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RESEARCH ARTICLE ARAŞTIRMA MAKALESİ

Fish consumption in restaurants: An investigation on planned behavior theory and food neophobia

Restoranlarda balık tüketimi: Planlı davranış teorisi ve yiyecek neofobisi üzerine bir araştırma

Furkan Dursun[1*] • Bahar Gümüş[2]

[1]Department of Gastronomy and Culinary Arts, Faculty of Applied Sciences, Karamanoğlu Mehmetbey University, 70000, Karaman, Türkiye
[2]Department of Gastronomy and Culinary Arts, Faculty of Tourism, Akdeniz University, 07000, Antalya, Türkiye

**Corresponding author: fdursun@kmu.edu.tr*
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Abstract: In this study, consumers' intention to consume fish in restaurants was explored by expanding Ajzen's (1985) theory of planned behavior (TPB). The food neophobia (FN) variable was added to the variables of attitude, subjective norm (SN) and perceived behavioral control (PBC), which are the main independent variables of the TPB, and the moderator role of the variable of FN between the variables of attitude and intention to consume fish was also controlled. A questionnaire was used to reach a total of 517 participants in Antalya/Türkiye. For the analysis of the obtained data, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and multiple linear regression analyses were performed using SPSS and Lisrel package programs. It was found that the variables of attitude, SN and PBC have a significant and positive effect on consumers' intention to consume fish in restaurants. Also, the FN variable had a significant and negative effect on consumers' intention to consume fish in restaurants. Finally, FN variable had a significant moderator effect between the variables of attitude and intention to consume fish. In short, individuals with high FN may not translate a positive attitude toward eating fish into a strong intention to consume it, while those with low neophobia may do so more effectively. FN alters the link between attitude and intention, highlighting its role in shaping fish consumption decisions. This research offers key insights for public health and the food industry. Findings can guide healthy eating campaigns, marketing strategies, product development, and efforts to promote sustainable fish consumption, while also considering the impact of social norms within behavioral economics.

Keywords: Food neophobia, planned behavior theory, seafood consumption, intention of fish consume

Öz: Bu çalışmada, tüketicilerin restoranlarda balık tüketme niyeti, Ajzen'in (1985) planlı davranış teorisi (PDT) genişletilerek incelenmiştir. PDT'nin temel bağımsız değişkenleri olan tutum, öznel norm (ÖN) ve algılanan davranışsal kontrol (ADK) değişkenlerine ek olarak, gıda neofobisi (GN) değişkeni de eklenmiş ve bu değişkenin tutum ve balık tüketme niyeti arasındaki moderatör rolü kontrol edilmiştir. Antalya/Türkiye'de toplam 517 katılımcıya anket uygulanmıştır. Elde edilen verilerin analizi için SPSS ve Lisrel paket programları kullanılarak keşfedici faktör analizi (KFA), doğrulayıcı faktör analizi (DFA) ve çoklu doğrusal regresyon analizleri yapılmıştır. Tutum, ÖN ve ADK değişkenlerinin, tüketicilerin restoranlarda balık tüketme niyetini anlamlı ve pozitif yönde etkilediği bulunmuştur. Ayrıca, GN değişkeninin, tüketicilerin restoranlarda balık tüketme niyetini anlamlı ve olumsuz yönde etkilediği saptanmıştır. Son olarak, GN değişkeninin, tutum ve balık tüketme niyeti arasında anlamlı bir moderatör etkisi olduğu tespit edilmiştir. Kısaca, yüksek gıda neofobisine sahip bireyler, balık yemeye yönelik olumlu bir tutumu güçlü bir tüketime niyete dönüştüremeyebilirken, düşük neofobiye sahip bireyler bunu daha etkili bir şekilde yapabilir. GN, tutum ve niyet arasındaki bağı değiştirerek balık tüketim kararlarını şekillendirmede önemli bir rol oynamaktadır. Bu araştırma, halk sağlığı ve gıda sektörü için önemli bulgular sunmaktadır. Bulgular bağlamında ilgili paydaşlar, sağlıklı beslenme kampanyalarına, pazarlama stratejilerine, ürün geliştirmeye ve sürdürülebilir balık tüketimini teşvik etme çabalarına rehberlik edebilir ve sosyal normların davranışsal ekonomi bağlamındaki etkisini de göz önünde bulundurabilir.

Anahtar kelimeler: Gıda neofobisi, planlı davranış teorisi, su ürünleri tüketimi, balık tüketme niyeti

INTRODUCTION

Nutrition is one of the key factors affecting human health and development. Therefore, the selection and consumption of foods for a healthy diet are critical. Fish has a high nutritional value and beneficial nutrients and is considered a functional food. It contributes to the proper development and functioning of the human body while reducing the risk of certain diseases (Fotea et al., 2012; Sidhu, 2003). Increased fish consumption is in line with healthy eating trends (Kornitzer, 2001; Verbeke and Vackier, 2005). The per capita consumption of seafood products worldwide was 9.0 kg in 1961. It increased at an average rate of 1.5 percent per year, reaching 20.3 kg in 2017 (FAO, 2018), and a record level of 20.5 kg in 2019 (FAO, 2022).

Regional differences in seafood consumption are significant, with Asia emerging as the largest consumer, representing two-thirds of global seafood production. Countries like China, Japan, and Indonesia lead in per capita consumption, often exceeding 30 kg per person each year (Wai et al., 2021). In Japan, for example, fish consumption is an integral part of dietary practices, with average intake reaching about 50 kg annually (Wai et al., 2021). In contrast, European nations display diverse consumption patterns, with Portugal ranking high at approximately 59 kg per capita per year, while countries such as the UK report lower consumption levels (Paolacci et al., 2021). Although there has been an increasing trend in fish consumption and fishing in recent years, studies conducted in various countries have indicated that participants consume fish and seafood products below the recommended levels: at least 2 servings per week (Altintzoglou et al., 2011;

Grieger et al., 2012). This is also valid for Türkiye, which is geographically advantageous in terms of source and proximity to the source. In 2023, per capita seafood consumption in Türkiye has been reported as 7.1 kg, which is well below the world average (TUİK, 2024). The examination of the reasons behind the insufficient consumption of fish and seafood products, despite the increasing interest in healthy nutrition, is still a current and important research topic.

MATERIALS AND METHODS

The study utilized a structured questionnaire as the primary data collection tool. The aim of this study was to evaluate the factors affecting the consumers' intention to consume fish in the restaurant within the scope of TPB. In addition to the attitude, SN and PBC variables that are assumed to be effective in explaining the intention, the FN variable was also included in the research model. Quantitative research design was adopted in the study. In order to collect the data, the scales obtained from the relevant literature were adapted to Turkish and presented to the participants in the form of a questionnaire. EFA, CFA and multiple linear regression analyses were performed on the collected data using IBM SPSS (version 22) and Lisrel (version 8.80) package programs.

Research model and hypotheses

Food neophobia (FN) is the tendency to avoid or hesitate in trying unfamiliar foods (Pliner and Hobden, 1992). It is viewed as a trait that predicts willingness to try new or familiar foods (Caber et al., 2018; Kim et al., 2009). FN negatively impacts the consumption and preference for foods like fish and seafood (Knaapila et al., 2011; Siegrist et al., 2013). Based on this, the study hypothesizes that FN will reduce the intention to consume fish in restaurants. The first hypothesis of the research is as follows.

H1: Food neophobia has a negative and significant effect on the intention to consume fish in the restaurant.

A positive attitude towards a behavior strengthens the intention to perform it (Fishbein and Ajzen, 1975). Consumer attitudes significantly influence food consumption, particularly fish (Tomic et al., 2015; Thong and Olsen, 2012; Verbeke and Vackier, 2005). In restaurants, food quality, service, and environment also shape customer behavior (Canny, 2014; Liu and Jang, 2009; Ryu and Han, 2010). Thus, well-prepared fish dishes, good service, and a favorable environment can positively influence attitudes and increase the intention to consume fish in restaurants. In this direction, the second hypothesis of the research is as follows.

H2: Attitude towards fish consumption has a positive and significant effect on the intention to consume fish in the restaurant.

Subjective norm (SN) refers to the influence of expectations from significant others on a person's behavior (Ajzen, 1991). Social pressure on fish consumption often comes from close social circles, like family and friends (Verbeke and Vackier, 2005). In restaurants, factors such as the presence of others, customer recommendations, and staff suggestions also impact consumption behavior (Canny, 2014; Liu and Jang, 2009; Özdemir, 2010; Pettersson and Fjellström, 2007; Ryu and Han, 2010). Positive impressions and recommendations during dining can enhance SN, thereby increasing the intention to consume fish. The third hypothesis of the research is as follows.

H3: The subjective norm for fish consumption has a positive and significant effect on the intention to consume fish in the restaurant.

Perceived behavioral control (PBC) suggests that a person's intention to perform a behavior increases when they believe they have the necessary resources and face minimal difficulties (Ajzen, 2002; Kocagöz and Dursun, 2010). A person's ease or difficulty in consuming fish, along with available resources, influences their behavior. Restaurant atmosphere and environmental factors also significantly impact consumption (Gustafsson et al., 2006; Hansen et al., 2005; Pettersson and Fjellström, 2007). A positive perception of these factors can enhance PBC, thereby increasing the intention to consume fish in restaurants. The fourth hypothesis of the research is as follows.

H4: PBC for fish consumption has a positive and significant effect on the intention to consume fish in the restaurant.

Attitude plays a key role in explaining fish consumption behaviors (Olsen, 2003; Olsen et al., 2007; Rortveit and Olsen, 2007; Verbeke and Vackier, 2005). While people view fish as healthy, negative sensory factors like smell, texture, and bones may deter consumption. Compared to other TPB variables, food neophobia (FN) is expected to have a negative moderating effect on the relationship between personal attitudes and the intention to consume fish. The fifth and final hypothesis of the research is as follows.

H5: Food neophobia has a negative and significant moderator effect on the relationship between the attitude towards fish consumption and the intention to eat fish in the restaurant.

The research model created is presented in Figure 1

Universe and sample

The study's population includes domestic consumers in Antalya who have dined at any restaurant in the last six months. Since individuals with fish neophobia may avoid fish restaurants, the sample is not limited to those venues. According to Krejcie and Morgan (1970), a population of one million requires a minimum sample size of 384. Although different methods exist for determining sample size for factor analysis, a minimum of 300 participants is generally accepted (Aksu et al., 2017). Therefore, the study aimed for at least 400 participants, utilizing convenience sampling for efficiency and cost-effectiveness.

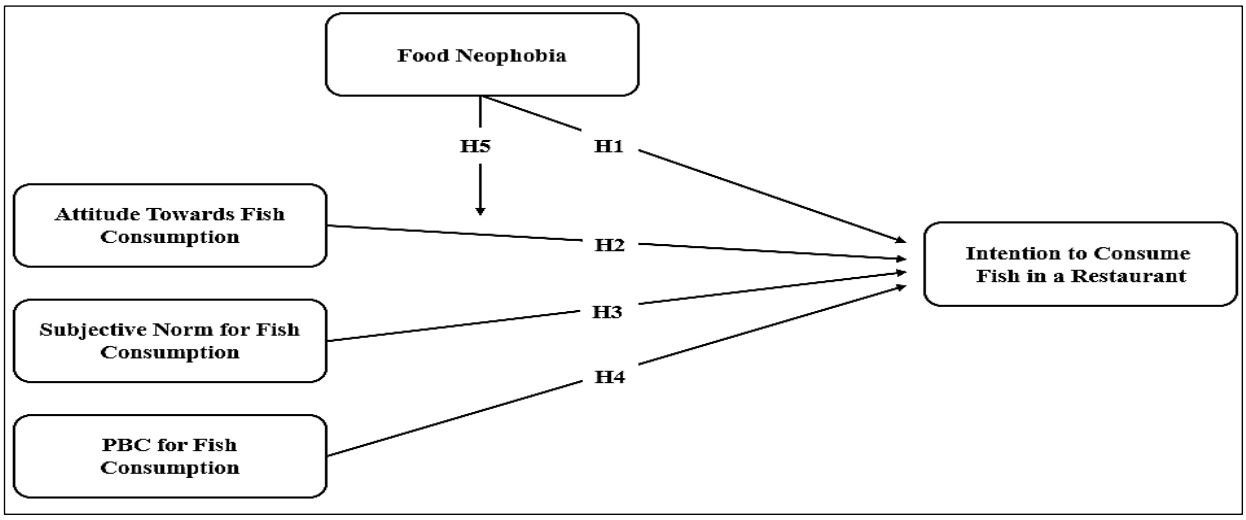

Figure 1. Research model

Data collection tool

A questionnaire was used as the data collection tool in this study. Scales for the dependent and independent variables were adapted to measure the intention to consume fish in restaurants, based on relevant literature. The FN scale by Pliner and Hobden (1992) assessed participants' fish neophobia, while the scale for individual determinants of fish consumption from Verbeke and Vackier (2005) measured attitudes, social norms (SNs), perceived behavioral control (PBC), and intention. Although the original FN scale utilized a 7-point Likert scale, this study employed a 5-point Likert scale (1: Totally Disagree, 5: Totally Agree) to simplify response options for participants (Laureati et al., 2016).

The scales were translated into Turkish by three English experts, with discrepancies checked and consolidated into a single scale. This Turkish scale was then back-translated into English, and differences were compared with the original. The Turkish and English versions were administered separately to a group of 12 bilingual participants, and their total scores were compared. After incorporating feedback, the scale was reviewed by five faculty experts. A pilot test was conducted with 100 participants to validate the measurement tool. The finalized tool was applied to participants from December 15, 2019, to January 15, 2020, yielding 517 valid questionnaires.

RESULTS

Findings regarding the socio-demographic characteristics of the participants

The findings regarding the gender, age, education and monthly income of the participants as frequency and percentage distributions are given in Table 1. As can be seen on the table, 57.3% of the participants in the application were male. Also 35.8% of the participants were between the ages of 18-24, 48% had undergraduate education. Finally, looking at the monthly income, 25.7% of the participants had a monthly income between 0-999 TL, while 22.8% of them had an income of 4000 TL and above.

Table 1. Socio-demographic characteristics of the participants

Category	Frequency(n)	Percentage (%)
Gender		
Woman	221	42.7
Male	296	57.3
Total	517	100
Age		
18-24	185	35.8
24-34	90	17.4
35-44	67	13
45-54	97	18.8
55+	78	15.1
Total	517	100
Education Status		
Primary School	55	10.6
High School	99	19.1
Associate Degree	45	8.7
Undergraduate	248	48
Postgraduate	70	13.5
Total	517	100
Monthly Income Status		
0-999	133	25.7
1000-1999	87	16.8
2000-2999	79	15.3
3000-3999	100	19.3
4000+	118	22.8
Total	**517**	**100**

Findings regarding the validity and reliability of the scales

In this study, the validity of the scale was evaluated using factor analysis to observe to what extent the scale actually measures the construct that is intended to be measured. Factor analysis is one of the methods that helps to reveal the factor structure of the measurement tool instead of giving a single coefficient for the validity of the measurement tool or is used to confirm the factor structure that has been determined before (Aksu et al., 2017). In this context, EFA was used to determine the factor structure of the adapted scale, and CFA was used to confirm the determined factor structure (Büyüköztürk et al., 2018).

To be suitable for factor analysis the analyzed data should have a Kaiser-Meyer-Olkin (KMO) value greater than 0.50 and a Bartlett sphericity test significance value less than 0.05 ($p < 0.05$) (Aksu et al., 2017). All scales showed sufficient ranges of values for factor analysis. Assuming the base value of the factor loadings to be 0.40 (Aksu et al., 2017), expressions with lower loads than this value and expressions showing overlapping problem were excluded from the analysis (Aksu et al., 2017). In determining the number of sub-factors, only the factors with an eigenvalue greater than 1 were considered based on the Guttman-Kaiser rule (Aksu et al., 2017). Cronbach Alpha (α) analysis, which is one of the frequently used methods to calculate the reliability of the measurement results, was used. The fact that the Cronbach Alpha value is between $0.60<\alpha<0.80$, shows that the measurement tool is quite reliable (Kalaycı, 2009). According to the findings, it can be stated that all the scales used in the study are quite reliable, the relevant values are presented in Table 2.

Table 2. Results of exploratory factor analysis regarding the scales

Scales and Statements	Factor Load	Explained Variance Percentage
Food Neophobia Scale (α=0.93)		
1. Factor: Food Neophobia		
1. I am constantly sampling new and different foods. (reverse-scaled)	.840	62.096
2. I don't trust new foods.	.798	
3. If I don't know what is in a food, I won't try it.	.749	
4. I like foods from different countries. (reverse-scaled)	.830	
5. Ethnic food looks too weird to eat.	.726	
6. At dinner parties, I will try a new food. (reverse-scaled)	.788	
7. I am afraid to eat things I have never had before.	.826	
8. I am very particular about the foods I will eat.	.734	
9. I will eat almost anything. (reverse-scaled)	.772	
10. I like to try new ethnic restaurants. (reverse-scaled)	.808	
Attitude towards eating fish (α=0.87)		
1. Factor: Positive attitude factor		
1. Eating fish is not trustworthy (reverse-scaled).	.805	60.186
2. Eating fish is healthy.	.886	
3. Eating fish is safe.	.810	
5. Eating fish is nutritious.	.842	
8. Fish has a good taste.	.669	
2. Factor: Negative attitude factor		
6. Fish has an unpleasant smell (reverse-scaled)	.868	15.531
7. The bones in fish are unpleasant (reverse-scaled)	.893	
*The 4th statement was not included in the scale because it had a low factor loading (<.40), and the 9th and 8th statements showed overlap (<.10).		
4. Eating fish is expensive (reverse-scaled).		
9. I am very satisfied when fish is on the menu.		
Subjective norm scale (α=0.91)		
1. Factor: Personal norm (personal responsibility, moral obligation)		
8. To give my family a healthy meal, I buy fish.	.915	55.488
9. To give my family a nutritious meal, I buy fish.	.911	
10. To offer my family a varied meal, I buy fish.	.851	
2. Factor: External social norm		
3. The government stimulates me to eat/buy more fish.	.891	12.831
5. Advertising stimulates me to eat/buy more fish.	.868	
7. The food industry encourages me to eat/buy more fish.	.805	
3. Factor: Internal social norm		
1. My family thinks that I should eat/buy fish.	.749	10.782
2. My friends think that I should eat/buy fish.	.708	
4. Doctors and nutritionists think that I should eat/buy fish.	.774	
6. My partner thinks that I should eat/buy fish.	.612	
Perceived behavioural control Scale (α=0.94)		
1. Factor: Perceived behavioural control		
1. I find it difficult to judge the quality of fish (reverse scaled)	.728	64.198
2. I can make many different meals with fish.	.771	
3. When I buy fish, the chance to make a bad choice is big (reverse-scaled)	.796	
5. Fish is difficult to prepare (reverse-scaled)	.717	
6. When I buy fish, I never know whether I make a good choice (reverse scaled)	.815	
7. I am familiar with eating fish.	.699	
8. I have much experience in buying fish.	.849	
9. I know a lot of fish species that can be prepared.	.851	
10. I have much knowledge about fish.	.877	
11. I am well informed about fish.	.861	
12. I am familiar with preparing fish.	.838	
13. Eating fish is part of my eating habits.	.787	
*4.statement was not included in the scale due to low factor loading (<.40)		
4. Fish is easily available for me.		
Intention scale (α=0.94)		
1. Factor: Behavioural intention		
1. The chance that I eat fish at restaurant for the next weeks is high.	.953	90.519
2. I am planning to eat fish at restaurant during the next weeks.	.970	
3. My willingness to eat fish at restaurant is high.	.931	

The FN scale adapted from the study of Pliner and Hobden (1992) consists of a total of 10 expressions, 5 negatives and 5 positives. Positive expressions (1,4,6,9,10) were analyzed by reverse coding during data processing. In this way, it can be interpreted that the FN will increase as the score increases in the answers given to the related statements. After analysis, 1 factor with an eigenvalue greater than 1 (6.210) and consisting of 10 expressions emerged. The total variance explanation rate of a single factor was 62%. The first analysis on SN, PBC and intention scales adapted from Verbeke and Vackier's (2005) study was made on the attitude scale. The attitude scale consists of 9 statements. 1,4,6 and 7th statements were analyzed by being reverse coded, adhering to the original scale. As a result of the analysis, the 4th statement with a factor load lower than the determined value (0.40) and the 9th statements that caused the overlap problem were removed from the analysis, and 7 statements remained. When the findings were examined, 2 factors with an eigenvalue greater than 1 and a total variance explanation rate of 75.71% have emerged. The variance explanation rates of the first and second factors were 60.18% and 15.53%, respectively. SN scale consisted of 10 statements. When the findings were examined, 3 factors with an eigenvalue greater than 1 and a total variance explanation rate of 79.10% have emerged. The variance explanation rates of the first, second and third factors were 55.48%, 12.83%, and 10.78%, respectively. PBC scale consists of 13 statements. Adhering to the original of the scale, the 1,3,5 and 6th statements were reverse coded and analyzed. Statement 4 with a factor loading less than 0.40 was excluded from the analysis. The rate of explaining the total variance of a single factor with an eigenvalue greater than 1 is 64%. Intention scale consists of 3 statements. The rate of explaining the total variance of a single factor with an eigenvalue greater than 1 is 90.5%.

It can be stated that all scales adapted because of the analyses are suitable in terms of construct validity and reliability. In the next step, CFA was performed with the relevant data in order to verify the factor structures determined as a result of EFA.

The study was based on the fit indices most frequently used in model validation studies (Aksu et al., 2017). In case the model fit indices are not within the acceptable limits, modification (correction) indices were examined, and modifications (corrections) were performed where necessary in order to resolve the discrepancies between the proposed and the predicted model. Within the scope of the analysis results, χ^2/df (4.7), Goodness of Fit Index GFI (0.94), Root Mean Square Error of Approximation RMSEA (0.08), Standardized Error Squares Standardized Root Mean Square Residual SRMR (0.07), Adjusted Goodness of Fit Index AGFI (0.91), Normed Fit Index NFI (0.96), Non-normed Fit Index NNFI or Tucker Lewis Index TLI (0.97), Comparative Fit Index CFI (0.97) were found. According to the underlying indices and the findings, it can be stated that the compatibility index values of the established model are within the acceptable limits (Aksu et al., 2017).

Findings related to the research model

Multiple linear regression analysis was used to test the hypotheses stated in the study. The effect of the independent variables on the dependent variable can be determined using the multiple regression analysis. Some assumptions must be provided to make sound evaluations in regression analysis. In this context, Pearson correlation analysis was used to test the relationship between dependent and independent variables. The analysis results are given in Table 3. According to Table 3, FN has a significant relationship with the intention variable at a rate of -61.9%, attitude 67.4%, SN 61%, and PBC at a rate of 69.2%.

Table 3. Findings related to correlation analysis between variables

Independent Variables	Pearson's Coefficient of Correlation	Significance Level
Food Neophobia	-.619	.000
Attitude	.674	.000
Subjective Norm	.610	.000
Perceived behavioral control	.692	.000

Other assumptions of regression analysis are linearity, normality of distribution, independence of errors (autocorrelation), and non-multilinearity between independent variables. The analyses for the control of the assumptions were made with the methods suggested by Başman et al. (2018). First, the scatter plot of standardized error terms and standardized estimated values was examined. It was seen that the linearity assumption was not partially violated. It has been determined that the standardized error values were normally distributed on the histogram, and the error terms observed in the P-P graph were evenly distributed around the line. Therefore, the assumption of normality of distribution was confirmed. Durbin Watson test was performed to check the assumption of independence of errors, and since its value was 1.791, the assumption of independence of errors was confirmed (Kalaycı, 2009). Finally, tolerance and variance inflation factors (VIF) values were checked to determine whether there was multicollinearity among the independent variables. According to Hair et al. (2006), if the VIF value is below 10 and the tolerance value above 0.10, it can be stated that there is no correlation between the variables. The tolerance value was between 0.432 and 0.567, and the VIF values were between 1.764 and 2.314. Therefore, it can be stated that there is no multicollinearity between the variables, and the last assumption is confirmed. Next, multivariate linear regression analysis was performed to test the hypotheses. Analysis results are given in Table 4.

According to Table 4, while FN (β= -.244; p= .000) negatively and significantly affects the intention to consume fish in the restaurant, the attitude towards fish consumption (β= .394; p= .000) SN (β= .299; p= .000), PBC (β= .410; p= .000) positively and significantly affects the intention to consume fish in the restaurant. When the R^2 value is examined, it is seen that all independent variables in the model (FN, attitude, SN, PBC) explain the dependent variable (intention to eat fish in the restaurant) by 60% and this value is acceptable.

Table 4. Findings related to regression analysis

Independent Variables	BetaCoefficient	t Value	Significance	ToleranceValue	VIF
Food Neophobia	-.244	-4.731	.000	.522	1.914
Attitude	.394	5.663	.000	.432	2.314
Subjective Norm	.299	5.249	.000	.567	1.764
Perceived behavioral control	.410	7.029	.000	.438	2.286
R	.774				
R²	.600				
Adjusted R²	.597				
Durbin Watson Value	1.791				

The adjusted R² value (0.597) is close to the R² value, indicating the suitability of the model. According to the results of the analysis, the H1, H2, H3, H4 hypotheses are supported. Finally, regression analysis was conducted to test the moderator effect of FN on the relationship between attitude and intention variables. In the established model, attitude was assigned as independent, intention dependent, and FN as regulatory variable. Analyses were made in two parts and the results are given in Table 5.

Table 5. Findings on the regulatory role of food neophobia between attitude and intention

Independent Variables	Standardized Beta Coefficient	t Value	Significance
Part 1			
Attitude	.470	11.652	.000
Food Neophobia	-.315	-7.817	.000
R²	.512		
Adjusted R²	.510		
Part 2			
Attitude	.530	12.316	.000
Food Neophobia	-.314	-7.881	.000
Attitude * Food Neophobia	-.127	-3.687	.000
R²	.524		
Adjusted R²	.521		
R² Change	.012		

In the first part, a regression analysis was made by setting up a model with attitude and FN as the independent variables and intention as the dependent variable, and the suitability of this model was checked. Results suggest that this model is significant as a whole (F value 269.279 (p= 0.000)), attitude (dependent) has a positive and significant effect on intention (independent) variable (β= .470; p= .000). FN (dependent) variable has a negative and significant effect on the intention (independent) variable (β=-.315; p= .000). According to R², the independent variables (attitude and food neophobia) explain the dependent variable at 51.2%. The independent variable with the highest explanatory power is the attitude variable (47%). In the second part, the centralization process known as the Z score was applied to the attitude (independent) and FN (regulatory) variables (Aksu et al., 2017).

The centralized values are multiplied with each other to produce a new variable (interaction term). The newly obtained value was included as an independent variable in the new model and regression analysis was applied. In Table 5, this model is significant as a whole (F value is 188.449 (p= 0.000)), while the explanatory power of the attitude (dependent) intention (independent) variable increased by 6% to become 53%. However, when the R² value is examined, it is seen that the rate of explaining the total variance increased by 1.2% and became 52.4%. Considering the interaction term, which was added to the model later, it can be stated that FN had a negative and significant effect on the relationship between attitude and intention variables (β= -. 127; p= .000). In this context, the H5 hypothesis was also supported by the findings.

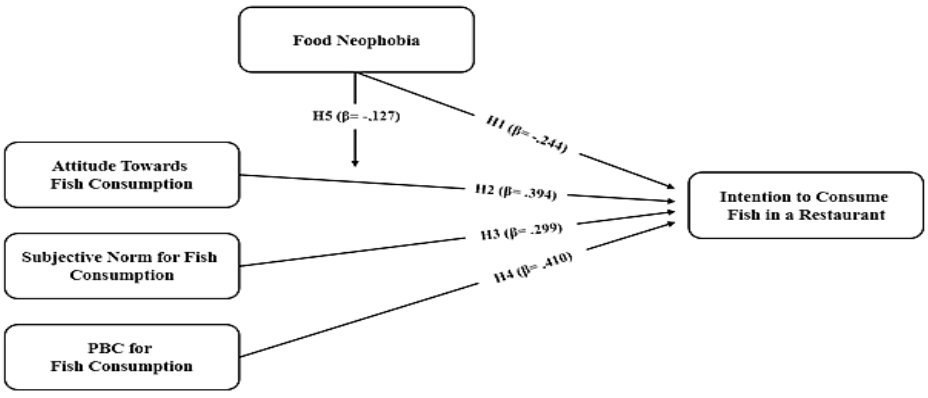

Figure 2. Hypothesis results regarding the research model

DISCUSSION

The variable with the strongest influence on fish consumption intention in restaurants was PBC, followed by attitude, SN, and FN. Similar findings have been reported in other studies on fish consumption, where PBC was the most significant predictor of intention (Olsen et al., 2008; Verbeke and Vackier, 2005). However, some studies found that attitude or SN had a greater effect than PBC (Aghamolaei et al., 2012; Mitterer-Daltoé et al., 2013; Tomic et al., 2015). In contrast, Thong and Olsen (2012) and Siddique (2012) found no significant effect of PBC. These variations may be due to differences in scales, samples, and study variables. The strong PBC effect in this study is likely due to the coastal location, where easy access to fish and familiarity with its consumption positively influence PBC.

The findings of Verbeke and Vackier (2005) and Aghamolaei et al. (2012) support this view. However, this study uniquely examines fish consumption intentions in the context of restaurants. Restaurant dining experiences involve various factors such as food quality, service, and environmental conditions (Canny, 2014; Liu and Jang, 2009; Ryu and Han, 2010). The impact of these components on fish consumption is shaped by customers' quality perceptions and expectations. The stronger influence of PBC and attitude on intention in this study likely stems from positive perceptions of the restaurant atmosphere, food quality, and environmental factors.

Based on the findings, the FN variable negatively and significantly influences the intention to consume fish in restaurants. Many studies (Costa et al., 2020; Jaeger et al., 2017; Knaapila et al., 2011; Laureati et al., 2016; Siegrist et al., 2013) support this, showing that neophobia negatively impacts consumption intentions for various familiar foods, including fish, vegetables, fruits, and poultry. Additionally, the study identified a significant moderating effect of the FN variable on the relationship between attitudes towards fish consumption and intention to consume fish in restaurants. Specifically, while attitudes can influence intentions, a high level of FN weakens this effect (Hsu et al., 2018; Ting et al., 2017).

To enhance the intention to consume fish in restaurants, the food industry should focus on promotional activities highlighting fish's safety, health, nutritional benefits, and taste. To mitigate negative attitudes, restaurants can pre-clean fish bones and use various cooking methods or spices to reduce unpleasant odors. Effective ventilation systems can also help manage indoor smells. For customers with a positive attitude towards fish, the aroma can enhance their dining experience, making it essential to tailor approaches based on the business type and customer profile. Implementing campaigns like discount days or group discounts can encourage fish consumption. Additionally, staff training and customer involvement in fish preparation can further boost familiarity and intention to consume fish.

The level of FN in individuals can change over time and varies with several factors. To reduce FN, service personnel can inform customers about the benefits of fish through menus and promotions. Offering small fish samples can create a positive impression, while visually appealing presentations with spices can enhance sensory motivation. Future research could focus on customers at restaurants offering both fish and other menu items, gathering data to explore factors influencing fish preference, such as food quality, menu variety, atmosphere, price, and service quality. Additionally, the moderating effect of FN could be examined between attitude-intention and specific norm-intention variables. Future studies could also investigate aquatic foods with different sensory properties, like lobster, crab, and octopus, to clarify FN's impact on consumption intentions.

CONCLUSION

The study on fish consumption in restaurants reveals several significant findings regarding the impact of food neophobia (FN) and consumer attitudes on dining choices. It establishes that FN negatively influences the intention to consume fish, indicating that individuals with higher levels of FN are less likely to select fish dishes when dining out. This finding aligns with the Theory of Planned Behavior (TPB), which posits that subjective norms (SN) and perceived behavioral control (PBC) also play crucial roles in shaping consumption intentions.

Furthermore, the research underscores the importance of social influences, particularly from family and friends, in shaping consumption behaviors. The study suggests that positive exposure to unfamiliar foods can reduce FN over time, thereby enhancing the rates of fish consumption. Additionally, it highlights the significance of the restaurant atmosphere and environmental factors in facilitating or impeding fish consumption. Overall, the findings emphasize the intricate interplay of psychological barriers, social influences, and environmental factors in determining fish consumption behaviors within restaurant contexts.

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AUTHORSHIP CONTRIBUTIONS

Furkan Dursun: Conceptualization, resources, investigation, methodology, formal analysis, writing-reviewing and editing. Bahar Gümüş: Conceptualization, writing-reviewing and editing, investigation, project administration.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

ETHICAL APPROVAL

The ethical appropriateness of this study was approved by Akdeniz University Social Sciences and Humanities Scientific Research and Publication Ethics Committee with decision number 14 on 07/02/2020.

DATA AVAILABILITY

For questions regarding datasets, the corresponding author should be contacted.

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