

Do health anxiety and social value shape the intention to consume functional food: the role of health knowledge levels—evidence from Istanbul

The role of
health
knowledge
levels

Received 4 December 2022
Revised 7 May 2023
Accepted 17 May 2023

Berna Kurkcu

Bağakşehir Çam Ve Sakura Şehir Hastanesi, Istanbul, Turkey

Eylem Üstünsoy

Department of Culinary Arts, Kapadokya Üniversitesi, Nevşehir, Turkey, and

Bekir Bora Dedeoğlu

*Department of Tourism Guiding, Nevşehir Hacı Bektaş Veli Üniversitesi,
Nevşehir, Turkey*

Abstract

Purpose – This study has two main purposes. First, the effects of health anxiety and perceived social value on the intention to consume functional food were examined. Second, the role of health knowledge levels in these relationships was identified.

Design/methodology/approach – The sample consisted of 271 restaurant consumers on the European side of Istanbul between August and October 2021. Partial least squares structural equation modeling (PLS-SEM) was used to test the research model.

Findings – Restaurant consumers revealed that health anxiety and perceived social value positively affect functional food consumption intentions. Moreover, health knowledge levels have a negative moderating effect on the relationship between health anxiety and functional food consumption intentions.

Originality/value – Thanks to the findings of this study, the roles of health anxiety, perceived social value and health knowledge in functional food consumption were determined, thus filling a vital literature gap.

Keywords Functional foods, Health anxiety, Social value, Health knowledge levels

Paper type Research paper

1. Introduction

People consume food not only to meet their basic biological needs but also to increase their well-being. The statement of Hippocrates, “Let food be thy medicine and medicine be thy food,” uttered 2,500 years ago, laid the foundation of health-based production and consumption behaviors, which started as food scientists and consumers learned that certain foods have many benefits (El Sohaimy, 2012). Such behaviors are still practiced today. Since ancient times, people have used food for particular purposes, such as getting and staying healthy, and have evaluated food production/consumption as a whole. In our postmodern age, the health factor forces us to display sensitive food preferences (Pech-Lopatta, 2007; Goetzke *et al.*, 2014; Kraus, 2015). As health concerns regarding food consumption increase, seeking healthy food behaviors also increases (Aguilar *et al.*, 2019). Individuals are motivated by health concerns in all stages of food consumption practices, which include before, during and after consumption. They, therefore, seek correct consumption preferences that are good for health.



Accordingly, in recent years, consumer demands, preferences and evaluations regarding food consumption have changed significantly. Food companies have started initiatives to develop food products that offer many different benefits with a single food (Sloan, 2004; Siro *et al.*, 2008; Xin and Seo, 2020). One of these initiatives involves new food products enriched with functional components to provide promising benefits (Barauskaite *et al.*, 2018). Accordingly, functional foods have attracted a great deal of attention. Given their versatile features, they play active roles as alternative foods in food consumption. Thus, the intention to consume functional food is highly associated with health anxiety and concern about food consumption (Baker *et al.*, 2022). Accordingly, health anxiety can be regarded as an important source of motivation for the intention to consume functional foods.

On the other hand, another source of motivation for the intention to consume functional food or for driving tendencies toward functional foods is consumer-perceived social value (Barauskaite *et al.*, 2018). The concept of social value refers to the association of one's product choice with the expected choice of a particular social group and is based on the idea that consumers link new food products with being a member of a particular social class or reference group (Thomé *et al.*, 2018). In this regard, considering that individuals perceive functional food consumption as an element of social status among luxury products, the perceived social value in functional food consumption can be argued to affect the consumption tendencies and intentions of the individual. Perceived social value, therefore, is also an important factor in the consumption of functional foods (Gaspar *et al.*, 2020; Barauskaite *et al.*, 2018). Evidence regarding the impact of healthy foods as a means of social value and differentiation on consumption intentions has recently been brought forward by Barauskaite *et al.* (2018), Gaspar *et al.* (2020) and Chen and Antonelli (2020).

Functional food consumption, a dynamic field of study expanding day by day across disciplines, has attracted particular attention in the last decade. Solid scientific criteria are required to identify the factors involved in the functional food consumption process (Özen *et al.*, 2012; Aguiar *et al.*, 2019). The main factor is to reveal how consumers define functional food and which events and situations have a positive or negative effect on functional food consumption trends (Verma *et al.*, 2018). A comprehensive examination of predecessors and successors in functional food consumption is important for defining demands and needs relating to the consumption of functional foods as well as identifying their social and physiological benefits. Functional foods have often been studied in terms of their positive effects on health and the consequences of these effects. However, although consumer behaviors and intentions have been examined in recent years (e.g. Szakály *et al.*, 2019; Sumaedi, 2020; Xin and Seo, 2020; Nystrand and Olsen, 2020; Farzana *et al.*, 2022), in-depth studies on the antecedents and successors of functional food consumption are still nascent.

Rojas-Rivas *et al.* (2019) emphasize that there are very few studies investigating awareness and perception of functional foods in developing countries. Furthermore, to the best of our knowledge, no study has yet examined the concept of social value and functional food consumption (which is addressed in this study) within the framework of restaurant consumers (Kaur *et al.*, 2012; Ghiravani *et al.*, 2020). Since one of the most fundamental factors affecting the products and services offered by food and beverage businesses consists of consumers' attitudes and behaviors, restaurant consumers are very important in functional food consumption practices. This study, therefore, offers unique contributions to the literature by examining the effects of health anxiety and social value on functional food consumption intentions within the framework of restaurant consumers.

In this regard, this study has two main objectives. The first is to determine the effects of health anxiety and perceived social value on restaurant consumers' intention to consume functional foods. Thus, the roles of health anxiety and perceived social value in functional food consumption will be determined to fill the gap in the literature. Another objective of the

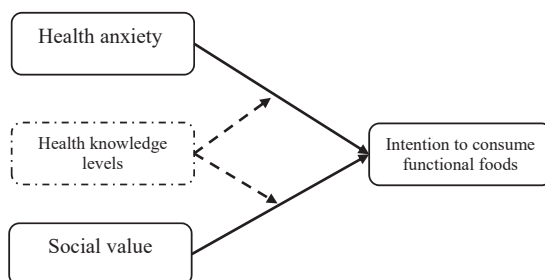
study is to determine whether health knowledge has a moderating effect on the relationships between restaurant consumers' intention to consume functional foods, health anxiety and perceived social value (see Figure 1). Consumers' health sensitivities and social value perceptions are important factors for their consumption attitudes and behaviors. Various empirical or case studies have shown that these factors play a role in food consumption practices and directly affect food and beverage businesses (Zhang *et al.*, 2014; Jin *et al.*, 2017). However, the effect of health and perceived social value on functional food consumption attitudes and behaviors has yet to be determined. Considering the variables examined and the sample group, this study will make significant contributions to the food and beverage industry stakeholders and the literature.

2. Literature review

2.1 Relationship between functional foods, health anxiety and social value

Recent trends in the food industry indicate that the worldwide popularity of functional foods is growing and that functional foods are becoming part of our daily diet (Salvatore *et al.*, 2022; Topolska *et al.*, 2021). The Asia Pacific region stands out as the main market for functional foods. Functional food revenue in Asia and the Pacific Islands accounts for 34% of total revenue worldwide. This figure is not surprising considering that Japan comprises one of the primary markets of functional foods. Health Canada (2000) and Henry (2010) define functional food as being similar in appearance to conventional food, consumed as part of a typical diet, offering physiological benefits and reducing the risk of chronic diseases. On the other hand, the Japanese Ministry of Health defines it as having beneficial ingredients for health with officially approved physiological effects on the human body (Doyon and Labrecque, 2008). According to Euromonitor data, Japan, the homeland of functional foods, is the leader in terms of market size. In terms of functional food revenues, Japan is followed by the US and the EU. Turkey, on the other hand, is still in the development stage in terms of the functional food market. When the functional food market share is analyzed in recent years, one sees an increase of 52% in Turkey, 48% in China, 40.7% in Brazil, 26.3% in Mexico and 20.3% in Japan. Turkey has increased its functional food sales from \$303 million to \$461 million. Thus, Turkey has achieved the highest growth rate among global functional food markets (Bigliardi and Galati, 2013; Gok and Ulu, 2019).

Functional foods have been playing a more active role in the dietary habits of Turkish consumers in recent years. According to the Turkey Nutrition and Health Survey (TBSA), the prevalence of functional food consumption has increased since 2019, especially among young adults in Turkey (TBSA, 2019). Turkish consumer demographic characteristics (e.g. age, gender and education) can shape functional food consumption perceptions, attitudes and



Source(s): Authors work

Figure 1.
Research model

intentions (Esgin and Özçelik, 2021). For example, younger Turkish consumers or Turkish consumers with higher education levels are more likely to consume functional foods in their daily diets and to be satisfied with functional foods (Dölekoğlu *et al.*, 2015). In addition, Turkish consumers' knowledge about functional foods and the level of benefit and taste they expect to obtain from functional food consumption affect their functional food purchase intentions (Çelik *et al.*, 2021; Sevilmiş *et al.*, 2017). Other important factors for the emergence of the purchasing and sustainability of functional foods in the daily diet offer sensory and novelty values for Turkish consumers who think that functional food consumption provides psychological benefits (Orel *et al.*, 2017).

Today, there is a globally prevalent view that food directly affects health (Siro *et al.*, 2008). Consumers who are aware of the benefits of functional foods (health, protection, strength and mental well-being) have increased their tendency to consume functional foods during the COVID-19 pandemic (Cebeci and Mankan, 2022). Farzana *et al.* (2022) emphasized that functional foods have various potential roles in mitigating the pandemic (reducing the financial burden, suffering of patients and mortality rates) thanks to their many ingredients, such as phytochemicals, immunomodulators and antivirals. Since these qualities of functional foods correspond to consumer needs during the COVID-19 pandemic, the functional food market has gained a global growth opportunity (Altun *et al.*, 2021). According to Rosstat data, Siberian Wellness, a food supplement company ranked second among the top 600 businesses in Siberia, also stated that the COVID-19 pandemic has mobilized the functional food market in the sector (DHA, 2022).

Therefore, individuals are motivated by health concerns for food consumption practices and exhibit more sensitive behaviors (Lee *et al.*, 2013). Goetzke *et al.* (2014) determined that health is an important source of motivation for consuming functional food. On the other hand, health anxiety is considered a critical predictor of intellectual and behavioral factors in food consumption practices (Vassallo *et al.*, 2009; Jin *et al.*, 2017). Similarly, Chrysochou and Grunert (2014) found that health anxiety has a significant impact on the perception of healthy (nutritious) foods and their consumption. Therefore, health anxiety can be explained as a consumer behavior motivating the consumption of healthy foods (Kang *et al.*, 2015; Jin *et al.*, 2017). Health anxiety is found to be the main determinant of the intention to consume functional foods (Temesi *et al.*, 2019). Since functional foods are defined as health-promoting foods, their acceptability by consumers is likely to be associated with health concerns in food consumption (Niva and Makela, 2007).

Perceived social value is another factor motivating individuals to consume functional foods (Barauskaite *et al.*, 2018). Perceived social value is measured with the image of a choice (Sheth *et al.*, 1991). The perceived social value associated with food consumption choices can contribute to the individual's desired personal and social image (Thomé *et al.*, 2021). In other words, preferences involving food products and services that give an image of wealth are mostly driven by social value (Cannuscio *et al.*, 2014). Therefore, the consumption of functional food is considered to be associated with high socio-economic status (Niva, 2006). The choice of functional foods can create a modern and positive impression, and purchasing these products is a sign that one cares about personal health and well-being (Gok and Ulu, 2019). On the other hand, individuals with a higher behavioral tendency toward conspicuous consumption have a positive attitude toward functional food consumption and a high purchase intention (Barauskaite *et al.*, 2018).

Consumption of functional foods, in terms of perceived social value, is a tool that is preferred more than diet by individuals who aim to create a positive impression in the social environment with their food preferences. Plus, functional food consumers are considered to be more innovative than traditional food consumers (Nystrand and Olsen, 2020). Consumption of functional foods, therefore, is considered a source of image and status. Based on these facts, the following hypotheses were proposed:

-
- H1. Health anxiety has a positive and significant impact on restaurant consumers' intention to consume functional foods.
- H2. Restaurant consumers' social value perceptions have a positive and significant impact on their intention to consume functional foods.

The role of
health
knowledge
levels

2.2 Moderating role of health knowledge levels

Considering the effect of functional food consumption on both health and social image, health knowledge levels can play an important role in this relationship. Consistent with this, knowledge related to consumption practices corresponds to health knowledge levels in individuals acting with health motivation. The acquisition and utilization of health-related knowledge can function as a salient resource that exerts a formative influence on the cognitive and affective components of health anxiety, while concurrently promoting and sustaining health-oriented behaviors. The acquisition and utilization of health-related knowledge can function as a salient resource that exerts a formative influence on the cognitive and affective components of health anxiety, while concurrently promoting and sustaining health-oriented behaviors. Accordingly, individuals with high health knowledge levels are sensitive to the physiological and biological effects of food consumption preferences on their general well-being (Kim *et al.*, 2013; Jin *et al.*, 2017). These individuals are more likely to exhibit a consumption behavior corresponding to their knowledge levels, leading them to prefer healthy and nutritious foods and to avoid foods that are harmful to health (Glanz *et al.*, 1998; Jin *et al.*, 2017). Therefore, health knowledge levels may have a positive or negative effect on the intention to consume functional food and, in turn, can direct food consumption practices.

The concept of social value, on the other hand, refers to the association of food consumption preferences with the expected preference of a particular social group and is based on the belief that consumers associate new food products with membership in a particular social class or group (Thomé *et al.*, 2018). Rather than functional benefits, food products' symbolic image or their attention-grabbing consumption rates are important criteria for a social class (Veblen, 1899; Sheth *et al.*, 1991; Farzana *et al.*, 2022). These criteria represent perceived social value and can vary with one's health knowledge. Consistent with this, the first motivation of a person with a high health knowledge level related to food consumption practices is to obtain good, healthy and reliable food (Bruhn and Schutz, 1999; Weststrate *et al.*, 2002; Chen and Antonelli, 2020). However, having the opportunity to obtain good, healthy and reliable food has become an indicator of social class. In this regard, motivations driven by health knowledge levels can cause different value perceptions of functional food consumption intentions. Therefore, health knowledge levels can be argued to have a critical impact on the relationship between perceived social value and intention to consume functional food.

Consistent with this, Lee *et al.* (2013) argued that health knowledge level is a significant moderator of both behavioral intentions and health anxiety for functional food consumption practices. Accordingly, health knowledge level might shape the effects of health anxiety and perceived social value on functional food consumption attitudes and behaviors. Based on the above facts, the following hypotheses were developed:

- H3a. Restaurant consumers' health knowledge levels have a moderating effect on the relationship between health anxiety and intention to consume functional food.
- H3b. Restaurant consumers' health knowledge levels have a moderating effect on the relationship between perceived social value and intention to consume functional food.

3. Methodology

3.1 Instrument

To determine the effects of health anxiety and perceived social value related to foods on restaurant consumers' functional food consumption intentions and to measure the role of health knowledge levels on this relationship, a survey data collection method was used. The first part of the survey consisted of items measuring participants' knowledge of functional food. The second part of the survey was composed of four scales measuring participants' health anxiety, social value perceptions, health knowledge levels and functional food consumption intentions. The third part consisted of items about participants' demographic information. The participants responded to the survey through a seven-point Likert-type scale (1 = Strongly disagree, 2 = Disagree, 3 = Somewhat disagree, 4 = Neither agree nor disagree, 5 = Somewhat agree, 6 = Agree, 7 = Strongly agree; see [Table A1](#) (Source: Authors work) for more detail). During the survey development process, a literature survey was conducted at first and the scales were prepared accordingly. The language of the survey was Turkish since the participants were domestic restaurant consumers living on the European side of Istanbul. To ensure the items of the survey were understandable and clear, a pilot study was carried out with 50 restaurant consumers. The pilot study showed that the items of the survey are understandable and clear. Therefore, the first version of the survey was used in the further stages without revision.

3.2 Sampling and data collection

The population of the study consisted of restaurant consumers living on the European side of Istanbul between August and October 2021. Consumers' eating-out behaviors are driven by their personal motivations, experiences, or knowledge ([Sumaedi, 2020](#); [Hasnah Hassan, 2011](#)). Experiences in restaurants, where many psychological and physiological stimuli occur, are especially important in the formation of attitudes and behaviors after consumption. In this context, the attitudes and intentions of restaurant consumers who intend to consume healthy food in functional food consumption may produce different results ([Faasen, 2013](#); [Kraus, 2015](#)). Moreover, restaurants or food and beverages are sometimes used as social value tools ([Nystrand and Olsen, 2020](#)). Indeed, quality and valuable functional food ingredients are offered to the consumer experience in some quality restaurant menus. Therefore, restaurant consumers have the potential to represent the impact of health concerns and social value on functional food consumption intention.

On the other hand, this study was conducted in Istanbul, the most densely populated metropolitan city in Turkey, specifically on its European side, known to provide the most employment. This region is an important business area ([Akdağ and Demir, 2021](#)) where employees usually consume food and beverages outside once or twice a day. The high number of office workplaces in this region means that the majority of consumers are white-collar workers ([Istanbul Development Agency, 2017](#)). According to a study conducted by Zomato, which has real menu information of more than one million restaurants in 22 countries, restaurants are generally preferred by white-collar workers in Istanbul, especially for main course consumption between 12:00 and 14:00 ([MarketingTürkiye, 2015](#)). It is seen that white-collar workers have a stronger desire and need for healthy food consumption due to their high level of education and awareness and the fact that they work almost all day long while sitting ([Watanabe et al., 2016](#)). Therefore, it was thought that the appropriate sample could be reached in this region, where functional food consumption was predicted by the authors to be widespread.

The convenience sampling method was employed to select the participants. The surveys were distributed to restaurant consumers who were willing to participate in the study, and 276 surveys were then collected. Five surveys were excluded from the study over missing or wrong responses. Accordingly, a total of 271 surveys were analyzed.

3.3 Data analysis

The need for structural equation modeling emerged to test complete theories and concepts. The partial least squares structural equation modeling (PLS-SEM) technique is considered to be the most effective method for analyzing exploratory models that have not yet been adequately examined in the literature (Usakli and Kucukergin, 2018). According to Hair *et al.* (2019), although PLS-SEM shows resistant findings when the data is non-normal, it is not sufficient to justify an SEM technique (i.e. CB-SEM or PLS-SEM) based only on non-normality. In the present study, consumers' health knowledge levels were measured as a continuous variable. According to Hair *et al.* (2017a), it is recommended to use PLS-SEM in studies where the moderator variable is measured continuously. It is also recommended to use PLS-SEM in studies where ordinal scales such as Likert scales are used (Hair *et al.*, 2017b). Therefore, the PLS-SEM method was selected to test the model. The two-stage approach proposed by Hair *et al.* (2017c) was used to examine the moderating effect of restaurant consumers' health knowledge levels. At the beginning of our data analysis, missing values were detected and removed. The mean substitution technique was used to assign the missing values. Then, to determine outliers, the Mahalanobis distance was examined, and no outliers were found. To test the normal distribution assumption, skewness and kurtosis values were examined, and the normal distribution assumption was found to be met (Curran *et al.*, 1996). For PLS-SEM, the external model was examined initially, followed by the internal model. In the final stage, the moderating effect of restaurant consumers' health knowledge levels on the relationships between health anxiety, perceived social value and functional food consumption intentions was examined.

4. Findings

4.1 Demographic findings

Most participants were female ($f = 180, 66.4\%$), and 64.2% were married ($f = 174$). Among the age groups, the highest number of participants was in the 26–33 range ($f = 91, 33.6\%$). Most participants were college graduates ($f = 170, 62.7\%$), followed by high school graduates ($f = 67, 24.7\%$), while 5.2% had a master's/Ph.D. ($f = 14$). Therefore, a majority of the participants had high education levels (92.6%). Regarding monthly income, 33.2% earned 0–2,499 TL, 41.3% earned 2,500–5,000 TL and 25.5% earned more than 5,000 TL (Turkish Lira), as shown in Table 1.

4.2 Outer model

After the initial outer model analysis, an item measuring health anxiety (third item: "I am not concerned about the health consequences of the foods I eat"), an item measuring health knowledge levels (fourth item: "The healthiness of functional foods has little effect on my food

Information	Group	f	%	Information	Group	f	%
Gender	Male	91	33.6	Marital status	Married	174	64.2
	Female	180	66.4		Single	97	35.8
Income	0–2499 TL	90	33.2	Education	Elementary	20	7.4
	2,500–5000 TL	112	41.3		High-school	67	24.7
	5001 TL and more	69	25.5		Bachelor's degree	170	62.7
Age	18–25	78	28.8		Master's/PhD degree	14	5.2
	26–33	91	33.6				
	34–41	54	19.9				

Source(s): Authors work

Table 1.
Demographic
characteristics of
participants

preferences”) and the fifth item: “I eat what I like and I am not very concerned about the healthiness of functional foods” were excluded from further analysis since their factor loadings were below the suggested value of 0.50. After excluding the items with low factor loadings, the measurement model was reanalyzed. The analysis results for the outer model are given in Table 2.

As seen in Table 2, Cronbach’s alpha (CA) values above 0.60 indicate that the items are acceptable (Hair *et al.*, 2017c). Since the composite reliability (CR) values were above the value of 0.70 suggested by Fornell and Larcker (1981), reliability was considered to have been achieved. Furthermore, since the standard factor loadings and average variance explained (AVE) values were above the suggested value of 0.50, convergent validity was confirmed (Hair *et al.*, 2017c). According to the Fornell-Larcker criterion, since the square roots of AVE

Factors	Items	Outer Loading	<i>t values</i>	CR	AVE	Cronbach’s Alpha
Health anxiety	Being healthy means a lot to me	0.908	46.036	0.815	0.609	0.664
	I often think about my health	0.866	29.336			
	Being healthy is not important to me	0.500	4.814			
	I believe that eating low-fat or low-calorie functional foods keeps cholesterol levels under control	0.674	14.650	0.818	0.531	0.701
Health knowledge levels	I believe that functional foods are healthier than traditional foods	0.756	19.747	0.896	0.591	0.861
	I can avoid getting sick by eating functional foods regularly	0.830	29.282			
	The healthiness of functional foods does not mean anything to me	0.639	12.325			
Functional food consumption intentions	I will consider continuing to eat functional foods	0.663	10.525	0.920	0.663	0.894
	I continue eating functional foods	0.923	83.031			
	I want to continue eating functional foods	0.909	72.618			
	I use functional foods for cooking meals	0.837	40.685			
	I will purchase a functional food product	0.829	33.007			
	I would probably purchase functional meat products	0.686	14.895			
Social value	Functional foods are prestigious	0.751	20.544	0.896	0.591	0.861
	Functional foods have a good reputation	0.771	25.205			
	Many people around me buy functional foods	0.661	12.611			
	Eating functional foods helps feel accepted	0.847	42.200			
	Eating functional foods provides me with social approval	0.815	28.705			
	I feel better if others give feedback to me that eating functional foods will be good for me	0.756	17.789			

Table 2.
Outer model findings **Source(s):** Authors work

values were higher than the correlations of the relevant variables, discriminant validity was supported (Fornell and Larcker, 1981, see Table 3). This finding was also supported by the Hetrotrait-Monotrait (HTMT) test. Based on these results, since HTMT values are not greater than 0.850, discriminant validity was considered to be achieved (Henseler et al., 2015).

The role of health knowledge levels

4.3 Inner model

The results of the inner model are discussed in this section. First, according to the suggestion of Hair et al. (2017c), the multicollinearity problem was examined. As seen in Table 4, all VIF values were below 5. Therefore, there was no multicollinearity problem in the inner model.

The results obtained for the inner model are shown in Table 4. The bootstrap resampling method was used to determine the *t*-values for the path coefficients of the intrinsic model. The subsampling value was set as 5,000, as recommended (Hair et al., 2017c). Using the analysis results, the effect of health anxiety on restaurant consumers' intention to consume functional food was examined, and this effect was observed to be positive and significant ($\beta = 0.268$, $t = 4.791$, $p < 0.05$). Therefore, H_1 was accepted. The effect of perceived social value by restaurant consumers on their intention to consume functional food was examined, and this effect was found to be positive and significant ($\beta = 0.593$, $t = 13.513$, $p < 0.05$). Accordingly, H_2 was accepted.

4.4 Moderating effect of health knowledge level

Since restaurant consumers' health knowledge levels were measured as a continuous variable, the moderating effect of this variable was examined using the two-stage approach proposed by Hair et al. (2017c). Thus, we assessed whether the effect of restaurant consumers' health knowledge levels is significant. The results regarding the moderating role of restaurant consumers' health knowledge levels are shown in Table 5.

As seen in Table 5, health knowledge levels were added as a moderating variable into the relationship between health anxiety and functional food consumption intentions, and a significant moderating effect was observed ($\beta = -0.098$, $t = 2.313$, $p < 0.05$). Based on this

<i>Fornell-Larcker</i>	<i>HA</i>	<i>SV</i>	<i>HKL</i>	<i>FFCI</i>
HA	0.780			
SV	0.245	0.769		
HKL	0.410	0.527	0.729	
FFCI	0.415	0.658	0.594	0.815
<i>HTMT</i>	<i>HA</i>	<i>SV</i>	<i>HKL</i>	<i>FFCI</i>
HA				
SV	0.294			
HKL	0.595	0.659		
FFCI	0.514	0.740	0.742	

Note(s): HA: Health Anxiety; HKL: Health Knowledge Levels; FFCI: Functional Food Consumption Intentions; SV: Social Value

Source(s): Authors work

Table 3.
Discriminant validity results

Hypothesis	Relations	Path coeff	<i>t</i>	<i>p</i>	VIF	<i>RR</i> ²	<i>f</i> ²	<i>Q</i> ²
<i>H1</i>	HA→FFCI	0.268	4.791	0.000	1.063	0.502	0.136	0.323
<i>H2</i>	SV→FFCI	0.593	13.513	0.000	1.063		0.664	

Note(s): HA: Health Anxiety; FFCI: Functional Food Consumption Intentions; SV: Social Value

Source(s): Authors work

Table 4.
Inner model results

result, health knowledge was found to have a moderating effect on the relationship between restaurant consumers' health anxiety and functional food consumption intentions, supporting H_{3a}. Accordingly, restaurant consumers' health knowledge levels have a reducing role in the effect of health anxiety on the intention to consume functional food decreases. Therefore, restaurant consumers' health knowledge levels decrease the effect of health anxiety on functional food consumption intentions. This interaction is shown with the simple slope given in Figure 2.

As seen in Figure 2, for individuals with higher health knowledge levels, health anxiety is not a determinant of functional food consumption intentions. However, for individuals with lower health knowledge levels, functional food consumption intentions increase as health anxiety increases. Accordingly, it can be argued that the impact of health anxiety on functional food consumption intentions is more significant among consumers with lower health knowledge levels compared to individuals with higher health knowledge levels. On the other hand, the moderating effect of health knowledge levels on the relationship between social value and functional food consumption intentions was found to be not significant ($\beta = -0.020, t = 0.379, p > 0.05$). H_{3b} was, therefore, rejected.

5. Conclusion and discussion

Functional foods, which attract attention after the possible benefits of food consumption are understood, have started to change global consumption trends. The need to access good food vis-à-vis traditional food consumption practices is presumably met by the consumption of functional foods. Functional food consumption trends, given their psychological, demographic, or biological motivations, have a critical role in food consumption practices. The functional food market is, therefore, very large and diverse (Stojanovic *et al.*, 2013). Nevertheless, the functional food market is very important, especially for consumers who seek health, welfare, or status through food consumption practices (Del Giudice *et al.*, 2012).

Table 5.
The moderator role of restaurant consumers' health knowledge levels

Hypothesis	Relations	Path coeff	<i>t</i>	<i>p</i>	R2	f2	Q2
H3a	HA*HKL→FFCI	−0.098	2.313	0.020	0.560	0.023	0.360
H3b	SD*SHK→LFFCI	−0.020	0.379	0.704		0.001	
Note(s): HA: Health Anxiety; HKL: Health Knowledge Levels; FFCI: Functional Food Consumption Intentions; SV: Social Value							
Source(s): Authors work							

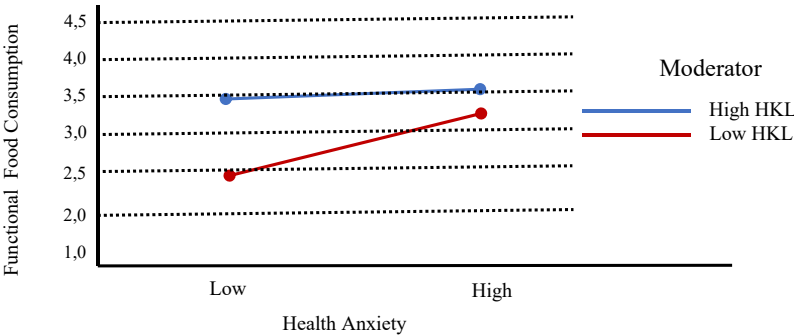


Figure 2.
Moderating effect of health knowledge level

Source(s): Authors work

In this regard, the intention to consume functional food is thought to be triggered by health anxiety and social value perception. This study, therefore, aimed at obtaining empirical findings about the effects of health anxiety and social value on the intention to consume functional foods.

Health anxiety, which is considered a critical predictor of intellectual and behavioral factors in food consumption practices (Vassallo *et al.*, 2009), was found to be the main predictor of attitudes toward functional foods as well as the intention to buy functional foods (Temesi *et al.*, 2019). Since functional foods are defined as health-promoting, their acceptability by consumers is likely to be associated with health concerns in food consumption (Niva and Makela, 2007).

Functional foods help consumers define themselves as healthy, conscious individuals with modern tendencies and habits (Belk, 1988; Barauskaite *et al.*, 2018). Accordingly, the expected social value of a product is found to be related to the intention to consume functional foods (Urala and Lahteenmaki, 2007; Chen, 2011). Functional food consumption has become a way of making positive impressions on others (Goetzke *et al.*, 2014; Barauskaite *et al.*, 2018). Therefore, it can be argued that functional food consumption is perceived as a phenomenon shaped by social and cultural values.

The current study examined the effects of restaurant consumers' social value perceptions and health anxiety on functional food consumption intentions and the moderating effect of health knowledge levels on this relationship. First, the effect of health anxiety on consumers' functional food consumption intentions was examined, and health anxiety was found to have a positive and significant effect on the intention to consume functional food. H_1 was, therefore, accepted. This finding is consistent with previous studies (Niva and Mäkelä, 2007; Urala and Lähteenmäki, 2004; Verbeke, 2005). According to a previous study, the consumption trends of consumers in developed countries are shaped by health motivation (Niva and Mäkelä, 2007). The results of the same study revealed that these consumers showed interest in healthy foods and believed that these foods affect health. In some Asian countries, such as China and Japan, foods are considered medicines with nutritional value, thus placing an emphasis on food consumption to reduce the risk of disease (Arai, 2002; Li and Tsao, 2019). In Latin America, on the contrary, the consumption of food with health concerns has been on the rise, especially recently, and the search for healthy food is relatively recent compared to Asian countries. However, in the last two decades or so, the importance of functional foods has also increased, as increased awareness of food consumption has made the health factor important in Latin America (Lajolo, 2002; Vicentini *et al.*, 2016).

On the other hand, restaurant consumers' social value perceptions were found to have a positive and significant impact on the intention to consume functional foods. Accordingly, H_2 was supported. This result was also similar to the findings of Goetzke *et al.* (2014) and Barauskaite *et al.* (2018). Accordingly, it can be argued that consumers use functional foods as a social value phenomenon to create positive impressions on others.

The analysis results revealed that restaurant consumers' health knowledge has a moderating effect on the relationship between health anxiety and intention to consume functional foods. Therefore, H_3 was accepted. According to this finding, health knowledge levels play a reductive role in the impact of health anxiety on the intention to consume functional foods. This finding might be explained by several conditions, such as consumers with high health knowledge levels perceiving functional foods as not reliable enough, showing high sensitivity to risk factors, or attaching importance to eating a balanced diet. Accordingly, some factors arising from health knowledge levels decrease the functional food consumption intentions of consumers motivated by health anxiety.

However, regarding the other research question of the study, the moderating effect of restaurant consumers' health knowledge levels on the relationship between perceived social value and intention to consume functional foods was found to be not significant. H_4 was,

therefore, not supported. According to [Voss et al. \(2003\)](#) and [Crites et al. \(1994\)](#), attitudes develop multifacetedly as hedonic/emotional and utilitarian/cognitive, with the utilitarian dimension characterized by the functions provided by products (e.g. nutritional value) and the hedonic dimension characterized by the pleasures derived from product experiences (e.g. pleasure and status). Therefore, health knowledge levels may not be functional in affecting social value, which is related to pleasures, on the consumption of functional foods. More precisely, for consumers who evaluate the experience of consuming functional foods as social value, the level of health knowledge about functional foods may not have an important role. In conclusion, for the first time in the literature, this study showed that restaurant consumers' health anxiety and social value perceptions have a positive effect on the intention to consume functional foods and that health knowledge levels have a moderating effect on the relationship between health anxiety and intention to consume functional foods. Therefore, this study is believed to make valuable contributions to the field of functional foods, which is a relatively new study area, within the framework of consumer behavior.

5.1 Theoretical implications

Consumers' tendency to consume functional foods with health anxiety is significantly driven by health knowledge levels. This relationship can be explained by the norms that cause one to exhibit behaviors that are not completely under voluntary control, which is proposed by the theory of planned behavior [TPB]. According to the TPB, the norms that direct behaviors are defined as thoughts about the consequences of the behavior, evaluation of possible consequences, subjective values and awareness ([Ajzen, 1991](#)). The role of health knowledge levels in the relationship between health anxiety and the intention to consume local food is shaped by these norms. Accordingly, an increased tendency toward consumption of functional foods due to health anxiety reduces with higher health knowledge levels. This result can be explained by consideration of some norms related to high health knowledge levels by consumers according to the TPB. Examples of norms that drive behaviors can be explained as follows: thoughts about the consequences of functional food consumption drive healthy eating beliefs, evaluation of possible outcomes drives possible health risks, subjective values drive nutrigenetics and personality traits and awareness level drives tendency toward consumption of functional foods, which arise from health knowledge levels.

The most important thing for consumers with high health knowledge levels is the relative amounts of healthy ingredients. Accordingly, associating functional foods with the concepts of healthy products and healthy food, with a lack of emphasis on whole eating practices, does not satisfy consumers with high health knowledge levels ([Chen, 2011](#)). Therefore, a vital concept in food consumption practices is balance. A balanced diet, which corresponds to healthy eating, cannot be achieved only by functional food consumption because components of functional foods refer to a single product good for health but do not include foods that contribute to healthy eating like traditional foods (high-fiber, low-fat foods, etc.) ([Urala and Lähteenmäki, 2003](#)).

On the other hand, considering functional foods healthy can mean neglecting the physiological or biological differences of individuals. Health knowledge levels may pay attention to this difference and create a prejudice toward functional food consumption ([Korthals, 2002](#)). Furthermore, high health knowledge levels increase the perceived risk of food ingredients ([Frewer et al., 2003](#); [Chen, 2011](#)). Thus, considering functional food not natural, not safe and not necessary prevents its consumption ([Gineikiene et al., 2017](#)). These foods are believed to harm the balance and perfection of original, unprocessed and natural foods ([Devcich et al., 2007](#)). The failure of food manufacturers, especially those producing specific and functional products, to provide scientific evidence for their products is believed to reduce the tendency of consumers with health anxiety to consume functional foods when health knowledge levels become significant ([Frewer et al., 2003](#)). Accordingly, health

knowledge levels—for different reasons—can negatively affect functional food consumption intentions, which increase with health anxiety.

The meaning attributed to functional foods is shaped by perceived social value and yields different attitudes and behaviors. The tendency to consume functional food, which is perceived as a social value, is found to be not affected by health knowledge levels. The main reason for consuming functional foods, which is recognized as an indicator of modern consumption trends, is the impressions that individuals want to show to themselves and to their environment (Siro *et al.*, 2008; Urala and Lähteenmäki, 2004). Social value, like these impressions, contributes to self-image goals and, therefore, affects functional food consumption intentions like healthy living or health anxiety. Therefore, the finding that health knowledge levels have no significant positive or negative role in this process is probably related to the fact that the source of motivation for functional food consumption intentions triggered by social value perception is not related to health.

5.2 Practical implications

The results of the present study revealed that health anxiety and social value have important effects on functional food consumption intentions. Based on this finding, it can be argued that some intrinsic and extrinsic factors are effective in the tendency toward consumption of functional foods. In addition to healthy aging or the desire to improve health, social confirmation, prestige, or good self-presentation are highly effective in functional food consumption trends. Therefore, these factors, which drive individuals to consume functional foods, should be taken into account in the production and marketing of functional foods. The first step to expanding and widening the functional food market is identifying factors that negatively or positively affect functional food consumption intentions. This study revealed that two factors positively affecting functional food consumption trends are health anxiety and social value.

Consideration of the psychological, biological, or sociodemographic components that trigger these factors may help determine the dimensions of functional food consumption trends. In this regard, determining the factors that affect functional food consumption trends indirectly but play a role in consumption practices is very important for future steps that will be taken in the functional food market. In this regard, the findings of this study pointed out that one of the factors that play a role in functional food consumption trends is health knowledge levels. The negative moderating role of health knowledge levels in the effect of health anxiety on functional food consumption intentions is believed to open doors for manufacturers or marketers to plan different strategies.

Eventually, the food industry and its stakeholders should develop products and services that appeal to the consumer profile motivated by health concerns and social value perception to gain the highest competitive advantage in the production or marketing of functional foods. It should be emphasized that marketed foods are produced under good and safe conditions, that their ingredients are natural and nutritious, and that their consumption is necessary and beneficial. Thus, the consumer profile motivated by health anxiety to consume functional foods can be considered the primary target audience by relevant businesses. Furthermore, some factors related to high health knowledge levels playing a role in the function of food consumption trends (i.e. concerns) might be eliminated. The menus, campaigns, social communication tools, or websites of the businesses can be revised to suit this purpose.

Although the rate of functional food consumption is increasing in Turkey, some consumers still do not have sufficient knowledge about functional foods, their nutritional content and their health benefits (Cebeci and Mankan, 2022). This may trigger health concerns over functional food consumption. However, Turkish people, who are very accustomed to traditional food consumption, make and consume many types of functional foods at home with traditional methods. However, the lack of awareness that these foods are

in the functional food category or that they have similar content to ready-to-eat foods enriched with functional compounds may cause health concerns about products in the functional food market and make it difficult to purchase. Indeed, [Rojas-Rivas et al. \(2019\)](#) reached the conclusion that foods traditionally known to the public but are included in the scope of functional food are consumed with pleasure and well-being without creating health concerns. Therefore, it is important to make accurate and effective strategic plans to increase the knowledge levels of the Turkish public about functional food ingredients and their benefits. For this purpose, packaged functional food packages may include information declaring the qualities and functions of foods, or restaurant menus with QR codes may mention the qualities of foods and beverages containing functional compounds and their nutritional value in a daily meal, thus reducing health concerns, at the same time directing consumers to links where detailed information can be provided.

In addition, today, functional dairy products such as kefir are the most preferred functional food group in Turkey. The fact that kefir was frequently featured in TV commercials for various brands in a certain period may positively affect consumer intentions. To popularize the consumption of functional foods, which are less preferred among Turkish consumers, more prominence can be given to these products in media channels.

Businesses offering functional food services may create slogans for their marketing strategies to activate the health anxiety of consumers. To this end, businesses should highlight the possible negative effects of the lack of functional food consumption on health by drawing attention to the direct and positive impact of functional food consumption on health in triggering consumers' intentions to consume these products. Health anxiety motivation, therefore, can be used as a tool for increasing functional food consumption intentions.

The perceived social value of food can be used as another strategy element or competitive advantage by businesses in functional food consumption intentions. Businesses should proactively emphasize that functional food consumption affects consumers' social images. In fact, many companies implement similar strategies. Sometimes, well-known celebrities who are accepted by society are used in these strategies. The aim is to leverage positive impressions of those spokespeople to increase the consumption intention of the product. The perceived social value of functional food consumption varies (innovation, modernity, wealth, etc.). Considering this, businesses may determine possible social values of the functional food they market in line with the characteristics of their business and target audience. Thus, both businesses and functional foods produced or marketed can have distinctive qualities that can be matched with a specific image.

5.3 Limitations and future directions

Restaurant consumers, the subject of this study, are located throughout the country, which covers a wide area. Therefore, since reaching all restaurant consumers would be difficult and costly, the study was conducted on the European side of Istanbul, which could be considered a limitation. Because the data were collected between August and October 2021, the study is limited to this period. Since the number of foreign restaurant consumers was higher than that of domestic consumers, the data were collected only from domestic restaurant consumers. Using the data of only domestic restaurant consumers could be another limitation of the study. In this study, functional food consumption was examined within the scope of health concerns, perceived social value and health knowledge levels. However, there are other factors that direct consumer attitudes and behaviors positively or negatively in functional food consumption. These factors may include demographic characteristics, food consumption motivations, functional food type and functional food knowledge.

Finally, the study was conducted on the European side of Istanbul, where white-collar consumers are dense. Therefore, it is a sample in which those who work by sitting almost all

day long may have more desire and need to consume healthy food (Watanabe *et al.*, 2016). Therefore, the data obtained from this region, where the authors predicted that the tendency to consume functional food might be common, may not be generalizable to destinations and consumers with different characteristics.

The role of
health
knowledge
levels

References

- Aguilar, L.M., Geraldi, M.V., Betim Cazarin, C.B. and Maróstica Junior, M.R. (2019), in Campos, M.R.S. (Ed.), *Sawston, United Kingdom*, Woodhead Publishing, Bioactive Compounds, pp. 205-225.
- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211.
- Akdağ, G. and Demir, Ş. (2021), "A comparative analysis on the hedonic consumption and lifestyle of voluntary simplicity behaviors of gastronomy tourists", *Journal of Multidisciplinary Academic Tourism*, Vol. 6 No. 1, pp. 47-60.
- Altun, H.K., Ermumcu, M.S.K. and Kurklu, N.S. (2021), "Evaluation of dietary supplement, functional food and herbal medicine use by dietitians during the COVID-19 pandemic", *Public Health Nutrition*, Vol. 24 No. 5, pp. 861-869.
- Arai, S. (2002), "Global view on functional foods: asian perspectives", *British Journal of Nutrition*, Vol. 88 No. 2, pp. 139-143.
- Baker, M.T., Parrella, J.A. and Leggette, H.R. (2022), "Consumer acceptance toward functional foods: a scoping review", *International Journal of Environmental Research and Public Health*, Vol. 19 No. 3, pp. 1-40.
- Barauskaite, D., Gineikiene, J., Fennis, B.M., Auraskeviciene, V., Yamaguchi, M. and Kondo, N. (2018), "Eating healthy to impress: how conspicuous consumption, perceived self-control motivation, and descriptive normative influence determine functional food choices", *Appetite*, Vol. 131, pp. 59-67.
- Belk, R.W. (1988), "Possessions and the extended self", *Journal of Consumer Research*, Vol. 15 No. 2, pp. 139-168.
- Bigliardi, B. and Galati, F. (2013), "Innovation trends in the food industry: the case of functional foods", *Trends in Food Science and Technology*, Vol. 31 No. 2, pp. 118-129.
- Bruhn, C.M. and Schutz, H.G. (1999), "Consumer food safety knowledge and practices", *Food Safety Journal*, Vol. 19 No. 1, pp. 73-87.
- Cannuscio, C.C., Hillier, A., Karpyn, A. and Glanz, K. (2014), "The social dynamics of healthy food shopping and store choice in an urban environment", *Social Science and Medicine*, Vol. 122, pp. 13-20.
- COVID-19 Cebeci, B.K. and Mankan, E. (2022), "Attitudes of consumers towards functional foods during the pandemic process", *Journal of Humanities and Tourism Research*, Vol. 12 No. 2, pp. 405-416.
- Çelik, H., Çelik, A.D., Hayran, S. and Gül, A. (2021), "Knowledge levels and consumption tendencies of university students towards functional foods: the case of Çukurova University", *Cukurova University example*, *Turkish Journal of Agriculture: Food Science and Technology*, Vol. 9 No. 7, pp. 1242-1249.
- Chen, M.F. (2011), "The joint moderating effect of health consciousness and healthy lifestyle on consumers' willingness to use functional foods in taiwan", *Appetite*, Vol. 57 No. 1, pp. 253-262.
- Chen, P.J. and Antonelli, M. (2020), "Conceptual models of food choice: influential factors related to foods, individual differences, and society", *Foods*, Vol. 9 No. 12, p. 1898.
- Chrysochou, P. and Grunert, K.G. (2014), "Health-related ad information and health motivation effects on product evaluations", *Journal of Business Research*, Vol. 67 No. 6, pp. 1209-1217.
- Crites, S.L., Jr, Fabrigar, L.R. and Petty, R.E. (1994), "Measuring the affective and cognitive properties of attitudes: conceptual and methodological issues", *Personality and Social Psychology Bulletin*, Vol. 20 No. 6, pp. 619-634.

- Curran, P.J., West, S.G. and Finch, J.F. (1996), "The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis", *Psychological Methods*, Vol. 1 No. 1, pp. 16-29.
- Dedeoğlu, B.B., Balıkcıoğlu, S. and Küçükergin, K.G. (2016), "The role of tourists' value perceptions in behavioral intentions: the moderating effect of gender", *Journal of Travel and Tourism Marketing*, Vol. 33 No. 4, pp. 513-534.
- Del Giudice, T., Nebbia, S. and Pascucci, S. (2012), "The 'Young' consumer perception of functional foods in Italy", *Journal of Food Products Marketing*, Vol. 18 No. 3, pp. 222-241.
- Devcich, D.A., Pedersen, I.K. and Petrie, K.J. (2007), "You eat what you are: modern health worries and the acceptance of natural and synthetic additives in functional foods", *Appetite*, Vol. 48 No. 3, pp. 333-337.
- DHA (2022), "100 milyar dolara koğan küresel fonksiyonel ürün pazarı kadın girişimcilere odaklandı", available at: <https://www.dha.com.tr/yerel-haberler/istanbul/merkez/100-milyar-dolara-kosan-kuresel-fonksiyonel-uru-2112555> (accessed 10 April 2023).
- Dölekoğlu, C.Ö., Şahin, A. and Giray, F. (2015), "Factors affecting functional food consumption in women: the example of Mediterranean provinces", *Journal of Agricultural Sciences*, Vol. 21 No. 4, pp. 572-584.
- Doyon, M. and Labrecque, J. (2008), "Functional foods: a conceptual definition", *British Food Journal*, Vol. 110 No. 11, pp. 1133-1149.
- El Sohaimy, S.A. (2012), "Functional foods and nutraceuticals-modern approach to food science", *World Applied Sciences Journal*, Vol. 20 No. 5, pp. 691-708.
- Esgin, Ö. and Özçelik, A. (2021), "Evaluation of attitudes, behaviors and knowledge levels towards functional foods in individuals aged 20-35", *Journal of Health Sciences*, Vol. 10 No. 2, pp. 67-82.
- Faasen, I.W.J. (2013), *Healthful Food Choice in Restaurants: The Influence of Nutrition Label and Main Course Context on Consumers' Food Choices* in restaurants, Master's Thesis, University of Twente, Enschede.
- Farzana, M., Shahriar, S., Jeba, F.R., Tabassum, T., Araf, Y., Ullah, M.A., Tasnim, J., Chakraborty, A., Naima, T.A., Marma, K.K.S., Rahaman, T.I. and Hosen, M.J. (2022), "Functional food: complementary to fight against COVID-19", *Beni-Suef University Journal of Basic and Applied Sciences*, Vol. 11 No. 1, p. 33.
- Fischer, D., Böhme, T. and Geiger, S.M. (2017), "Measuring young consumers' sustainable consumption behavior: development and validation of the YCSCB scale", *Young Consumers*, Vol. 18 No. 3, pp. 312-326.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 3, pp. 39-50.
- Frewer, L., Scholderer, J. and Lambert, N. (2003), "Consumer acceptance of functional foods: issues for the future", *British Food Journal*, Vol. 105 No. 10, pp. 714-731.
- Gaspar, M.C.D.M.P., Garcia, A.M. and Larrea-Killinger, C. (2020), "How would you define healthy food? Social representations of Brazilian, French and Spanish dietitians and young laywomen", *Appetite*, Vol. 153, 104728.
- Ghiravani, Z., Hassanzadeh-Taheri, M., Hassanzadeh-Taheri, M. and Hosseini, M. (2020), "Internal septum of walnut kernel: a neglected functional food", *Research Journal of Pharmacognosy*, Vol. 7 No. 2, pp. 81-92.
- Gineikiene, J., Kiudyte, J. and Degutis, M. (2017), "Functional, organic or conventional? Food choices of health conscious and skeptical consumers", *Baltic Journal of Management*, Vol. 12 No. 2, pp. 139-152.
- Glanz, K., Basil, M., Maibach, E., Goldberg, J. and Snyder, D. (1998), "Why Americans eat what they do: taste, nutrition, cost, convenience and weight control concerns as influences on food consumption", *Journal of the American Dietetic Association*, Vol. 98 No. 10, pp. 1118-1126.
- Goetzke, B., Nitzko, S. and Spiller, A. (2014), "Consumption of organic and functional food. A matter of well-being and health", *Appetite*, Vol. 77, pp. 94-103.

-
- Gok, I. and Ulu, E.K. (2019), "Functional foods in Turkey: marketing, consumer awareness and regulatory aspects", *Nutrition and Food Science*, Vol. 49 No. 4, pp. 668-686.
- Hair, J., Hollingsworth, C.L., Randolph, A.B. and Chong, A.Y.L. (2017a), "An updated and expanded assessment of PLS-SEM in information systems research", *Industrial Management and Data Systems*, Vol. 117 No. 3, pp. 442-458.
- Hair, J., Ringle, C.M., Gudergan, S.S. and Sarstedt, M. (2017b), *Advanced Issues in Partial Least Squares Structural Equation Modeling*, Sage Publications, Los Angeles, CA.
- Hair, J.F., Jr, Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2017c), *A primer on partial least squares structural equation modeling (PLS-SEM) (Second Edition)*, Sage Publications, Los Angeles, CA.
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24.
- Hasnah Hassan, S. (2011), "Managing conflicting values in functional food consumption: the Malaysian experience", *British Food Journal*, Vol. 113 No. 8, pp. 1045-1059.
- Health Canada (2000), "Consultation document: standards of evidence for evaluating foods with health claims: a proposed framework", available at: http://www.hc-sc.ca/food-aliment/english/subjects/health_claims/standards_of_evidence (accessed 13 April 2023).
- Henry, C.J. (2010), "Functional foods", *European Journal of Clinical Nutrition*, Vol. 64 No. 7, pp. 657-659.
- Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", *Journal of the Academy of Marketing Science*, Vol. 43, pp. 115-135.
- Istanbul Development Agency (2017), "İstanbul'da istihdam eğilimlerinin belirlenmesi", available at: https://www.istka.org.tr/media/131784/istanbul-da_istihdam_egilimlerinin_belirlenmesi-marmara-itu.pdf (accessed 19 April 2023).
- Jin, N.P., Line, N.D. and Lee, S.M. (2017), "He health conscious restaurant consumer: understanding the experiential and behavioral effects of health concern", *International Journal of Contemporary Hospitality Management*, Vol. 29 No. 8, pp. 2103-2120.
- Jun, J., Kang, J. and Arendt, S.W. (2014), "The effects of health value on healthful food selection intention at restaurants: considering the role of attitudes toward taste and healthfulness of healthful foods", *International Journal of Hospitality Management*, Vol. 42, pp. 85-91.
- Kang, J., Jun, J. and Arendt, S.W. (2015), "Understanding customers' healthy food choices at casual dining restaurants: using the Value-Attitude-Behavior model", *International Journal of Hospitality Management*, Vol. 48, pp. 12-21.
- Kaur, N., Chugh, V. and Gupta, A.K. (2012), "Essential fatty acids as functional components of foods- a review", *Association of Food Scientists and Technologists*, Vol. 51 No. 10, pp. 2289-2303.
- Kim, H.J., Park, J., Kim, M.J. and Ryu, K. (2013), "Does perceived restaurant food healthiness matter? Its influence on value, satisfaction and revisit intentions in restaurant operations in South Korea", *International Journal of Hospitality Management*, Vol. 33 No. 1, pp. 397-405.
- Korthals, M. (2002), "The struggle over functional foods: justice and the social meaning of functional foods", *Journal of Agricultural and Environmental Ethics*, Vol. 15 No. 3, pp. 313-324.
- Kraus, A. (2015), "Factors influencing the decisions to buy and consume functional food", *British Food Journal*, Vol. 117 No. 6, pp. 1622-1636.
- Krystallis, A., Arvanitoyannis, I.S. and Kapirti, A. (2003), "Investigating greek consumers' attitudes towards low-fat food products: a segmentation study", *International Journal of Food Sciences and Nutrition*, Vol. 54 No. 3, pp. 219-233.
- Lajolo, F.M. (2002), "Functional foods: Latin american perspectives", *British Journal of Nutrition*, Vol. 88 No. 2, pp. 145-150.
- Lee, S.M., Jin, N.P. and Kim, H.S. (2013), "Relationships among knowledge of healthy food, health concern, and behavioral intention: evidence from the United States and South Korea", *Journal of Quality Assurance in Hospitality and Tourism*, Vol. 14 No. 4, pp. 344-363.

- Li, L. and Tsao, R. (2019), "UF-LC-DAD-MSn for discovering enzyme inhibitors for nutraceuticals and functional foods", *Journal of Food Bioactives*, Vol. 7, pp. 27-35.
- MarketingTürkiye (2015), "Beyaz yakalılar ne yer, ne içer, nerelere gider", available at: <https://www.marketingturkiye.com.tr/haberler/beyaz-yakalilar-ne-icer-nerelere-gider/> (accessed 01 April 2023).
- Niva, M. (2006), "Can we predict who adopts health-promoting foods? Users of functional foods in Finland", *Food and Nutrition*, Vol. 50 No. 1, pp. 13-24.
- Niva, M. and Mäkelä, J. (2007), "Finns and functional foods: socio-demographics, health efforts, notions of technology and the acceptability of health-promoting foods", *International Journal of Consumer Studies*, Vol. 31 No. 1, pp. 34-45.
- Nystrand, B.T. and Olsen, S.O. (2020), "Consumers' attitudes and intentions toward consuming functional foods in Norway", *Food Quality and Preference*, Vol. 80, 103827.
- Orel, F.D., Bozdemir, M. and Demirkılıç, N. (2017), "Examining the relationships between consumption values, purchasing intention and purchasing behavior: a study on functional foods", *Çukurova University Journal of Social Sciences Institute*, Vol. 26 No. 3, pp. 241-256.
- Özen, A.E., Pons, A. and Tur, J.A. (2012), *Assessment of Functional Food and Beverage Consumption Among the Balearic Islands Population: Gender, Socio-demographic and Lifestyle Determinants*, PhD Thesis, University of The Balearic Islands, Palma de Mallorca.
- Pech-Lopatta, D. (2007), *Consumers' Choice, 07: Wellfood trend drives food markets*, GfK and BVE, Munich.
- Rojas-Rivas, E., Espinoza-Ortega, A., Thomé-Ortiz, H. and Moctezuma-Pérez, S. (2019), "Consumers' perception of amaranth in Mexico: a traditional food with characteristics of functional foods", *British Food Journal*, Vol. 121 No. 6, pp. 1190-1202.
- Salvatore, F.P., Adamashvili, N. and Conto, F. (2022), "Factors affecting consumer purchasing behavior of functional food: a comparative analysis for consumer management", *British Food Journal*, Vol. 124 No. 5, pp. 1519-1536.
- Sevilmiş, G., Olgun, A. and Artukoğlu, M. (2017), "A research on the factors affecting consumer decisions in functional foods: the example of İzmir province", *Journal of Ege University Faculty of Agriculture*, Vol. 54 No. 3, pp. 351-360.
- Sheth, J.N., Newman, B.I. and Gross, B.L. (1991), "Why we buy what we buy: a theory of consumption values", *Journal of Business Research*, Vol. 22 No. 2, pp. 159-170.
- Siró, I., Kápolna, E., Kápolna, B. and Lugasi, A. (2008), "Functional food. Product development, marketing and consumer acceptance—a review", *Appetite*, Vol. 51 No. 3, pp. 456-467.
- Sloan, A.E. (2004), "The top ten functional food trends", *Food Technology*, Vol. 58, pp. 28-51.
- Stojanovic, Z., Filipovic, J. and Mugosa, B. (2013), "Consumer acceptance of functional foods in Montenegro", *Montenegrin Journal of Economics*, Vol. 9 No. 3, pp. 65-74.
- Sumaedi, S. (2020), "A model of traditional functional food consumption behaviour", *British Food Journal*, Vol. 123 No. 1, pp. 13-30.
- Sweeney, J.C. and Soutar, G.N. (2001), "Consumer perceived value: the development of a multiple item scale", *Journal of Retailing*, Vol. 77 No. 2, pp. 203-220.
- Szakály, Z., Kovács, S., Pető, K., Huszka, P. and Kiss, M. (2019), "A modified model of the willingness to pay for functional foods", *Appetite*, Vol. 138, pp. 94-101.
- TBSA (2019), *T.C. Sağlık Bakanlığı Türkiye Beslenme ve Sağlık Araştırması: Beslenme durumu ve alışkanlıklarının değerlendirilmesi sonuç raporu*, T.C. Sağlık Bakanlığı, Ankara, pp. 1-931.
- TemesiÁ, Bacsó, Á., Grunert, K.G. and Lakner, Z. (2019), "Perceived correspondence of health effect as a new determinant influencing purchase intention for functional food", *Nutrients*, Vol. 11 No. 4, pp. 29-43.
- Thomé, K.M., Cappellesso, G. and Pinho, G.M. (2021), "Food consumption values and the influence of physical activity", *British Food Journal*, Vol. 123 No. 3, pp. 943-957.

-
- Thomé, K.M., Pinho, G.M. and Hoppe, A. (2018), "Consumption values and physical activities: consumers' healthy eating choices", *British Food Journal*, Vol. 212 No. 2, pp. 590-602.
- Topolska, K., Florkiewicz, A. and Filipiak-Florkiewicz, A. (2021), "Functional food—consumer motivations and expectations", *International Journal of Environmental Research and Public Health*, Vol. 18 No. 10, p. 5327.
- Tsiotsou, R. and Alexandris, K. (2009), "Delineating the outcomes of sponsorship", *International Journal of Retail & Distribution Management*, Vol. 37 No. 4, pp. 358-369.
- Tudoran, A., Olsen, S.O. and Dopico, D.C. (2009), "The effect of health benefit information on consumers health value, attitudes and intentions", *Appetite*, Vol. 52 No. 3, pp. 568-579.
- Urala, N. and Lähteenmäki, L. (2003), "Reasons behind consumers' functional food choices", *Nutrition and Food Science*, Vol. 33 No. 4, pp. 148-158.
- Urala, N. and Lähteenmäki, L. (2004), "Attitudes behind consumers' willingness to use functional foods", *Food Quality and Preference*, Vol. 15 Nos 7-8, pp. 793-803.
- Urala, N. and Lähteenmäki, L. (2007), "Consumer's changing attitudes towards functional foods", *Food Quality and Preference*, Vol. 18, pp. 1-12.
- Usakli, A. and Kucukergin, K.G. (2018), "Using partial least squares structural equation modeling in hospitality and tourism: do researchers follow practical guidelines?", *International Journal of Contemporary Hospitality Management*, Vol. 30 No. 11, pp. 3462-3512.
- Vassallo, M., Saba, A., Arvola, A., Dean, M., Messina, F., Winkelmann, M., Claupein, E., Lähteenmäki, L. and Shepherd, R. (2009), "Willingness to use functional breads. Applying the Health Belief Model across four European countries", *Appetite*, Vol. 52 No. 2, pp. 452-460.
- Veblen, T. (1899), "Mr. Cummings's strictures on 'The theory of the leisure class'", *Journal of Political Economy*, Vol. 8 No. 1, pp. 106-117.
- Verbeke, W. (2005), "Consumer acceptance of functional foods: socio-demographic, cognitive and attitudinal determinants", *Food Quality and Preference*, Vol. 16 No. 1, pp. 45-57.
- Verma, S., Kumar, S., Kumar, S., Mehta, R., Maurya, R., Singh, R. and Shashikant (2018), "Consumer behavior towards functional food in eastern up - a study of market drivers and challenges", *International Journal of Agriculture Innovations and Research*, Vol. 7 No. 1, pp. 15-30.
- Vicentini, A., Liberatore, L. and Mastrocola, D. (2016), "Functional foods: trends and development of the global market", *Italian Journal of Food Science*, Vol. 28 No. 2, p. 338.
- Voss, K.E., Spangenberg, E.R. and Grohmann, B. (2003), "Measuring the hedonic and utilitarian dimensions of consumer attitude", *Journal of Marketing Research*, Vol. 40 No. 3, pp. 310-320.
- Watanabe, K., Otsuka, Y., Shimazu, A. and Kawakami, N. (2016), "The moderating effect of health-improving workplace environment on promoting physical activity in white-collar employees", *Journal of Occupational and Environmental Medicine*, Vol. 58 No. 2, pp. 178-184.
- Weststrate, J.A., Van Poppel, G. and Verschuren, P.M. (2002), "Functional foods, trends and future", *British Journal of Nutrition*, Vol. 88 No. 2, pp. 233-235.
- Xin, L. and Seo, S. (2020), "The role of consumer ethnocentrism, country image, and subjective knowledge in predicting intention to purchase imported functional foods", *British Food Journal*, Vol. 122 No. 2, pp. 448-464.
- Zhang, Q., Xiang, J., Zhang, L., Zhu, X., Evers, J., van der Werf, W. and Duan, L. (2014), "Optimizing soaking and germination conditions to improve gamma-aminobutyric acid content in japonica and indica germinated brown rice", *Journal of Functional Foods*, Vol. 10, pp. 283-291.

(The Appendix follows overleaf)

Factors	Items	References
Health anxiety	Being healthy means a lot to me I often think about my health I am not concerned about the health consequences of the foods I eat*	Tudoran <i>et al.</i> (2009)
Health knowledge levels	Being healthy is not important to me I believe that eating low-fat or low-calorie functional foods keeps cholesterol levels under control I believe that functional foods are healthier than traditional foods I can avoid getting sick by eating functional foods regularly The healthiness of functional foods has little effect on my food preferences* I eat what I like and I am not very concerned about the healthiness of functional foods* The healthiness of functional foods does not mean anything to me	Krystallis <i>et al.</i> (2003), Jun <i>et al.</i> (2014)
Functional food consumption intentions	I will consider continuing to eat functional foods I continue eating functional foods I want to continue eating functional foods I use functional foods for cooking meals I'll purchase a functional food product I would probably purchase functional meat products	Tsiotsou and Alexandris (2009), Fischer <i>et al.</i> (2017)
Social value	Functional foods are prestigious Functional foods have a good reputation Many people around me buy functional foods Eating functional foods helps feel accepted Eating functional foods provides me with social approval I feel better if others give feedback to me that eating functional foods will be good for me	Sweeney and Soutar (2001), Dedeoğlu <i>et al.</i> (2016)
Measurement items	Note(s): *This item was deleted after examining of measurement model	

About the authors

Berna Kurkcu, RD is working as dietitian at the Çam and Sakura City Hospital in İstanbul. Her research areas include food, nutrient, health eating and health problems caused by diet, people's eating habits.

Eylem Üstünsoy, PhD candidate; is currently working as Lecturer in Culinary Art at Cappadocia University. Her research areas include gastronomy and culinary arts, tourist motivations, behavior and tourism marketing.

Bekir Bora Dedeoğlu, PhD; is Associate Professor at the Department of Tourism Guiding at Nevsehir HBV University. His research interests include tourism marketing, social media marketing, destination marketing, destination branding, tourist behavior and hospitality marketing. Bekir Bora Dedeoğlu is the corresponding author and can be contacted at: b.bora.dedeoglu@nevsehir.edu.tr