

The impact of perceived cleanliness on customer satisfaction, revisiting intention and complaining behaviors: The case of restaurants by S-O-R Model

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ABSTRACT

Keywords:

S-O-R model,
Restaurant,
Cleanliness,
Satisfaction,
Revisiting intention.

Food and beverage sector is a challenging sector which is growing and changing fast and including severe competition. Restaurants are an important part of the sector and in today's conditions it is vital them to be nourishing and satisfying and also free of problems in terms of cleanliness. In this respect the aim of this study is to understand how satisfaction/dissatisfaction feeling affects the intentions of complaining a restaurant or revisiting it by determining to what extent cleanliness factors affect customers' satisfaction level in the scope of S-O-R Model. In accordance with the given purpose, the data collected via the questionnaires from 384 customers of a restaurant in the United States of America have been analysed. According to the results, participants evaluate restaurant cleanliness in six aspects and it has been established that these six aspects clarify 42 % of restaurant satisfaction. Also, it has been found that restaurant satisfaction affects the intention of revisiting but does not affect the intention of complaint. In the study suggestions for theoretical and practical areas have been presented.

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1. Introduction

Restaurant cleanliness is seen as one of the key factors in the restaurant quality assessment of customers by researchers (Becker *et al.*, 1999; Barber & Scarcelli, 2009; Liu & Jang, 2009). Restaurant cleanliness in terms of both atmosphere and service quality is vital to ensure a competitive advantage and a sustainable income. That's why the managers in food and beverage sector should give importance to provide a qualified service to gain new customers and build loyalty of existing customers (Walter *et al.*, 2010, p. 238). Thus, new customers are always in interaction with the staff, the environment and the products of a restaurant during service. Therefore, not only the quality of food and beverage but also the quality of service and environment is also under evaluation. As a result of this evaluation, satisfaction or dissatisfaction feeling occurs. The approach of customers to food and beverage businesses changes depending on their satisfaction levels. In the case that satisfaction level increases, customers may tend to revisit a food and beverage business and they may enable more people to visit by word-of-mouth marketing. On the other hand, when dissatisfaction level increases, customers' intention of complaint may also increase, they may decide not to revisit and by word-of mouth they may prevent other people to visit.

When the literature is examined, it is seen that restaurant cleanliness is examined in two different ways. The first of these is the static form of restaurant cleanliness, which customers see or sense in the restaurant atmosphere. What is mentioned here is the cleanliness situation that is done before the arrival of the customer and is mostly related to the objects. The second is the reflection of the cleaning performance in the restaurant. Here, the concept of service quality comes into play. Restaurant cleanliness can be expressed as an output of the cleaning performance of the employees in the restaurant in the context of service quality. As a matter of fact, studies in the context of restaurant atmosphere and service quality are handled separately in the literature. It can be said that studies emphasizing the static and variable aspects of restaurant cleanliness are limited. The research also deals with the possible consequences of restaurant cleanliness. No other study has been found that deals with the process of evaluating restaurant cleanliness and restaurant cleaning performance from the customer's point of view, thus turning it into re-visiting or complaining behavior. In this way, it is aimed to bring a new perspective to the literature on the occasion of the study. The aim of this study made in the scope of S-O-R Model, which is also known as "Environmental Psychology Model", is to determine whether the customers' interactions regarding restaurant

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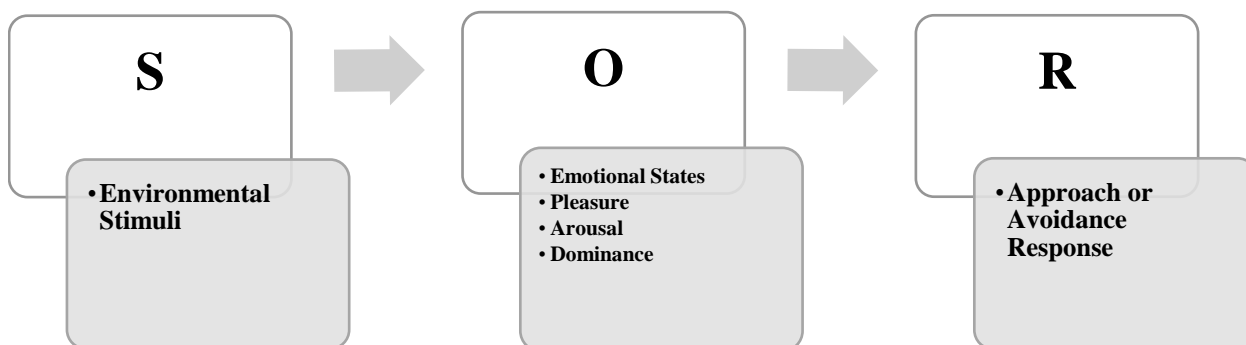


Figure 1. S-O-R Model of Mehrabian and Russel

Source: (Mehrabian & Russel, 1974, p. 8).

cleanliness factors create customer satisfaction or not by surveying these interactions of those restaurant customers living in The United States of America. Secondly it has been researched whether the satisfaction feeling from restaurant cleanliness affects customers’ revisiting or complaining intentions. The discussion of restaurant cleanliness from the aspects of both restaurant atmosphere and service quality and the research of its direct effect on customer satisfaction and indirect effect on customers’ revisiting or complaining intentions are important for food and beverage businesses which aim to provide a competitive advantage in the market.

Environmental Psychology Model of Mehrabian and Russel (S-O-R Model)

S-O-R model is a marketing model which affirms that environmental conditions cause approach or avoidance response in customers by triggering inner stimuli (Mehrabian & Russel, 1974). In other words, it is a model which analyses the impact of physical environment on response (Özer *et al.*, 2016, p. 30). When the model is analysed “S” is (stimulus/stimuli) all stimulants in environment, “O” is (Organism) all individuals (consumers/customers) responding to stimuli, “R” (reaction/response) is all behaviours shown by organism to environment. According to the model consumers or staff stimulated by environmental factors will respond differently depending on their interactions with the environment (Zeithaml *et al.*, 2013, p. 288). S-O-R model and its dimensions are shown in the Figure 1.

According the model; environmental factors (S) affect organisms’ (O) responses (R) during the process so approach/avoidance responses are shown by the organisms. In the model; stimuli may correspond to the factors which can cause changes in the emotional states of an individual. In this respect; restaurant cleanliness factors can be accepted as stimuli which can cause changes in the emotional states of customers (Eroğlu *et al.*, 2001, p. 179; Yoo, 2012). In the model emotional responses are clarified in three dimensions as pleasure, arousal and dominance

(Hetharie *et al.*, 2019, p. 2830). Emotional states, appearing as a result of environmental factors are to opposite responses named as approach and avoidance (Jang & Namkung, 2009, p. 451). In this study; revisiting will be emphasized as approach response and complaining will be emphasized as avoidance response.

Restaurant Cleanliness

Meeting customer requirement of cleanliness standards plays an important role in customers’ satisfaction (Yoo, 2012, p. 7). For example; in a study made by Brewer and Rojas (2008) 47 % of consumers stated that eating and drinking in a clean environment is too important. Also 42,6 % think that the food served in a restaurant may cause infections and 60 % have stated that they hesitate from restaurant cleanliness. Restaurant cleanliness plays an important role in service quality. For example Bienstock, DeMoranville and Smith analysed food and beverage safety and sanitation applications by correlating them with customers’ cleanliness perception, under the factors of eating area cleanliness, WC cleanliness and food safety in the study they made in 2003. According to the results of the study they have concluded that the more customers trust food and beverage safety and cleanliness, the more their service quality perception increases. In addition to this restaurant restrooms’ cleanliness takes an important place in general service quality perception (Barber & Scarcelli, 2009, p. 317).

When the literature is reviewed, it has been found that restaurant cleanliness elements are addressed within the context of atmosphere and service quality and they have a positive effect on providing customer satisfaction (Becker *et al.*, 1999; Berry *et al.*, 2006; Barber & Scarcelli, 2009; Liu & Jang, 2009; Barber & Scarcelli, 2010; Vilnai-Yavetz & Gilboa, 2010; Yoo, 2012; Soylu & Taştan, 2020).

According to the study results; it has been found that consumers pay attention to toilet cleanliness. It is seen that staff performance and clean restrooms have a positive effect on customer satisfaction. Also restrooms are

important for consumers' perception of restaurant cleanliness. In the study of Barber and Scarcelli (2010) the impact of education and gender parameters within the context of service quality and restaurant cleanliness have been investigated. According to the results of the study it has been established that participants consider cleanliness as the main factor for choosing that business, visiting and spending time there. In addition to this, it has been stated that the parameters of education and gender cause a change in individuals' perception of cleanliness.

In the study made by Vilnai-Yavetz and Gilboa in 2010, the impact of service area cleanliness on customer behavior has been researched. According to this study; service areas' being clean ensures customer behaviours' being positive. Also a positive relation has been found between cleanliness and pleasure and trust. One of the important arguments of the study is that restaurant cleanliness can be used as a marketing tool. In the study made in 2012 Yoo aimed to determine perceived restaurant cleanliness within the context of intercultural differences. As a result it has been established that general cleanliness in restrooms, restroom outlook and service staff behaviors have a role in consumers' evaluation of service quality. In addition to this, it has been seen that Asian consumers give more importance to general cleanliness in restaurants comparing with Western consumers.

Customer Satisfaction

Customer satisfaction is about a consumer's expectations from a product or service and meeting of these expectations. The difference between the levels of expectations and their meeting causes satisfaction or dissatisfaction (Bennett & Rundle-Thiele, 2004, p. 514). According to Tayfun and Kara (2007); customer satisfaction has been stated as a pleasure feeling which involves the state of being satisfied or dissatisfied and related with a part or whole of a product or service. In terms of food and beverage sector; customer satisfaction is an emotional state as a result of integrated ideas caused by the experiences after attending a gastronomy event and the expectations before it (Truong & Foster, 2006, p. 842).

Thanks to the follow up of customer satisfaction levels, some clues on revisiting or non-revisiting intentions of customers can be obtained. A satisfied customer revisiting possibility increases. In addition to this customer satisfaction affects business image positively (Küçükergin, 2012, p. 23). To ensure customer satisfaction, restaurant cleanliness factors and satisfaction factors are needed to be fulfilled. Customer dissatisfaction occurs when restaurant cleanliness factors are not fulfilled. In that case cleanliness factors are stated as vital factors in terms of meeting customer satisfaction (Coşkun, 2007, p. 7).

Revisiting and Complaining in Terms of Behavioural Intention

There are three situations which consumers experience after using a product or service. In the first situation, customers are satisfied with the product and service they have received and possible to receive again. In the second situation, customers are partially satisfied with the product and service they have received so they may be in a cognitive contradiction and they may be indecisive about receiving the product or the service again. In the third situation, customers are not satisfied with the product and service they have received so complaining response occurs (Odabaşı & Barış, 2002, p. 387-388). In this respect ensuring consumer satisfaction and revisiting intention is very important for food and beverage businesses. Thus Wang (2004) stated that the quantity of revisiting consumers is higher than the half of total visitors. Revisitor customers play an important role in economical sustainability and providing information to potential customers (Çetinsöz, 2011, p. 42).

When the literature is reviewed (Seçilmiş, 2012; Karpuz, 2017; Keskin, Solunoğlu & Aktaş, 2020; Keskin, Sezen & Dağ, 2020; Oğuz & Timur, 2020; Artuğer & Kılınç-Şahin, 2020; Çetin & Şahin-Perçin, 2021) it has been established that within the context of tourism, customer satisfaction affects revisiting intention in a positive way. For example in the studies made by Artuğer and Kılınç-Şahin (2020), it has been concluded that hotel customers' satisfaction feelings have an impact on customers' revisiting intentions. Keskin, Sezen and Dağ (2020) have found that customer satisfaction from visits made to Cappadocia Region affects revisiting intentions. In the thesis study of Karpuz (2017), he has established that the satisfaction level of customers attending adventure tourism has an impact on their revisiting intentions. In this respect it can be stated that tourists' satisfaction is effective on revisiting intentions in all areas of tourism. That's why it can be foreseen that this argument is also available for gastronomy tourism or food and beverage experiences.

When there is a dispute between customer expectations and given service, customers tend to complain to resolve the dispute. Complaining presents dissatisfaction in general terms (Sujithamrak & Lam, 2005, p. 291). In other words, complaint can be expressed as negative feedback of customers (Bell *et al.*, 2004, p. 114). The customers who think that they could not get enough from the service or product they have received can express their dissatisfaction as stating verbally, not revisiting, complaining or disregarding (Akan & Kaynak, 2008, p. 3).

When the literature is reviewed (Kim & Lynn, 2007; Kitapçı, 2008; Chang, Khan & Tsai, 2012; Güven & Sarıışık, 2014; Ünal, Akkuş & Akkuş, 2014; Özdemir, Yılmaz & Çalışkan, 2015; Tosun & Söyük, 2019; Chan, Hsiao & Lee, 2016; Özbay & Sarıca, 2020), it can be stated that restaurant complaints in terms of behavioural intention are analysed in two different aspects. In the first aspect, the

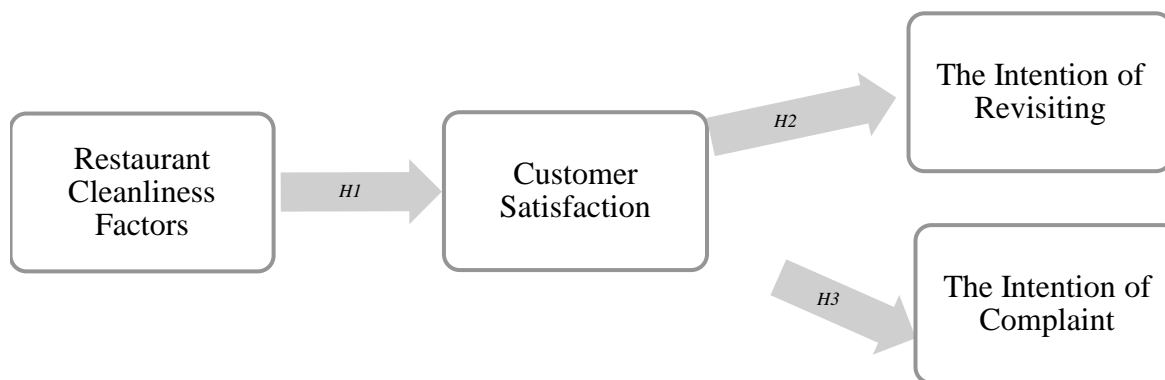


Figure 2. Research Model

Source: By authors.

transition of dissatisfaction feeling caused by atmospheric elements to complaining is discussed. In the second aspect; the transition of experienced inconveniences, deficient practices and mistakes in terms of service quality to complaining is discussed. For example in a study they made, Özbay and Sarıca (2020) have reviewed reasons of complaining by analysing customer online complaints from food and beverage businesses. According to the results of the research, it has been found that 53 % of the complaints are about service quality. Ünal *et al.* (2014) searched about the impact of atmosphere on emotions and the impact of emotions on satisfaction. According to the study results; it has been stated that restaurant atmosphere affects customer emotions, emotions affect customer satisfaction and customer satisfaction affects behavioral loyalty.

2. Method

The aim of the study is to determine the impact of restaurant cleanliness factors on customer satisfaction and to establish the relationship between customer revisiting intention and complaining intention in this respect. In accordance with this purpose S-O-R Model of Mehrabian and Russell has been used. In this regard, firstly the impact of restaurant cleanliness factors on customer satisfaction has been analysed. The transition of satisfaction or dissatisfaction occurring as a result of restaurant cleanliness factors to revisiting or complaining intentions within the context of behavioural intention has been emphasized. The model of the study and hypotheses developed within this context are as seen in Figure 2.

To develop the Model, it has been benefited from the studies made by Mehrabian and Russell (1974) and Hetherington *et al.* (2019). In this respect; (a) stimulus/environmental stimuli corresponds to restaurant cleanliness factors, (b) organism corresponds to restaurant customers' satisfaction feelings and (c) response/approach or avoidance corresponds to revisiting/ complaining intentions. Hypotheses developed in accordance with the model are stated as below;

H1: The importance customers give to restaurant cleanliness factors has a significant positive impact on customer satisfaction.

H2: Customer satisfaction from restaurant cleanliness has a significant positive impact on customers' revisiting intentions.

H3: Customer satisfaction from restaurant cleanliness has a significant negative impact on customers' complaining intentions.

The questionnaire form used in the study consists of three parts. In the first part 45 statements are available to determine restaurant cleanliness factors. The statements are arranged as appropriate for 5 point likert scale (1=Not important, 5=Very important). In the second part there are 8 statements to determine general ideas of the customers about restaurant cleanliness. The statements are arranged as appropriate for 5 point likert scale (1= Strongly agree, 5= Strongly disagree). In the last part demographical questions are available.

The Restaurant Cleanliness Items Scale which has been used in the first part of the questionnaire form was developed by Barber and Scarcelli (2010). With the scale developed as a result of the studies made by Barber and Scarcelli, It has been developed a scale of 26 items regarding four factors of restaurant cleanliness which are restaurant exterior, restroom appearance, restaurant interior, and personal cleanliness. The related scale has been improved by Yoo (2012); a scale including 29 items of the seven factors as food, restaurant interior, restaurant exterior, restroom, waiter appearance, waiter behaviour, and signage. In accordance with expert opinion, the different items in these two scales have been decided to add to the scale of this study. In this respect the scale has been developed as 44 items. 6 items include restaurant exterior cleanliness factors, 12 items include restroom cleanliness factors, 9 items include service staff cleanliness factors and 5 items include food related cleanliness factors.

In the second part of the questionnaire form, General Perceptions of Restaurant Cleanliness Scale is available. In this scale there are items measuring customers' revisiting and complaining intentions and statements measuring

customer satisfaction. The scale developed as 3 factors by Barber and Scarcelli (2010) has become 7 factors by the additions of the items regarding cleanliness expectation and customer satisfaction by Yoo (2012).

In the third part of the form there are questions regarding personal information of the participants. In this part there are 12 open ended and multiple-choice questions to learn about participants' age, gender, educational status, marital status, jobs, incomes, with whom they frequently go to a restaurant, in which restaurant they frequently eat for a month, which restaurant type they prefer, how much they pay in average in a restaurant, which factor is important for them while evaluating restaurant quality and whether they have ever worked as a waiter/waitress in a restaurant. The related scales have been conveyed to the participants via a questionnaire form in English.

For the preliminary test of the scales; reliability analysis has been conducted on the data of 94 valid questionnaires received face to face from 62 participants who are academic staff in Mersin University and declare they know English in 10-13 November of 2019 and from 32 participants in the United States of America, Cornell University. Cronbach Alpha statistics establishing internal consistency has been calculated separately for each scale (Şencan, 2005, p. 168-170). Reliability analysis results on the basis of the scales are shown in Table 1.

Table 1. Pilot Research Reliability Analysis Results on the basis of the Scales

Scales	Item number	Cronbach Alpha Value	Corrected Item Total Correlation Value
Restaurant Cleanliness Items	44	0.964	0.382-0.783
General Opinions Regading Restaurant Cleanliness	7	0.853	0.671-0.750

Source: By authors.

Scale reliability coefficient must be above 60 or 70 minimum Şencan (2005) so it can be stated that both scales are reliable. The fact that total item correlation value is not negative and is bigger than the value of 250 is important in terms of additivity feature's being intact (Kalaycı, 2016, p. 412). That's why the item of "Age of the building where the restaurant locating" with 161 total correlation and the item of "Having warm water in the restroom" with 261 correlation in Restaurant Cleanliness Items Scale have been excluded from the scale. There has not been found any item which needs to be excluded from the General Perceptions of Restaurant Cleanliness Scale.

In the study it has been benefited from quantitative data, in this respect questionnaire technique which is one of the quantitative data collection techniques has been used. The questionnaires have been converted to online forms and delivered to the participants. The research population consists of the restaurant customers in The United States of

America. Since it was not possible to reach whole population, sampling has been used. For sampling type selection, convenience sampling method from random sampling methods has been found appropriate to use. In this way it has been made possible to include all participants answering to the questionnaire in sampling (Altunışık, Coşkun, Bayraktaroğlu & Yıldırım, 2012, p. 140). It has been stated that when population size is 10.000 or above, sample size is supposed to be 384 individuals (Sekaran, 2003, p. 194). That's why formula for infinite population ($n = \frac{P \cdot Q \cdot Z^2 \alpha}{H^2}$) has been used (Ergin, 1992, p. 88). The rate maximising sample size has been adopted as ($p: 0,50$) .5 % as significance level and 5 % as sampling error and 384 people as sample size.

400 questionnaires collected and found appropriate for analysis in 04-11 December 2019 in The United States of America via online form have been transferred to statistical software. As a result of data loss analysis, it has not been found any scale which needs to be excluded. Using the average of the related items, the data lost has been completed (Kalaycı, 2016, pp. 21-27). Before starting the analysis of data, multivariate analysis of outlier cases and multivariate analysis of normal distribution have been applied. As a result of the multivariate analysis of outlier cases, 16 survey data set where outlier cases were found have been excluded from the data set. Consequently the analysis has been started with 384 valid questionnaires. The significance of Bartlett's Test of Sphericity obtained in factor analysis has been analysed to test the conformity of the data for multivariate normal distribution. It has been stated that if the test is 5 % significant, the data come from multivariate normal distribution (Çokluk *et al.*, 2012, p. 213). Both scales are 5% significant on the basis of Bartlett's Test of Sphericity so it can be mentioned that the data is appropriate for multivariate normal distribution.

3. Findings

When the data collected within the study have been analysed, it is seen that gender and marital status questions have not been answered by one participant and job question has not been answered by 13 participants. In addition to this, it has been found that 52.6 % of the participants are woman, 47.1 % of the participants are man, 58.1 % of the participants are 22 - 36 years old, 32 % of the participants are 37 - 52 years old, 9.9 % of the participants are 53 or above years old. 31.2 % of the participants are single, 68.8 % married. 66.9% of the participants have at least one child, 33.1 % without child. When the educational status of participants has been analysed, it has been seen that 0.3 % primary school, 0.8% secondary school, 12.5 % high school, 22.4 % bachelor and 64.1 % graduate or post graduate level. 20.1 % of the participants are public servant, 64.3 % of the participants are private sector employee, 3.1 % of the participants are student and 9.1 % of the participants are unemployed. Monthly income data of the participants is as following; \$0-1200 for 12.2% , \$1201-2200 for 12.2 % , \$2201-3200 for 18.8 % , \$3201-

Table 2. The Range of Participants According to Demographic Characteristics

Variant	N	Frequency	Percentage (%)	Variant	N	Frequency	Percentage (%)
Gender	383			Education	384		
Woman		202	52.6	Primary School		1	0.3
Man		181	47.1	Secondary School		3	0.8
Age	384			High School		48	12.5
22-36		223	58.1	Bachelor		86	22.4
37-52		123	32	Graduate/Postgraduate		246	64.1
53 or more		38	9.9	Profession	371		
Marital Status	383			Public servant		77	20.1
Single		119	31.2	Private sector		247	64.3
Married		264	68.8	Student		12	3.1
Do you have children?	384			Unemployed		35	9.1
Yes		257	66.9	Income	384		
No		127	33.1	\$ 0-1200		47	12.2
				\$1201-2200		47	12.2
				\$2201-3200		72	18.8
				\$3201-4200		55	14.3
				\$4201-5200		68	17.7
				\$5201 or more		95	24.7

Source: By authors.

4200 for 14.3 %, \$4201-5200 for 17.5 %, \$5201 or more for 24.7 %. Analysis results are shown in Table 2.

When the answers of 397 participants asked questions regarding their restaurant experiences are analysed, it has been found that 18 % go alone, 32.6 % go with their friends, 62.2 % go with their family. 398 participants have been asked about their frequency of going to a restaurant for a month, it has been found that 15.9 % never go, 25 % go once or twice, 39.6 % go 3-4 times, 14.1 % go 5-6 times, 3.6 % go 7-8 times and 1.8 % go 9 or more times. 398 participants have answered to what kind of restaurant they go and it has been found that 27.1% go to A la carte restaurants, 18.5 % go to Cafeteria restaurants, 20.3 % go to Self- service restaurants, 31.5 % go to Fast-food restaurants. 397 participants have answered to how much

they pay for a meal and it has been seen that 21.1 % pay \$ 0-20, 41.4 % pay \$ 21-30 , 24.7 % pay \$ 31-40 , 10.4 % pay \$ 41-50 and 2.3 % pay \$ 51 or more. 53.9% of participants answered yes, 46.1 % of the participants answered no to the question “Have you ever worked as a waiter or a cook in your life?”.

To multiple choice question of “What is important to you when evaluating restaurant quality?”, 32% answered as food taste, 28.3 % answered as cleanliness, 22.6 % answered as price, 9.4 % answered as ambiance and 7.5% answered as waiters. Cleanliness being ranked as number two after food taste in the evaluation of restaurant quality is very important in terms of the aim of the study. Findings regarding participants’ restaurant experiences are shown in Table 3.

Table 3. Findings Regarding Participants’ Restaurant Experiences

Variant	N	F	Percentage (%)	Variant	N	F	Percentage (%)
Who do you often go to the restaurant with?	382			How much do you personally pay for a meal in the restaurant?	384		
Alone		18	4.7	\$0-20		81	21.1
With friends		125	32.6	\$21-30		159	41.4
With family		239	62.2	\$31-40		95	24.7
In the last month, how many times have you eaten in any restaurant?	384			\$41-50		40	10.4
Never ate		61	15.9	51\$ or more		9	2.3
1-2		96	25	Have you ever worked as a waiter or a cook in your life?	384		
3-4		152	39.6	Yes		207	53.9
5-6		54	14.1	No		177	46.1
7-8		14	3.6	What is important to you when evaluating restaurant quality?	1006		
9 or more		7	1.8	Taste of food		322	32
Which type of restaurant do you often prefer according to the type of service?	374			Cleanliness		285	28.3
A la carte		104	27.1	Price		228	22.6
Cafeteria		71	18.5	Ambiance		95	9.4
Self- service restaurant		78	20.3	Waiters		76	7.5
Fast-food restaurant		121	31.5				

Source: By authors.

Firstly a reliability analysis has been conducted for the whole restaurant cleanliness items scale of 42 items in the study. Cronbach’s Alpha Coefficient has been found 0,962 for the whole scale. According to this, the scale is highly reliable (Kalaycı, 2016, p. 405; Alpar, 2016, p. 513). In addition to this the reliability of the scale has been tested by bisection method. Cronbach’s Alpha Coefficient has been found 0.931 for the first half of the scale and again 0.931 for the second half. Item total correlation values should be expected to be higher than +0.250 (Kalaycı, 2016, p. 412). In this respect, Item-Total Correlation Values of The Scale of the Restaurant Cleanliness Items Scale is 0.357-0.724. That’s why no item has been excluded from the scale. Reliability analysis results are shown in Table 4.

Table 4. Reliability Analysis Regarding Restaurant Cleanliness Items Scale

Restaurant Cleanliness Items Scale	ALPHA
Total Cronbach’s Alpha Value for The Scale	0.962
Cronbach’s Alpha Value for the First Half of The Scale	0.931
Cronbach’s Alpha Value for the Second Half of The Scale	0.931
Item-Total Correlation Values of The Scale	0.357-0.724

Source: By authors.

A reliability analysis has been conducted on General Perceptions of Restaurant Cleanliness Scale of 7 Items. Cronbach’s Alpha Coefficient has been found 0.831 for the whole scale. According to this, the scale is highly reliable (Kalaycı, 2016, p. 405; Alpar, 2016, p. 513). After then the reliability of the scale has been tested by bisection method. Cronbach’s Alpha Coefficient has been found 0.835 for the first half of the scale and 0.630 for the second half. Item total correlation values should be expected to be higher than +0.250 (Kalaycı, 2016, p. 412). In this respect, Item-Total Correlation Values of The Scale of the Restaurant Cleanliness Items Scale is 0.635-0.720. As a result no item has been excluded from the scale. Reliability analysis results are shown in Table 5.

Table 5. Reliability Analysis Regarding General Perceptions of Restaurant Cleanliness Scale

General Perceptions of Restaurant Cleanliness Scale	ALPHA
Total Cronbach’s Alpha Value for The Scale	0.831
Cronbach’s Alpha Value for the First Half of The Scale	0.835
Cronbach’s Alpha Value for the Second Half of The Scale	0.630
Item-Total Correlation Values of The Scale	0.635-0.720

Source: By authors.

An exploratory factor analysis has been used to test construct validation of restaurant cleanliness items scale. Within the scope of the study, principal component analysis and Varimax rotation method in factor analysis have been conducted to reduce the number of variants and to research the structure of the relations between variants. Bartlett’s Test of Sphericity has been conducted to understand whether the data has a multivariate structure. In addition to this, the items without overlapping

subproblems of eigenvalue are over 1 and cross-loading differences between items more than 0.100 in the factor analysis are included to the study. Since the sample size over 200, factor loading has been determined as 0.40 (Mayers, 2013, p. 546). Also KMO Measure of Sampling Adequacy is supposed to be over 0.500. The rate’s being high shows that data set is high for factor analysis (Kalaycı, 2016, pp. 321-322).

Factor analysis has been conducted on Restaurant Cleanliness Items Scale of 42 items. From the analysis 12 items have been excluded in the factor analyses made on Restaurant Cleanliness Items Scale. After excluding related items, a factor analysis has been conducted on remaining 30 items. As a result of that scale has been grouped under 6 factors and explains 61.229 % of total variant. KMO Measure of Sampling Adequacy of these 30 items which are included to the analysis within Restaurant Cleanliness Items Scale has been found as 91.1 %. For Bartlett’s Test of Sphericity χ^2 is 8267.773 and it is significant at the level of 0.0001. In that case it is possible to say that there is no objection to continue to the factor analysis (Mayers, 2013, p. 552). Also since there is no correlation among the items, it can be asserted that the data is appropriate for multivariate normal distribution (Çokluk *et al.*, 2012, p. 219). Results of Exploratory factor analysis on Restaurant Cleanliness Items Scale are shown in Table 6.

As a result of the factor analysis, the first factor consists of 8 items and explains 14,754 % of total variant. The second factor consists of 5 items and explains 12,944 % of total variant. The third factor consists of 5 items and explains 10,457 % of total variant. The fourth factor consists of 4 items and explains 8,643 % of total variant. The fifth factor consists of 4 items and explains 8,302 % of total variant. The sixth factor consists of 3 items and explains 6,128 % of total variant. Factor names are established as “restaurant interior”, “restroom”, “food”, “waiter behaviour”, “restaurant exterior” and “waiter appearance” in conformity with the Literature.

Factor analysis has been conducted on General Perceptions of Restaurant Cleanliness Items Scale of 7 items. As a result of the factor analysis, the scale has been grouped under 1 factor and explains 55.691 % of total variant. KMO Measure of Sampling Adequacy of 5 items which are included to the analysis within General Perceptions of Restaurant Cleanliness Items Scale has been found as 88.1 %. For Bartlett’s Test of Sphericity, χ^2 is 1182.801 and it is significant at the level of 0.0001. In that case it is possible to say that there is no objection to continue to the factor analysis (Mayers, 2013, p. 552). Also since there is no correlation among the items, once more it can be asserted that the data is appropriate for multivariate normal distribution (Çokluk, Şekercioglu and Büyüköztürk, 2012, p. 219). Results of Exploratory factor analysis on General Perceptions of Restaurant Cleanliness Scale are shown in Table 7.

Table 6. Restaurant Cleanliness Items Scale Exploratory Factor Analysis

Restaurant Cleanliness Items	Loading	Eigenvalue	Explained Variance	Averae	Alpha
1. Factor: Restaurant interior (8 Items)		4.367	14.754	4.238	0.880
Cleanliness of restaurant carpet	0.785				
Cleanliness of restaurant armchair	0.770				
Cleanliness of restaurant wall	0.761				
Cleanliness of restaurant floor	0.755				
Cleanliness of restaurant furniture	0.752				
Cleanliness of restaurant table cloths	0.749				
Cleanliness of restaurant window	0.695				
Cleanliness of restaurant ceiling	0.631				
2. Factor: Restroom (6 Items)		3.273	12.944	4.146	0.856
Cleanliness of restroom floor	0.751				
The restroom does not smell bad	0.749				
Having restroom paper	0.743				
Clean trash at restroom	0.736				
The restroom smell good	0.728				
No trash in the restroom	0.725				
3. Factor: Food (5 Items)		2.937	10.457	4.236	0.823
Cleanliness of unprotected food (eg open-top flavors / spices on the table)	0.784				
Freshness of salads and garnishes	0.770				
Temperature of the dish	0.768				
Cleanliness of food contact surfaces (eg plates, glassware / glassware)	0.766				
The appearance of the meal	0.743				
4. Factor: Waiter behaviour (4 Items)		2.329	8.643	3.976	0.792
The waiter not touching food with bare hands	0.817				
The waiter does not smell bad	0.800				
The waiter coughing and sneezing	0.760				
The waiter not smoking	0.667				
5. Factor: Restaurant exterior (4 Items)		2.051	8.302	4.111	0.679
Cleanliness of restaurant garden	0.825				
Restaurant exterior	0.797				
Cleanliness of restaurant driveway	0.738				
Cleanliness of restaurant car park	0.434				
6. Factor: Waiter appearance (3 Items)		1.833	6.128	3.980	0.664
Cleanliness of waiter uniform	0.833				
The waiter's hands and nails are clean / well-groomed	0.813				
Waiter's hair style (for example; combed, hair net used)	0.691				

Varimax Rotation Principal Components Analysis; Total Variance Explained: % 61.228
 KMO Measure of Sampling Adequacy: .911 – Bartlett's Test of Sphericity: χ^2 : 8267.773 s.d.: 435 $p < 0.001$
 – Alpha for The Whole Scale: 0.962
 Answer Categories : 1: Strongly Disagree, 2: Disagree, 3: Neither Agree Nor Diasagree
 4: Agree, 5: Strongly Agree

Source: By authors.

Table 7. Exploratory Factor Analysis on General Perceptions of Restaurant Cleanliness Scale

General Perceptions of Restaurant Cleanliness	Loading	Eigenvalue	Explained Variance	Averae	Alpha
1. Factor: General Perceptions of Restaurant Cleanliness (7 Items)		3.898	55.691	4.103	0.846
Restaurant cleanliness is important to me when evaluating overall restaurant quality.	0.829				
Restaurant cleanliness is important to me when I decide whether I will return to a restaurant or not.	0.820				
Restaurant cleanliness is important to me.	0.803				
A dirty restaurant will decrease my overall level of satisfaction.	0.799				
A clean restaurant will increase my overall level of satisfaction.	0.794				
I have high expectations of cleanliness for high-budget restaurants.	0.772				
I tend to complain to restaurant employees if I perceive that a restaurant is dirty.	0.829				

Varimax Rotation Principal Components Analysis – Total Variance Explained: % 55.691
 KMO Measure of Sampling Adequacy: .881 – Bartlett's Test of Sphericity: χ^2 : 1182.801 s.d.: 21 $p < 0.001$
 – Alpha for The Whole Scale: 0.831
 Answer Categories : 1: Strongly Disagree, 2: Disagree, 3: Neither Agree Nor Diasagree
 4: Agree, 5: Strongly Agree

Source: By authors.

As a result of the conducted factor analysis, single factor structure has been obtained and it consists of 7 items. The single factor explains 55.691 % of total variant. Since the items composing this factor represent general statements about restaurant cleanliness, it has been named as General perceptions of restaurant cleanliness”.

Simple correlation analysis has been conducted to determine the direction and the degree of the relation between restaurant cleanliness items and participants satisfaction from the restaurant. According to the analysis there is a positive, medium level and significant relation between restaurant cleanliness items and restaurant satisfaction ($r=0.650$; $p<0,01$) (Alpar, 2016, p. 419). In this respect it can be stated that the more participants give importance to restaurant cleanliness items, the more their general satisfaction from restaurant increases. Analysis results are shown in Table 8.

Table 8. The Results of Correlation Analysis between Restaurant Cleanliness Items and Restaurant Satisfaction of Participants

	Satisfaction
Restoran Cleanliness Factors	0.650*
Significance	0.000
N	384

Correlation is significant at the level of 0.01 (bidirectional)

Source: By authors.

Simple linear regression has ben conducted to explain the result relations between restaurant cleanliness items and restaurant satisfaction of participants via a mathematical model. According to the analysis results, it has been seen that the model is significant ($F=260.286$).

Explaining rate of restaurant cleanliness items which is an independent variable’s for participants’ restaurant satisfaction which is a dependent variable is R2 and has been found as 0.421. According to this 42.1% of the participants’restaurant satisfaction is explained by restaurant cleanliness items. In addition to this 1 increase in restaurant cleanliness perception causes 0.650 of increase in restaurant satisfaction. In this respect, it can be stated that H1 hypothesis proposed basing on S-O-R model is supported. Analysis results are shown in Table 9.

Table 9. The Analysis Results of the Regression between Restaurant Cleanliness Factors and Participants’ Satisfaction

Model	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Mistake	Beta		
(Invariant)	4.190	0.035		118.398	0.000
Restaurant Cleanliness Items	0.648	0.040	0.650	16.133	0.000

Dependent Variable: Restaurant Satisfaction

R: 0.650; R²: 0.423; Adjusted R²: 0.421; for Model F: 260.286;

p=0.000; s.d.: 1

Source: By authors.

Simple correlation analysis has been conducted to data set to determine the direction and the degree of the relation between participants’ satisfaction and their revisiting

intentions. According to the analysis there is a positive, medium level significant relation between participants’ satisfaction and their revisiting intentions ($r=0.580$; $p<0.01$) (Alpar, 2016, p. 419). In this respect it can be stated that the more participants are satisfied, the more their revisiting intentions increase. Analysis results are shown in Table 10.

Table 10. The Analysis Results of the Correlation between Customer Satisfaction and Their Revisiting Intentions

	Revisiting Intention
Satisfaction	0.580*
Significance	0.000
N	384

* Correlation is significant at the level of 0.01 (bidirectional)

Source: By authors.

Simple linear regression has ben conducted to explain the result relations between satisfaction levels of participants and their revisiting intentons via a mathematical model. According to the analysis results, it has been seen that the model is significant ($F=193.537$).

Explaining rate of the satisfaction level which is an independent variable for participants’ revisiting intentions which is a dependent variable is R2 and has been found as 0.335. According to this 33.5% of the participants’ revisiting intentions is explained by the level of satisfaction from a restauant. In addition to this 1 increase in their satisfaction level causes 0.580 of increase in their revisiting intentions. In this respect, it can be stated that H2 hypothesis proposed basing on S-O-R model is supported. Analysis results are shown in Table 11.

Table 11. The Analysis Results of the Regression between Customer Satisfaction and Their Revisiting Intentions

Model	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Mistake	Beta		
(Invariant)	1.893	0.169		11.196	0.000
Satisfaction	0.550	0.040	0.580	13.912	0.000

Dependent Variable: Revisiting Intention

R: 0.580; R²: 0.336; Adjusted R²: 0.335 ; for Model F:193.537 ;

p=0.000; s.d.: 1

Source: By authors.

Simple correlation analysis has been conducted to data set to determine the direction and the degree of the relation between participants’ satisfaction and their complaining intentions. According to the analysis there is no relation between participants’ satisfaction and their complaining intentions ($p=0.541$; $p<0.01$). In this respect, it can be stated that H3 hypothesis proposed basing on S-O-R model is not supported. Analysis results are shown in Table 12.

Table 12. The Analysis Results of the Correlation between Customer Satisfaction and Their Complaining Intentions

	Complaining Intention
Satisfaction	0.146
Significance	0.541
N	384

* Correlation is significant at the level of 0.01 (bidirectional)

Source: By authors.

4. Discussion

In the study customers' restaurant cleanliness items, customer satisfaction, revisiting and complaining intentions have been examined within the scope of S-O-R Model. In this respect firstly factor analysis has been made to understand construct validation of scales. As a result of the factor analysis it is seen that "Restaurant Cleanliness Items" Scale is grouped under 6 factors. It has been found that explaining rate of these factors for total variant is 61.228 %. 6 factors which establishing explained total variant are "restaurant interior, restroom, food, waiter behaviour, restaurant exterior and waiter appearance" respectively. With this form, the scale supports the studies of Barber and Scarcelli (2010) and Yoo (2012). Human factor was absent in the original scale used in the study of Barber and Scarcelli (2010). That's why Yoo (2012) has improved the scale and a structure of 7 factors has emerged. The items of "Signage" factor which is available in the study of Yoo (2012) have been excluded from this study. In the study made by Soylu and Taştan (2020) a structure of 6 factors has emerged. In this respect while these two studies show similarities, there are differences in the orders of factors. For example while "restaurant exterior" takes place as the fourth factor in the first study made on restaurant customers living in Mersin city center, the fourth factor of this study has been found as "waiter behaviour". In this respect different sampling type, different sampling size and different items can be shown as the reason for the difference of factor loadings and factor sizes.

As a result of the factor analysis conducted on General Perceptions of Restaurant Cleanliness Scale, participant customers' thoughts are grouped under 1 factor. That 1 factor which has been obtained explains 55.691 % of total variant. As a result of the analysis it can be stated that restaurant customers attending to the study consider restaurant cleanliness as an important evaluation instrument in their evaluations of revisiting the restaurant, satisfaction, complaining intention and service quality.

5. Results and Suggestions

Within the scope of the study the data collected from the questionnaires ...ed with restaurant customers living in The United States Hypotheses have been analysed and the hypotheses proposed in accordance with the model have been tested. As a result of the analysis the H₁ hypothesis asserting that "The importance customers give to restaurant cleanliness factors has a significant positive impact on customer satisfaction" has been supported. When the literature has been reviewed, many studies supporting this finding can be seen. In the related studies restaurant cleanliness has been analysed separately both as performance oriented in terms of service quality and as a part of atmosphere. For example while restaurant cleanliness has been discussed as a variant of service quality in the study of Barber and Scarcelli (2010), it has been seen as a variant of restaurant atmosphere by Vilnai-

Yavetz and Gilboa (2010). On the other hand in this study restaurant cleanliness has been considered as both as a variant of service quality and as a variant of restaurant atmosphere. When considered this point of view, the facts that restaurant cleanliness explains almost half of the satisfaction from restaurant and there is a positive, medium level and significant relation between restaurant cleanliness items and restaurant satisfaction reveal how much restaurant cleanliness is important for customers. This is supported by the fact that "cleanliness" is the second chosen answer to the question "What is important to you when evaluating restaurant quality?". Although people go to restaurants to eat a good food, the definition of "a good food" does not mean only "delicious" but the fact that "good and clean" food is becoming important for restaurants comes forwards as a reality. In this respect the study shows similarities with the study made in Mersin City by Soylu and Taştan (2020). In their study it has been stated that in restaurants taste factor is at the forefront for customer satisfaction but it should be supported with cleanliness. Starting from this point of view and considering the studies made with different sampling groups it can be said that restaurant cleanliness takes an important place to provide customer satisfaction in a restaurant.

In the study H₂ hypothesis asserting that "Customer satisfaction from restaurant cleanliness has a significant positive impact on customers' revisiting intentions has been supported. In this respect one third of the revisiting intentions of customers have been explained by customer satisfaction. Also there is a positive, medium level and significant relation between satisfaction from restaurant and revisiting intentions. This result has been supported by the studies made in different areas of tourism. It has been stated that in hotels (Artuğer & Kılınc-Şahin, 2020), in different destinations (Keskin, Sezen & Dağ, 2020), in joining different tourism types (Karpuz, 2017), satisfying customers has an important role in revisiting intentions.

In this respect it is seen that as a part of tourism, satisfying customers in food and beverage businesses plays a critical role in obtaining revisiting intentions. It should be considered that restaurant cleanliness is not an appealing factor for only available customers but also for potential customers. Many restaurants enhance and diversify their products to obtain competitive advantage and restaurant cleanliness also should be considered as one of the way of these kinds of enhancements and diversification. Awareness of the points which customers give importance in restaurant cleanliness is becoming significant in this respect.

In the study H₃ hypothesis asserting that "Customer satisfaction from restaurant cleanliness has a significant negative impact on customers complaining intentions" has not been supported. In this respect findings of this study do not correspond with related literature. In the studies made on complaining process, the transition of dissatisfaction to

complaining is frequently being discussed. But when the literature has been reviewed, it can be seen that the ways of expressing complaints may change. For example in the study made by Akan and Kaynak (2008) it has been stated that complaining can be expressed as verbal expression, not revisiting the business, making complaint, applying to third parties or related organisations and/or disregard. In another study made by Dalgıç *et al.* (2016), the complaints from Mersin restaurants have been emphasized. In the study it has been stated that factors such as interior design, décor, scent, waiters wearing clean and neat, environmental cleanliness are also important but businesses should put more emphasis on “taste” factor. Starting from the analysis results it can be stated that restaurant cleanliness is also a factor, when customer satisfaction is made, visiting intentions increase but when the customer satisfaction is not enough or dissatisfaction occurs, it is easier to eliminate this.

Considering the findings of this study, it is possible to develop this study with new points of views by proposing new hypotheses via different models for theoretical area. The transition process of revisiting and complaining intentions which are reviewed within the scope of behavioural intention to action can be analysed. Using the scale, new studies can be made by comparing the data gathered from different countries or cities. Considering that this study has been limited to restaurant customers, hospitality businesses can be included in further studies.

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INFO PAGE

The impact of perceived cleanliness on customer satisfaction, revisiting intention and complaining behaviors: The case of restaurants by S-O-R Model

Abstract

Food and beverage sector is a challenging sector which is growing and changing fast and including severe competition. Restaurants are an important part of the sector and in today's conditions it is vital them to be nourishing and satisfying and also free of problems in terms of cleanliness. In this respect the aim of this study is to understand how satisfaction/dissatisfaction feeling affects the intentions of complaining a restaurant or revisiting it by determining to what extent cleanliness factors affect customers' satisfaction level in the scope of S-O-R Model. In accordance with the given purpose, the data collected via the questionnaires from 384 customers of a restaurant in the United States of America have been analysed. According to the results, participants evaluate restaurant cleanliness in six aspects and it has been established that these six aspects clarify 42 % of restaurant satisfaction. Also, it has been found that restaurant satisfaction affects the intention of revisiting but does not affect the intention of complaint. In the study suggestions for theoretical and practical areas have been presented.

Keywords: S-O-R model, restaurant, cleanliness, satisfaction, Revisiting intention.

Authors

Full Name	Author contribution roles	Contribution rate
Hülya Taştan:	Investigation, Writing - Original Draft, Writing - Review & Editing, Supervision, Project administration	50%
Aykut Göktuğ Soylu:	Conceptualism, Methodology, Software, Validation, Formal Analysis, Resources, Data Curation, Visualization	50%

Author statement: Author(s) declare(s) that All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. **Declaration of Conflicting Interests:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

This paper does not required ethics committee report

Justification: This research was conducted before January 1, 2020. For this reason, it is exempt from "ULAKBIM TRDizin" criterion.