b>Covid-19 Korkusu, Sağlık Bilinci, Takviyelere Yönelik Tutum ve Satın Alma Niyeti Arasındaki İlişkilerin Moderatörlü Aracılık Analizi ile İncelemesi</b>	<b>The Relationships among Fear of Covid-19, Health Consciousness, Attitude toward Supplements, and Purchase Intention using a Moderated Mediation Analysis</b>
<b>Öz</b> <p>Bu çalışmanın amacı, düzenlenmiş aracılık modeli (moderated mediation) kullanarak, Covid-19 korkusu (FoC), takviyelere yönelik tutumlar (AtS), sağlık bilinci (HC) ve satın alma niyeti (PI) arasındaki ilişkileri incelemektir. 308 tüketiciden yüz yüze anket yoluyla toplanan veriler betimsel istatistikler ve yapısal denklem modellemesi kullanılarak analiz edildi ve hipotezler Hayes'in ürettiği süreç modeli ile test edildi. Elde edilen sonuçlara göre AtS değişkeninin FoC ile satın alma niyeti arasındaki ilişkiye kısmen aracılık ettiği görülmüştür. Sağlık bilincinin ise, gıda takviyelerine yönelik tutumların aracılık ettiği FoC ve PI arasındaki ilişkinin gücünü düzenlediği görülmüştür. Buna göre, Covid-19 korkusunun gıda takviyelerine yönelik tutumlar aracılığıyla satın alma niyeti üzerindeki etkisi, tüketicilerin sağlık bilinçlerine (düşük ve yüksek) göre farklılık göstermiştir. Çalışma, COVID-19 salgını sırasında faaliyet gösteren gıda takviyesi üretici firmalara, araştırmacılara ve pazarlamacılara önemli ipuçları sağlamaktadır.</p>	<b>Abstract</b> <p>The purpose of this study is to examine the relationship between fear of Covid-19 (FoC), attitudes toward supplements (AtS), health consciousness (HC), and purchase intention (PI) by using moderated mediation analysis. The data acquired from 308 customers via face-to-face surveys were analyzed using descriptive statistics and structural equation modeling, and the process model produced by Hayes tested the hypotheses. The results show that the variable of AtA partially mediated the association between FoC and purchase intention. Health consciousness moderates the strength of the relationships between FoC and PI mediated by AtS. According to this, the influence of fear of Covid-19 on purchase intention via the attitudes toward food supplements differs according to consumers' health consciousness (low vs. high). The study provides essential cues for researchers, marketers, and advertisers of food supplements during the COVID-19 pandemic.</p>
<b>Anahtar Kelimeler:</b> COVID-19 Korkusu, Takviyelere Yönelik tutumlar, Satın Alma Niyeti, Sağlık Bilinci, Türkiye	<b>Keywords:</b> Fear of COVID-19, Attitudes Toward Supplements, Purchase Intention, Health Consciousness, Türkiye
<b>JEL Kodları:</b> M3, M31, M37	<b>JEL Codes:</b> M3, M31, M37

<b>Araştırma ve Yayın Etiği Beyanı</b>	Bu çalışma Muş Alparslan Üniversitesi Bilimsel Araştırma ve Yayın Etiği Kurulu 11.05.2022 tarih ve 59 karar nolu Etik Kurul Onay Belgesi ile) bilimsel araştırma ve yayın etiği kurallarına uygun olarak hazırlanmıştır.
<b>Yazarların Makaleye Olan Katkıları</b>	Çalışmanın tamamı yazar tarafından hazırlanmıştır.
<b>Çıkar Beyanı</b>	Yazarlar açısından ya da üçüncü taraflar açısından çalışmadan kaynaklı çıkar çatışması bulunmamaktadır.

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## 1. Introduction

The World Health Organization (WHO) added COVID-19 (coronavirus disease), which appeared in Wuhan, China, in December 2019 and affected the whole world, to the list of pandemic diseases on March 11 (WHO, 2020). In addition, the first coronavirus case in Turkey was seen on March 10, 2020 (T.C. Ministry of Health, 2020). In this situation, the fear of being infected and the high mortality rate created fear (Lipsitch et al., 2020). Individuals exposed to fear and uncertainty preferred to adopt preventative techniques and self-care treatments (such as vitamins A, C, D, and E, as well as zinc, copper, selenium, iron, and probiotics, which were associated with improved immune function)(Jayawardena et al., 2020; Maggini et al., 2018), and they tended to the alternative medicine to demonstrate their control and to lower risk in these conditions (Hwang et al., 2020; Alyami et al., 2020). The rapid spread of the COVID-19 pandemic raised the demand for food supplement products to strengthen immunity, reduce disease transmission, or alleviate disease symptoms. During the pandemic, there was a surge in interest in the usage of vitamins, with vitamins C and D being the most sought-after (Çimke and Yıldırım, 2021; Demir et al., 2021).

Furthermore, health-conscious consumers have practiced healthy behaviors in this situation and paid attention to their health Jayanti and Burns (1998). As Lee et al. (2014) said, these people are concerned about their health, and health-conscious people tend to participate in more beneficial activities to enhance or preserve their health. Moreover, Consumers concerned about their health talk about it, research it and take preventative measures like exercising or taking supplements. (Quinones et al., 2013). However, despite the necessity of nutritional supplements and the facts above during the pandemic, studies about food supplementation in Turkish society during the COVID-19 pandemic are scarce (Macit, 2020; Samar, 2021).

Considering all these reasons, this study aims to investigate the direct impact of COVID-19 fear on attitudes about advertised food supplement products and the indirect effect on purchase intention for these products. Furthermore, as another purpose of the research, it is predicted that the influence of fear of Covid-19 on purchase intention via food supplement advertising differs according to customer health consciousness (low vs. high).

In this context, a model with related variables such as fear of COVID-19 (FoC), attitude toward supplements (AtS), purchase intention (PI), and health consciousness was constructed in this study. The possible relationships in this model were tested by bootstrapping analysis using PROCESS SPSS macro (Model 4 and 14 n = 5000 resamples; Hayes, 2022).

The present study attempted to address the issue's theoretical and practical aspects. A mediated moderation model was developed to investigate how fear of COVID-19 via attitudes toward supplements moderated by health consciousness affected consumer purchasing intention. In addition, the current study helps guide marketers and advertisers of supplements in the pharmaceutical and healthcare industries to tailor appropriate strategies for improving product promotion or healthcare-related concerns by looking into the effect of consumer buying behavior toward food supplements during the pandemic.

The article is structured as follows. First, I examine the concept of fear of Covid, attitudes toward supplements, purchase intention, and health consciousness, along with related theoretical hypotheses. Second, I describe our methodology and present our findings. Finally, I discuss the theoretical and managerial implications, limitations, and future research prospects.

## 2.Literature Review

### 2.1. Fear of Covid-19 and Attitudes towards Supplements

The increase in deaths during the COVID-19 pandemic heightened people's feelings of risk, causing fear and panic (Demir et al., 2021). At the same time, commercials addressed the fact that human health was under threat, and firms frequently referred to fear components (Aydın, 2021). Because of the stress reactions induced by the perception of COVID-19, people may become more attentive and more inclined to actively process messages relevant to their situation (Cho and Chiu, 2021). The audience's emotional reaction is sometimes characterized as the audience's attitudes toward supplements (Lutz et al., 1983). Tsang describes that attitude as a component that directly influences consumer perceptions and actions and refers to a person's positive or negative sentiments or directions regarding a concept, an item, or a symbol (Tsang et al., 2004).

The impression of COVID-19 leads people to interact more with the argument quality of food supplement advertising since it commonly causes stress and is linked to attitudes toward food supplements. During the pandemic, consumers have been pushed to utilize food supplement products. This situation has caused consumers to have attitudes toward supplements positively or negatively. Consequently, we proposed the following hypothesis considering previous research:

**H1.** Fear of COVID-19 positively impacts the attitude toward the food supplement.

### 2.2. Fear of Covid-19, Attitudes towards Supplements and Purchase Intention

Purchase intention is a well-known phenomenon in marketing research. Therefore, significant academic research was conducted to determine the nurturing antecedents (Addo et al., 2020). In terms of consumer behavior, behavioral intention is an element that affects the tendency of a consumer to engage in certain conduct. For example, the consumer's inclination to acquire a product in the future may be expressed as purchase intention, which may result from behavioral intention (Uysal et al., 2019). Purchase intention is an estimate of which business the customer will buy from. Consumer attitudes toward a product positive are called purchase intention (Demirgüneş, 2015).

One of the study's aims was to evaluate consumer attitudes regarding the food supplement products advertised during the pandemic as an essential determinant of consumers' intentions to purchase these products. This can be explained by planned behavior theory. According to Ajzen's planned behavior theory, proposed in 1991, a good attitude toward an object, phenomenon, or subject will reflect positively on the individual's behavior, resulting in consistency between the individual's attitudes and behaviors (Uysal and Okumuş, 2019).

The customer's perception and appraisal of the information is then influenced by the amount of acceptance, which eventually impacts attitude toward a product, idea, or brand. If the advertising to which a person is subjected elicits positive emotions, it fosters a favorable attitude, which eventually displays as purchase intention (Mackenzie and Lutz, 1986). When the research is examined, we can observe the influence of product attitude on purchase intention in early studies about the subject (Lutz et al., 1983; Batra and Ray, 1986), as well as in many studies completed recently (Taşer et al., 2020; Öztürk and Savaş, 2014).

**H2:** Attitudes towards supplements positively affect purchase intention.

**H3:** Attitude toward supplements is a mediator in the relationship between fear of Covid and purchase intention.

### 2.3. As a Moderator, Health Consciousness

Health consciousness, according to Dutta-Bergman (2004b), is "an indication of the consumer's intrinsic incentive to preserve good health" as well as "a reflection of their duty for health" (p. 398). Furthermore, Jayanti and Burns (1998) defined health consciousness as the degree to which a person integrates health problems into their everyday lives. Therefore, health-conscious consumers practice healthy behaviors in their daily lives and pay attention to their health. In addition, health consciousness necessitates ongoing observation of health-related activities and proactive responsibilities (Suprpto and Wijaya, 2012).

The protection motivation theory helps explain the relationship between health consciousness and purchase intention (Rogers, 1975,1983). The protection motivation theory (PMT) was developed to address how fear appeal affects health-related attitudes and health-protective behaviors. The theory's fundamental assumption is that an individual's drive to engage in protective actions stems from a perceived threat and a desire to avoid potential negative consequences. In addition to the nature of the danger, the theory involves remedies or procedures that may prevent or lessen the impact of the threat (Rogers, 1975).

The fear and anxiety that emerged during the pandemic highlighted the need to be healthy and care for our health. In this pandemic, when fear and worry are more prevalent, this study indicated that health-conscious customers are more likely to be prepared to behave healthily than less health-conscious consumers. Hwang and Cranage (2010) discovered that consumers were becoming more aware of and worried about their overall well-being. They were driven to preserve or enhance their health and quality of life through food and exercise. As a result, health-conscious consumers may be more likely to utilize supplements to improve their health (Quinones et al., 2013). Moreover, in audience segmentation, health consciousness is a crucial psychographic factor since it can predict various health attitudes and behavior (Chen, 2013). According to Royne et al. (2014), views about supplements and health consciousness are related.

It is argued that attitudes toward food supplements will mediate the relationship between FoC and PI. Furthermore, it is contended that health consciousness will also moderate the indirect effect of FoC on PI via AtS. As a result of this prediction, a moderated mediation model is suggested:

**H4:** Health consciousness is moderate in the indirect relationship between attitudes toward supplements and purchase intention through fear of COVID-19.

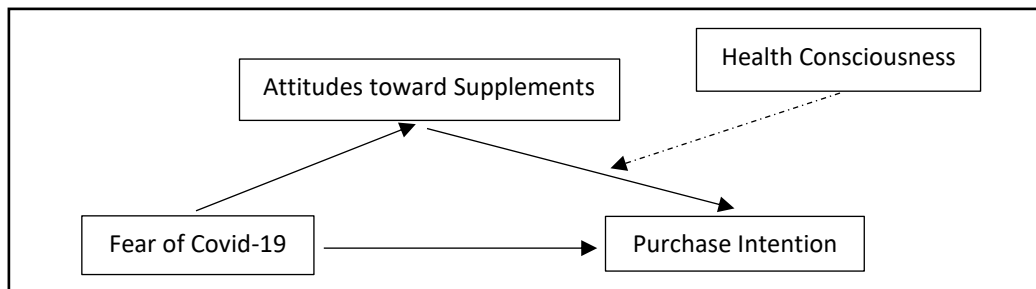
### 3. Research Methodology

#### 3.1. Variables and Model

The study determined the variables of fear of COVID-19, health consciousness, attitudes toward supplements, and purchase intention.

A seven-item scale created by Ahorsu et al. (2020) and adapted into Turkish by Bakioğlu et al. (2020) was used to assess people's fear of COVID-19. Furthermore, Öztürk and Savaş, (2014) and Polat et al. (2020) used a scale to evaluate the information offered by advertisements about the food supplement products. In addition, a seven-item attitude scale derived from existing work was used to assess health consciousness (Gould (1988); Willis and Stafford, 2016). Finally, purchase intention was measured using a three-item scale from Liu et al.'s (2021) study. These scale items were adapted for the study.

Figure 1: Research Model



The research model has four variables: fear of COVID-19, attitudes toward supplements, purchase intention, and health consciousness. In addition, the moderated mediation model is applied in this study. As noted in the model, the goal is to identify the direct impacts of COVID-19 fear on attitudes toward supplements and the effect of attitudes toward supplements on purchase intention. Furthermore, one of the study's goals is to see if the impact of purchase intention differed according to the health consciousness variable.

The scope of the study included consumers over 18 residing in Muş province in Türkiye who were exposed to food supplement advertisements during the COVID-19 pandemic.

#### 3.2. Supplements' Definition

For the current study, supplements refer to a product taken by mouth that is prepared using nutrients such as vitamins, minerals, proteins, amino acids, plants, enzymes, fiber, and fatty acids. Supplements include concentrates or extracts and may take different forms (e.g., tablets, liquids, powders, capsules, gelcaps, softgels) (Liu et al. 2021). A product may also include one or more supplements. A supplement should promote health preservation and illness prevention (Bailey et al., 2013).

#### 3.3. Sampling and Data Collection Methods

The face-to-face survey method was used in the data collection process. Before collecting data, a preliminary survey of 50 respondents was used to assess the understandability of the statements in the questionnaire form. Then, the survey questions were rearranged based on the results, and the survey form assumed its final form.

Through pollsters before starting the questionnaire, the participants were reminded of examples of advertisements for food supplements, frequently shown in communication channels when the interviewer deemed it necessary. Moreover, the participants were shown images of supplements and given thorough explanations of these goods before filling out the questionnaire (e.g., minerals, vitamins C, D, E, and probiotics) so that the questionnaires could be answered more healthily.

In the study, a total of 450 questionnaires were delivered by pollsters, with 370 questionnaires completed, employed with a face-to-face survey approach. Of these, 62 surveys with incomplete or inconsistent responses were excluded from consideration, while 308 questionnaires were included in the analytic procedure.

After, Ethics committee decision: Scientific Research and Publication Ethics Committee of Muş Alparslan University, Date: 11/05/2022, Meetings:7, Decisions: 59, the data collection process was carried out with the help of pollsters seven days a week without interruption for twelve weeks between 15.05.2022 and 15.08.2022. Various giveaways, such as pencils and notebooks, were gifted to the respondents to increase the response rate.

#### **4.Analysis**

Descriptive analysis was used to describe and compare the demographic data (marital status, profession, age, and education level). Confirmatory factor analyses were used to test the structural validity of the scales used in the study. Cronbach's alpha analysis was applied to each scale to evaluate their score reliability. Before the hypotheses were realized, a correlation matrix showing the relationships between the variables was created, and multicollinearity status was assessed.

Furthermore, the mediation and moderated mediation models were assessed using the PROCESS macro developed by Hayes (2013), which included bootstrapping to provide 95 percent bootstrap confidence intervals. PROCESS was operated using one independent variable (fear of Covid-19), a mediator (attitudes toward supplements), a moderator (health consciousness), and one dependent variable (purchase intention).

While testing the hypothesis, the mediation analysis method proposed by Hayes (2018) and other researchers (Mackinnon, 2000; Shrout and Bolger, 2002) was adopted instead of the 4-stage model proposed by Baron and Kenny. Thus, a two-stage model has been applied. First, the mediator analysis, which is the number 4 model in the process macro, was reported, and then the moderated mediation, which is the number 7 model in the process macro (Korkmaz, 2020).

##### **4.1 Demographic Characteristics**

When Table 1 is examined, it is understood that the number of women outnumbered men, and the average age of the consumers participating in the research was 30.14. The distribution of married and single consumers was almost the same. In addition, it is seen that the majority of the sample (89%) has upper secondary education, undergraduate, and graduate education, and the income level of the majority is 2000 TL and above. Still, participants from different income levels and different occupational groups were also included in the research.

Table 1: Demographic Characteristics (n=308)

Sex	N	%	Education	N	%
Female	78	25.3	Elementary/Middle School	5	1.6
Male	230	74.7	High school	10	3.2
Monthly Income	N	%	College	19	6.2
less than 2000₺ and 2000₺	70	22.7	Associate Degree-Bachelor's Degree	140	45.5
2001₺ -4000₺	34	11.0	Graduate	134	43.5
4001₺ -6000₺	58	18.8	Profession	N	%
6001₺ -8000₺	76	24.7	Employee- Private Sector	28	9.1
8001₺ -10000₺	43	14.0	Employee- Public	161	52.3
More than 10000₺	27	8.8	Self-Employed/Tradesmen	10	3.2
Age (years) average:		30.1	Retired- Housewife	4	1.3
Marital status	N	%	Student	92	29.9
Married	141	45.8	Others	13	4.2
Single	167	54.2			

#### 4.2. Confirmatory Factor Analysis

First, the obtained data were tested for reliability and validity using confirmatory factor analysis to test the hypotheses. Then, Convergent and discriminant validity analyses were performed to verify the validity and reliability of the measures utilized. To verify the convergent validity of the scale, the standard regression weights of the variables and the average explained variance (AVE) values should be greater than 0.50, and structural reliability values (CR) should be greater than 0.70 (Hair et al., 2010)

To assess each scale's reliability, Cronbach's alpha analysis was used. A multi-group analysis was conducted to determine whether the effects between study variables differed in terms of consumer health-consciousness levels.

As shown in Table 1, the validity and reliability of the scales utilized, as well as the construct reliability (CR) values for all variables in the research scale, were all greater than 0.60. Similarly, the average explained variance (AVE) values and standard regression weights were more than 0.50. As a result, convergent validity criteria for all variables were met (Hair et al., 2010).

Table 2: Measurement Model

Latent and Observed Variables	Loadings	CR	AVE
<b>Fear of Covid-19 (Cronbach alpha: 0.890)</b>		0.89	0.54
I am most afraid of coronavirus-19	0.779		
It makes me uncomfortable to think about coronavirus-19.	0.731		
My hands become clammy when I think about coronavirus-19	0.638		
I am afraid of losing my life because of coronavirus-19.	0.738		
When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	0.730		
I cannot sleep because I'm worrying about getting coronavirus-19.	0.808		
My heart races or palpitates when I think about getting coronavirus-19.	0.715		
<b>Attitudes toward supplements (Cronbach alpha: 0.903)</b>		0.90	0.66
The food supplement products I see in advertisements during the COVID-19 pandemic attracted my attention.	0.676		
My attitude towards food supplement products that I see in advertisements during the COVID-19 pandemic is positive.	0.771		
The food supplement products I see in advertisements during the COVID-19 pandemic are good and useful.	0.885		
The food supplement products I see in advertisements during the COVID-19 pandemic are the logical choices.	0.884		
The food supplement products I see in advertisements during the COVID-19 pandemic are the logical choices	0.843		
<b>Purchase Intention (Cronbach alpha: 0.840)</b>		0.84	0.65
I am willing to purchase the food supplements for maintaining a healthy condition	0.914		
I have suggested that others buy the food supplements	0.861		
I am willing to pay more for the food supplements than for ordinary food products	0.619		
<b>Health-Consciousness (Cronbach alpha: 0.894)</b>		0.89	0.58
1. I'm usually aware of my health	0.620		
2. I'm very self-conscious about my health	0.769		
3. I'm constantly examining my health	0.681		
4. I notice how I feel physically as I go through the day	0.629		
5. I'm very involved with my health	0.914		
6. I'm generally attentive to my inner feelings about my health	0.915		
The measurement model fit statistics: [ $\chi^2$ /sd (2.814), RMSEA (0.78), NFI (0.929), RFI (0.920), CFI (0.953), and GFI (0.905)]			

The highest value was found when the correlation matrix values (Table 2) were examined at 0.71, and the other values were noticeably lower. There was no significant ( $>0.85$ ) correlation between the independent variables (Hair et al., 2010). This demonstrates that there were no correlations between the variables that would have caused multicollinearity. Discriminant validity was therefore validated. Additionally, Cronbach's alpha values were determined to be greater than 0,70 for each scale structure, showing that the scale items exhibited the necessary internal consistency.

Given that the data were gathered by self-report, common technique bias was examined. Harman's single-factor test was based on Harman's instructions (1976). Principal component analysis revealed that no single factor emerged with a single factor accounting for 31.42 percent of the variance, which is less than the 50 percent level indicated by Podsakoff et al. (2003), indicating that there was no substantial common method bias in our work (Aguirre-Urreta and Hu, 2019).

Table 3. Correlation Matrix

Variables	1	2	3	4
1. Fear of Covid	(0.73)			
2. Attitude	0.360*	(0.81)		
3. Purchase Intention	0.361*	0.710*	(0.80)	
4. Health-Consciousness	0.323*	0.241*	0.103*	(0.76)

#### 4.3. Mediation and Moderation Analyses.

After ensuring the validity and reliability of the data obtained as a result of the research, the PROCESS macro created by Hayes (2013) was used to evaluate the mediation and moderated mediation models, which included bootstrapping to obtain 95 percent bootstrap confidence intervals. First, the mediation relationship, which is model 4 in the process macro, and then the moderated mediation, which is model 14 in the process macro, are reported. Second, we report the results of the direct effect, indirect effect, and moderated mediation significance index by the bootstrap method used to measure mediation.

##### 4.3.1. Mediation Analyses

Mediation analysis is used to identify and explain the relationship between the dependent variable (PI) and an independent variable (FoC), which may be affected via the interaction of a third variable (AtS). AtS is a mediating variable representing a mechanism through which FoC affects PI.

(1) The results show that fear of COVID ( $\beta=0.36$ ,  $p < 0.000$ ) had a considerable positive effect on attitudes toward the food supplement, supporting **H1**. This result suggests that consumers frightened of COVID had a positive attitude towards the food supplement products (Table 4).

(2) The results show that attitudes toward supplements ( $\beta=0.74$ ,  $p < 0.000$ ) had a significantly positive effect on purchase intention, supporting **H2**. This means that the food supplement products advertised during the pandemic were of interest to customers and potentially led to purchases (Table 4).

(3) The mediating role of AtS in the relationship between FoC and PI was investigated. The lower and higher confidence intervals for the indirect effect of FoC were not included 0 in the bootstrap results. Thus, the indirect effect of FoC on PI via AtS was significant (effect = .27; bootSE = .05; 95% CI [.17.25, .37.72]), supporting **H3** (Table 5). Furthermore, Table 5 shows the bootstrapped 95% confidence interval (CI), which confirmed that the indirect effect of AtS in the relationship between FoC and PI was significant.

Table 4. Mediation Analysis (N = 308).

Variables	B	SE	t-value	P	R	R-sg
1. Fear of Covid→ Attitude	.36	.05	6.73	0.000	.35	.12
2. Fear of Covid + Attitude→ Purchase Intention	.12 .74	.04 .04	2.73 16.66	0.066 0.000	.73	.54
3. Fear of Covid→ Purchase Intention	.39	.05	6.76	0.000	.13	.36

Table 5. Bootstrap Results for Indirect Effect (N = 308).

Indirect effect(s) of Fear of Covid-19 on Purchase Intention				
Variables	Effect	BootSE	BootLL 95% CI	BooUL 95% CI
Purchase Intention	.27	.05	0.1725	0.3732

In the case of partial mediation, the mediating variable cannot measure the entire relationship between the dependent and independent variables. The relationship between the dependent and independent variables remains significant, but there is a decrease in the level of significance (Hayes, 2009). As seen in the tables, there is a significant and positive effect between FoC and PI (Table 4), and the path coefficient decreased from  $\beta = .39$  to  $\beta = .27$  (Table 5) with the inclusion of the mediating variable in the model. These results indicated that AtS partially mediated the relationship between FoC and PI.

#### 4.3.2. Moderated Mediation Analyses

As AtS mediated the effect of FoC, the moderating effect of HC on the mediation was tested using PROCESS macro-Model 14. The result provided a significant moderated mediation effect of HC. The results suggested that the interaction between attitudes toward supplements and purchase intention (AtS×HC) [Table 5]) was substantial for purchase intention ( $p = 0.098$ ).

Table 6. Moderated Mediation Effect of Health-Consciousness

Outcome variable: Purchase Intention				
Variables	B	SE	t	P
Fear of Covid	.15	.04	3.36	.0010
Attitude	.76	.04	17.16	.0000
Interaction (AtS*HC)	.11	.04	2.6	.0098
R <sup>2</sup>	.565			

As seen in Table 6, in the high health consciousness condition, the effect of attitudes toward supplements was significant on purchase intention (indirect effect: .84,  $p$ : .0000, 95% CI= (.7405, .9580). Moreover, it was significant in the low health conscious (indirect effect: .67,  $p$ : .0000, 95% CI= (.5608, .7834), supporting H3. Thus, it can be concluded that health consciousness alters the mediation effect of AtS between FoC and purchase intention (Table 7).

Table 7. Bootstrap Analysis of Significance Test on Moderation–Mediation Effects.

Outcome variable: Purchase Intention						
Moderator: Health Councious	Indirect effect	SE	t	p	LL 95% CI	UL 95% CI
Higher Health Councious	.8493	.0553	15.36	.0000	.7405	.9580
Mean	.7607	.0443	17.16	.0000	.6735	.8479
Lower Health Councious	.6721	.0565	11.88	.0000	.5608	.7834

When the moderated mediation (Process model 14) is examined in the slope plot, the effect of AtS on PI changes according to the level of health consciousness. These results indicate that consumers exposed to the advertising of food supplements and with higher levels of health consciousness could intend to buy the food supplements more than those with lower levels of health consciousness. These results suggest that the more health-conscious consumers care about their health, the more likely they are to purchase food supplements. As a result, it is seen that a high level of health consciousness further strengthens the relationship between the variables. The final moderated mediation model is displayed in Fig 2.

Figure II: Moderating Effect.

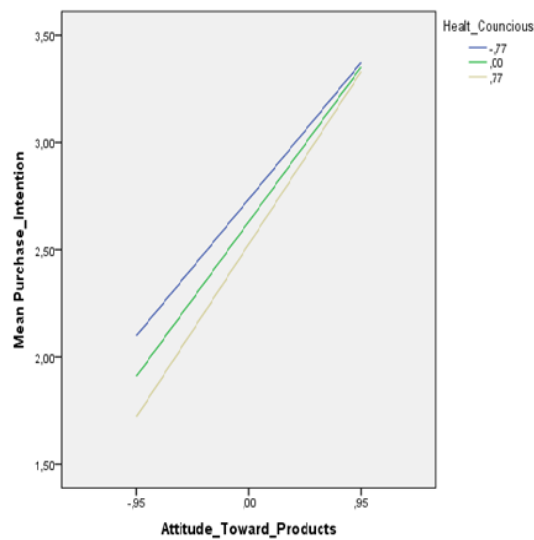


Table 8. Hypothesis Testing

Hypothesis	Result
H <sub>1</sub> Fear of COVID-19 positively impacts the attitude toward the food supplement.	Supported
H <sub>2</sub> Attitudes towards supplements positively affect purchase intention.	Supported
H <sub>3</sub> Attitude toward supplements is a mediator in the relationship between fear of Covid and purchase intention.	Supported
H <sub>4</sub> Health consciousness is moderate in the indirect relationship between attitudes toward supplements and purchase intention through fear of COVID-19.	Supported

## 5. Discussion

This study analyzed the impacts of fear of COVID on attitudes toward food supplements, which further led to purchase intention. Moreover, the study investigated the fear of Covid-19 on purchase intention via the attitudes toward food supplements according to consumers' health consciousness (low vs. high).

First, this research found that the fear of COVID significantly impacted attitudes toward food supplement advertising. Accordingly, hypothesis H1 was accepted. Therefore, it can be asserted that the fear created by COVID-19 in a consumer increased the person's interest in messages about vitamins/supplements, which converts to attitude. Previous studies conducted in different contexts also reported similar results for advertising of indoor fitness products (Choi and Chiu, 2021) and protection in virus-themed advertising (e.g., detergent, disinfectant, mask, wet wipes) (Aydın, 2021).

Second, in the context of the COVID-19 pandemic, this study discovered that attitudes toward the food supplement positively impacted purchase intention. Thus, hypothesis H2 was approved. The results concur with a comparative investigation in the pertinent literature (Can and Teli, 2016), which claimed that the attitude toward the food supplement significantly suggested that the consumer intends to purchase the product.

Thirdly, in the context of the COVID-19 pandemic, this study discovered that attitudes toward the food supplement positively impacted purchase intention. Thus, hypothesis H2 was approved. Furthermore, the results concur with a comparative investigation in the pertinent literature (Can and Teli, 2016), which claimed that the attitude toward the food supplement significantly suggested that the consumer intends to purchase the product.

Finally, it was observed that health consciousness moderated the indirect relationship between attitudes toward supplements and purchase intention through fear of COVID-19. Therefore, we found differences in the influence of fear of COVID on purchase intention via attitudes toward supplements by the higher and lower health-conscious consumers. In other words, there were differences between the higher and lower health-conscious customers in AtS and PI. Accordingly, hypothesis H4 was accepted. The result shows that people who are more concerned about their health and have a positive attitude toward food supplements are more likely to buy products to maintain or improve their health and quality of life during Covid-19.

### 5.1. Theoretical and managerial implications

The COVID-19 pandemic significantly changed consumers' decision-making processes (Kayabaşı, 2020). We discovered a substantial effect of COVID-19 fear on attitudes toward supplements. These results show consistency with the previous studies. Cho and Chio (2021) examined COVID perception's impact on attitudes toward indoor exercise products from an ELM theoretical approach. Because of this study's findings, consumers cared about supplement product advertisements during the pandemic, adopted attitudes towards supplements, and found this helpful knowledge to improve their immune system and resist the disease.

Second, the attitude toward food supplements influences the purchase intention for food supplement products. According to planned behavior theory, a positive attitude towards a subject is positively reflected in the individual's behavior (Ajzen, 1991). This study shows that individuals developed a positive attitude towards vitamin advertising and were willing to buy

these products against a disease such as COVID-19, which is of great interest to them. This study's findings are also consistent with prior studies about people's views of diseases that concern them. Having the virus causes people to develop a good and pleasant attitude and conduct toward specific products that can improve their life (Lee et al., 2012; Wu et al., 2010).

Thirdly, as a result of the analyses to determine the mediating effect, it was determined that attitude towards food supplements partially mediated between fear of Covid-19 and product purchase intention. In other words, the impact of Covid-19 fears on purchasing intent varied depending on consumer attitudes toward food supplements. Aydın (2021) confirms this study. In addition, Aydın's investigation observed that virus protection-themed advertisements on television during the Covid-19 period mediated consumers' attitudes toward protection products (e.g., detergent, disinfectants, masks, wet wipes), and this attitude mediated their purchase intentions. As a mediator, attitudes towards food supplements between fear of Covid-19 and purchase intention considering that it is not sufficiently covered in the literature, in this study, the finding of the mediating effect of attitude toward supplements is essential to the literature.

Finally, it was observed that health consciousness moderates the strength of the relationships between fear of Covid and purchase intention mediated by positive coping styles. This means there were differences between the higher and lower health-conscious consumers in terms of fear of Covid, attitudes toward supplements, and purchase intention. Individuals are motivated to respond in a self-protective manner to a perceived health threat, according to Rogers' (1975) protection motivation theory. In the context of fear of COVID-19, the results reveal that more health-conscious consumers are more aware of their health behaviors, have a more positive attitude toward the food supplements, and intend to purchase them.

The conclusions also include several recommendations for marketing and brand managers. First, we found that the variables included in our research model differed according to high and low-health-conscious consumers. High health-conscious customers favor supplementary products during the pandemic, are more interested in them, and regard them as sensible options. As a result of the study's findings, marketers should target lower health-conscious consumers when selling food supplement goods.

In addition, we found that the attitude toward food supplement positively and strongly affected people's intention to purchase these products during the COVID-19 pandemic. Therefore, it has been observed that it would be beneficial to carry out more communication activities that emphasize sensitivities towards the preference of food supplements in markets where individuals in the eastern provinces of Turkey, such as Muş, where attitudes towards food supplements are predicted to be low. Particularly during the ongoing COVID-19 period, consumers increasingly use various social media platforms to receive, exchange, and share information; marketers could explore leveraging social media as a platform for advertising and selling products. Marketers must pay closer attention to the quality of internet product marketing since they might influence consumer views and purchasing intentions.

Moreover, although health-conscious customers are more likely to utilize food supplements to improve their quality of life, they may be unaware that such items are not entirely natural, frequently contain ingredients found in prescription pharmaceuticals, and may not be adequately regulated (Quinones et al., 2013). In this regard, it is critical to consider what supplements are, if they are indispensable, their advantages and drawbacks,

and what degree of awareness consumers have about them (Özbekler, 2019). Marketers should consider this issue and give more importance to communication efforts for informational purposes. Especially in provinces such as Muş, information about product content can be shared by placing advertisements on billboards and opening stands in limited central living, streets, and recreational areas. In addition, through local radio programs, marketers can share information about the content and benefits of the product to raise awareness about food supplements. The majority of advertised food supplement products are available from pharmacies in Turkey. Therefore, more sales of these products can be realized by establishing one-to-one communication with consumers through local pharmacies, eliminating these concerns.

## **5.2. Limitations and future research**

This study has certain limitations that point to possible avenues for more investigation. First, the end of the study is that the sample does not equally cover consumer groups with different demographic characteristics. Moreover, the study's target population comprises people residing in a city in eastern Turkey called Muş who were exposed to food supplement product advertisements during the COVID-19 pandemic. Consumers living in the east and west of Turkey may differ regarding socio-demographic characteristics and their level of health consciousness. Thus, future studies might recruit research participants from other cities in Turkey to improve the external validity and generalize the research results.

Second, this study investigated the effects of attitude towards advertising and purchase intention. In future studies, the results of attitude towards the reliability of the advertisement and the attitude towards the advertiser brand can be investigated. Thus, the most preferred supplementary brand in Turkey can be included within the scope of the research. The attitude and purchase intentions of consumers based on advertising could be measured in terms of these supplement brands.

Thirdly, it is critical to emphasize that the relationship between attitudes and actions is complex and that positive attitudes may not always translate into innate behaviors. Future studies should thus expand our findings to consider attitude behavior. A few food supplements that are highly advertised and more visible in media communication tools can be included in the scope of future research, and new studies can be conducted with different variables (product satisfaction, commitment vs.).

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