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Article

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The effects of restaurant attributes on satisfaction and return patronage intentions: Evidence from solo diners' experiences in the United States

Sohyun Bae^{1*}, Lisa Slevitch¹ and Stacy Tomas¹

Abstract: Purpose-This study examines the interrelationship among restaurant attributes (including food, service, and physical environment), satisfaction and return patronage intentions with a focus on solo diners' experiences.

Design/methodology/approach- A web-based survey was conducted to collect data from solo diners who resided in the United States.

Findings- The findings showed that perceived quality of food, service, and physical environment were positively related to solo diners' satisfaction. Satisfaction mediated the relationships between three service quality components and return patronage intentions. Additionally, perceived food quality had a direct positive effect on return patronage intentions of solo diners.

Research limitations/implications- The data were collected from a convenience sample of solo diners in the United States; thus, the generalizability of the results is limited. Effects of only three factors were examined in terms of impact on satisfaction and patronage intentions. Other factors may be included in the future studies.

Practical implications- The results provide restaurant managers with understanding of how food and service quality as well as restaurant's environment can improve solo diner's satisfaction and return patronage intentions.

ABOUT THE AUTHORS

Sohyun Bae is a master in hospitality and tourism management at Oklahoma State University. Her research interests relate to the relationships between customer satisfaction and its antecedents and/or outcomes within hospitality industry.

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PUBLIC INTEREST STATEMENT

Solo diners have become a crucial segment in the hospitality industry, as more people have started traveling or eating out by themselves as a result of the surge of one-person households and an increase in the trend toward single life. However, not many aspects regarding the behavior of solo diners have been identified. This study examined the interrelationship among solo diners' perceived quality of restaurant attributes, satisfaction, and revisit intentions. We believe this study can provide new knowledge for understanding the important yet under-researched segment of solo diners. Findings of this study can also offer insights into managerial decisions regarding food quality improvement, employee training, and optimal deployment of physical environment attributes.

Originality/value- In addition to the examination of the mediating effect of satisfaction on the relationships among three types of perceived quality and return patronage intentions, the study is centered on solo diners, an influential and growing group of customers that has not received much research attention.

Subjects: Tourism, Hospitality and Events; Hospitality Marketing; Consumer Behavior

Keywords: solo diners; perceived quality; customer satisfaction; return patronage intentions; service quality

1. Introduction

Recent demographic and cultural trends such as the growth in single-person households, late marriage, busy schedules, and more time spent away from home have led many Americans to eat meals alone at restaurants (Jargon, 2014; Muhammad, 2012). NPD Group (2014) reports that nearly 50% of all food and beverage consumption can be attributed to solo diners and that people eat alone 60% of the time for breakfast and 55% for lunch. In effect, approximately 20% of the world population is predicted to consist of one-person households by 2030, and 32% of total households in North America were composed of single-person households in 2013 (Euromonitor, 2014). However, solo diners have not received worthy attention in the hospitality literature despite their importance as a growing market segment and their wide-ranging influence on food and beverage businesses. Given the significant proportion of one-person households in the total population and the considerable purchasing power of single-person households (Klinenberg, 2012), restaurant marketers would be wise to shift attention toward the solo diner customer segment.

In an attempt to narrow the gap between practice and the existing theory, this study explored solo diners' behavior with focus on restaurant attributes such as food quality, service, and physical environment and outcomes such as satisfaction and future patronage intentions. Although perceived quality and satisfaction have long been researched as antecedents of return behavioral intentions in the hospitality literature, studies investigating the interrelationship among those constructs with a focus on solo diners are scarce. It is possible that individuals who eat alone exhibit different preferences in dining experiences from their nonsolo diner counterparts (Jargon, 2014; Muhammad, 2012; Stanton, 2013). Thus, the purpose of this study is to empirically test the proposed relationships among solo diner's perceptions of restaurant attributes, satisfaction, and return patronage intentions. More specifically, the objectives of this study are (1) to assess the effects of the three (food, service, and physical environment) major restaurant experience components on satisfaction and return patronage intentions, (2) to determine the relationship between satisfaction and return patronage intentions, and (3) to test the mediating role of satisfaction in relationships between perceived quality of restaurant attributes and return patronage intentions.

2. Literature review

2.1. Solo diners

Active lifestyles, time constraints, and rapid demographic shifts toward one-person households have fueled the trend of solo dining (Muhammad, 2012). People dining out alone indicated that eating out costs less and saves more time than cooking at home (Epter, 2009). Additionally, in the current hyper-connected world, more people find solitary dining an inspiring experience that allows for a moment to disconnect. Consequently, it is no longer uncommon to witness more solo dining consumption. However, it is still difficult to go to a restaurant alone and to occupy a table set for more than one person. While a growing number of people are looking for places where they can go alone and enjoy good meals without feeling guilty or uncomfortable, few restaurants seem prepared to cater to this neglected but lucrative niche market of solo diners. Competition in the restaurant industry has become intense, and if the restaurant industry wants to succeed, it is

crucial to understand the behavior of solo diners. As such, this study investigated the attributes that affect solo diners' decision to return to a restaurant for another meal and examined whether the proposed relationships among variables hold true in case of solo diners.

2.2. Customer satisfaction and return patronage intentions

Customer satisfaction has been defined as a judgment that a product or service provided meets, fails to meet, or surpasses customer expectation (Oliver, 1997). Previous research shows that consumers view satisfaction differently. One view is transaction-specific satisfaction, and the other is overall satisfaction (Jones & Suh, 2000). Transaction-specific satisfaction involves a discrete service encounter that results in a consumer's satisfaction or dissatisfaction. For example, a specific action by a server at a restaurant and the feelings of a customer toward the action can be regarded as transaction-specific satisfaction. On the contrary, overall satisfaction refers to a consumer's experiences with a particular firm that involves general satisfaction or dissatisfaction (Bitner & Hubbert, 1994). The global impressions patrons have on a restaurant during a meal can also be an example of overall satisfaction.

Return patronage intention is defined as "the likelihood that a current customer of a restaurant expects to return in the future for a dining experience" (Young, Clark, & McIntyre, 2007, p.92). As one of the most crucial antecedents of return patronage intentions, customer satisfaction has received a great deal of attention. With a myriad of restaurant options available, customers have freedom to make choices over various options, while restaurateurs must ensure that customers are as satisfied as possible if they want the customers to come back (Ali, Kim, Li, and Jeon, 2016; Darley, Luethge, & Thatte, 2008; Jones & Sasser, 1995). Fowler (2003) explains that return behavior can be easily compromised and difficult to restore if lost. Meanwhile, literatures suggest that truly satisfied customers tend to return frequently, spend more, spread positive word of mouth, and remain loyal instead of switching to a competitor (Homburg, Koschate, & Hoyer, 2005; Mohsan, Nawaz, Khan, Shaukat, & Aslam, 2011). Thus, the success of a firm is largely dependent on enhancing customer satisfaction and encouraging future patronization.

Research has reinforced the importance of repeat customers by noting the mature and competitive nature of the restaurant industry, can benefit from the retention of satisfied customers rather than the development of new customers, and has suggested that approximately a 5% increase in customer retention could result in a 25–95% increase in profits (Fornell & Wernerfelt, 1987; Reichheld & Sasser, 1990; Reichheld & Scheffer, 2000). This raises the question of what affects customer satisfaction and consequent return patronage intentions. Existing studies have demonstrated that food, service, and physical environment quality of restaurants are widely considered the factors which influence satisfaction and return patronage intentions (El-Adly & Eid, 2016; Han & Hyun, 2015, 2017; Kim, Ng, & Kim, 2009). These attributes are explained in more detail in the following section.

2.3. Perceived quality of restaurant attributes

Previous studies show that quality of restaurant attributes has a positive effect on customer satisfaction and return patronage intentions (Bitner & Hubbert, 1994; Bolton & Drew, 1994; El-Adly & Eid, 2016; Han & Hyun, 2015, 2017; Kim et al., 2009; Oh & Parks, 1997; Zeithaml, Berry, & Parasuraman, 1996). The findings of these studies revealed that the higher the level of restaurant attributes quality one perceived, the higher the satisfaction they tended to attain and return to the restaurant. As a result, restaurants should track customer satisfaction by measuring the perceived quality of relevant attributes. According to the existing literature, generally three dimensions of restaurant attributes were used to assess the quality of food, service, and restaurant physical environment.

2.4. Food quality

Regardless of the type of restaurant—full service, limited service, quick service, or fast casual—food quality is the most influential attribute for predicting customers' likelihood of returning to a business (Clark & Wood, 1998; Dube, Renaghan, & Miller, 1994; Fu & Parks, 2001). Given that food is

the core product of a restaurant, it is reasonable that solo diners expect the same high-quality food as nonsolo diners. Important food attributes identified in the previous studies include menu, ingredients, portion, taste, and presentation. More specifically, customers tend to perceive the food quality of a certain restaurant as of high quality when there are diverse menu items to choose from, the food is made from fresh and good-quality ingredients, the food portion is large enough, the food is delicious, and the food is well presented.

2.5. Service quality

In the restaurant industry, employees play a significant role in influencing customers' experiences. Unlike the manufacturing industry, the production and consumption of the service occurs virtually simultaneously, while both customers and service providers are present in a service establishment (Walker, 2002). Hence, it is very important for the restaurant employees to carefully manage the dining process, and such components as courtesy, attentiveness, knowledge about products, accuracy, and promptness are all critical in determining customers' satisfaction with the service (Knutson, 1988; Nicholls, Roslow, & Tsalikis, 1995; Parasuraman, Zeithaml, & Berry, 1988). Thus, a server's neat and clean appearance, cheerful and friendly attitude, attentiveness, and proficient delivery of product knowledge influence customers' satisfaction and return intentions.

2.6. Physical environment quality

Various academic disciplines such as psychology, architecture, retailing, and marketing have examined the influence of the physical environment on individuals' emotional responses and subsequent behavioral intentions (Mehrabian & Russell, 1974; Robert & John, 1982; Russell & Pratt, 1980; Turley & Milliman, 2000; Wakefield & Blodgett, 1999). Restaurant literature supports this notion as various aspects of the physical environment influence customer satisfaction and consequent return intentions by acting as tangible cues shaping the evaluation of restaurant (Namkung & Jang, 2007; Ryu & Jang, 2007; Susskind & Chan, 2000). The DINESCAPE scale developed by Ryu and Jang (2008) measured customer perceptions of the physical environment in restaurant settings. Constructs are facility aesthetics, lighting, ambience, layout, table settings, and service staff.

2.7. Mediating role of customer satisfaction in relationships between perceived quality of restaurant attributes and return patronage intentions

Several researchers have examined the mediating effect of customer satisfaction in relationships between perceived service quality and post-purchase behavior (Bansal & Taylor, 2015; Cronin & Taylor, 1992; Dabholkar, Shepherd, & Thorpe, 2000; Qin & Prybutok, 2009), but their results were generally contradictory and inconclusive. For instance, Namkung and Jang (2007) found that customer satisfaction played a mediating role between food quality and behavioral intentions. In contrast, Qin and Prybutok (2009) noted that service quality did not affect behavioral intentions through customer satisfaction.

Moreover, there has been few investigations related to solo diners. Determining the way in which customer satisfaction mediates relationships between perceived quality and return patronage intentions could help understand how managerial strategies should be directed. If a mediating role of satisfaction is proven, managers should enhance customer satisfaction by improving the quality of restaurant attributes to encourage repeat patronage. This study attempted to determine whether the aforementioned relationship holds true for solo diners.

2.8. Hypotheses and proposed model

The following hypotheses were developed based on the above discussion:

Hypothesis 1-a: Perceived food quality will positively affect solo diners' satisfaction.

Hypothesis 1-b: Perceived food quality will positively affect solo diners' return patronage intentions.

Hypothesis 2-a: Perceived service quality will positively affect solo diners' satisfaction.

Hypothesis 2-b: Perceived service quality will positively affect solo diners' return patronage intentions.

Hypothesis 3-a: Perceived physical environment quality will positively affect solo diners' satisfaction.

Hypothesis 3-b: Perceived physical environment quality will positively affect solo diners' return patronage intentions.

Hypothesis 4: Solo diners' satisfaction will positively affect their return patronage intentions.

Hypothesis 5-a: Solo diners' satisfaction will mediate the relationship between perceived food quality and return patronage intentions.

Hypothesis 5-b: Solo diners' satisfaction will mediate the relationship between perceived service quality and return patronage intentions.

Hypothesis 5-c: Solo diners' satisfaction will mediate the relationship between perceived physical environment quality and return patronage intentions.

3. Methods

3.1. Measurement items

The questionnaire included items measuring solo diners' perceptions of food quality, service quality, physical environment quality, satisfaction, and return patronage intentions. The questions measuring solo diners' perceptions of food quality were adopted from studies by Dube et al. (1994) and Gupta, McLaughlin, and Gomez (2007). Five attributes including menu variety, food ingredients quality, portion, taste, and presentation were utilized. Service quality attributes were adopted from Gupta et al. (2007) and included server courtesy, appearance, promptness, and attentiveness. Physical environment quality was measured by six attributes based on Ryu and Jang (2007). Items included dining equipment, layout, ambience, lighting, facility aesthetics, and aroma of the restaurant. Overall satisfaction (four items) and return patronage intentions (three items) were also adopted from Ryu and Jang (2008). All answers were measured on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Participants were also asked about their general solo dining experiences and a few additional questions about their most recent solo dining experience. Namely, the frequency of their solo dining occasions, when they tended to dine out, types of restaurants patronized, ownership types of patronized restaurants, and the source from which they learned about the restaurants. Questions about participant demographic information, such as gender, age, marital status, household size, household income, education level, and ethnic origin, were asked at the end of the survey.

3.2. Data collection and analyses

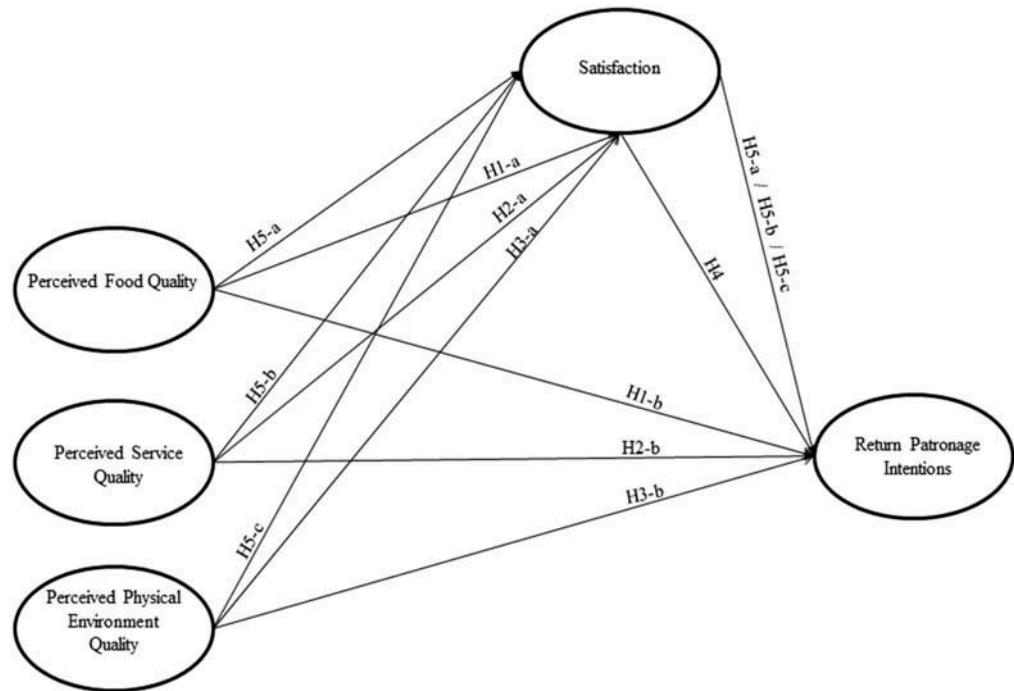
The target population for this study was solo diners in the United States. The data were collected through Mechanical Turk by Amazon, an online third-party intermediary to recruit survey participants. In total, 462 people were recruited and directed to a webpage that enables users to conduct surveys. A total of 370 questionnaires were used for analysis in this study after excluding 92 incomplete questionnaires.

A confirmatory factor analysis (CFA) was conducted to determine whether the manifest variables adequately reflected the hypothesized latent variables. Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were used to assess the reliability and the convergent and discriminant validity of measurement scales. Finally, structural equation modeling (SEM) was conducted to test the validity of the proposed model and the hypotheses (Figure 1).

4. Results

Table 1 presents the profile of the participants. The sample included more females (51.9%, $n = 192$) than males and more singles (63.2%, $n = 234$) than married people. The majority of the respondents were aged between 25 and 34 years (45.1%, $n = 167$) followed by 35–44 (24.1%, $n = 89$), 18–

Figure 1. Proposed model.



24 (12.7%, $n = 47$), 45–54 (10.3%, $n = 38$), and 55 years old and above (7.8%, $n = 29$). The numbers of household members were evenly distributed. A single-person household was most frequent, comprising 29.2% ($n = 108$), followed by four persons (25.4%, $n = 94$), three persons (23.0%, $n = 85$), and two persons (22.4%, $n = 83$). Annual household income ranged from US\$20,000 to US\$39,999 for 26.5% of the respondents ($n = 98$) and from US\$40,000 to US\$59,999 for 23.5% of the respondents ($n = 87$), comprising half of all respondents. Most respondents had a bachelor's degree or higher (56.3%) and were predominantly Caucasian, encompassing 76.5% ($n = 283$).

Table 2 presents the general dining patterns of solo diners. The majority of respondents (87.6%) ate out 1–3 meals alone in a week. Lunch was the most frequent meal of the day for solo diners (68.9%), followed by dinner (19.5%) and breakfast (11.6%). The respondents partook in solo dining experiences predominantly on weekdays (89.7%). Fast-casual restaurants (39.7%) were the most visited, followed by full-service restaurants (31.4%) and fast-food restaurants (28.9%). Chain restaurants (66.2%) were more frequently visited than independent restaurants (33.8%). Walk-ins (64.6%) and recommendations from others (22.7%) were the most frequent ways respondents heard about restaurants.

Descriptive statistics related to the main measurement items are summarized in Table 3.

CFA with a maximum likelihood was utilized to assess whether the measurement items reliably reflected the latent constructs. The chi-square value with 220 degrees of freedom was 803.10 ($p = .00$), which indicated that the model did not fit the data well. However, chi-square test results tend to be affected by large sample sizes (Jöreskog, 1993) and researchers widely resort to other goodness-of-fit statistics such as the comparative fit index (CFI = .88), the Tucker–Lewis index (TLI = .87), the normed fit index (NFI = .85), and the root mean square error of approximation (RMSEA = .09; Bearden, Sharma, & Teel, 1982; Hair, Anderson, Tatham, & Black, 1998). These indices demonstrated that the measurement model adequately fit the data (Bentler & Bonett, 1980; Steiger, Shapiro, & Browne, 1985; Tucker & Lewis, 1973). Details of the measurements properties are presented in Table 4.

Table 1. Demographic characteristics of the sample (n = 370)

Category	Frequency	Percentage (%)
Gender		
Male	178	48.1
Female	192	51.9
Age (years)		
18–24	47	12.7
25–34	167	45.1
35–44	89	24.1
45–54	38	10.3
55 or above	29	7.8
Marital status		
Single	234	63.2
Married	136	36.8
Number of members in household		
1	108	29.2
2	83	22.4
3	85	23.0
4 or more	94	25.4
Annual household income		
Less than US\$20,000	58	15.7
US\$20,000–US\$39,999	98	26.5
US\$40,000–US\$59,999	87	23.5
US\$60,000–US\$79,999	49	13.2
US\$80,000–US\$99,999	31	8.4
US\$100,000 or more	47	12.7
Education level		
Less than college	85	23.0
2-year college	77	20.8
4-year college/university	153	41.4
Graduate school	55	14.9
Ethnic origin		
Caucasian	283	76.5
Hispanic	19	5.1
African American	25	6.8
Native American	3	0.8
Asian	32	8.6
Other	4	1.1

Note: Percentage may not total to 100% due to missing values.

Cronbach's alphas, composite reliabilities, and AVE were also checked to identify whether measurement items were reliable in measuring each construct. Cronbach's alphas were all above a cutoff of .70 (Nunnally, 1978), ranging from .77 to .91. All CRs and AVEs were above .7 and .5, respectively, to acquire necessary convergent validity. Furthermore, the AVEs for each construct were greater than the squared correlation between constructs, thereby acquiring discriminant validity (Fornell & Larcker, 1981). Table 5 presents the AVEs and the coefficient of correlation for each variable.

Table 2. Description of general solo dining patterns

Category	Frequency	Percentage
Average number of meals eaten out solo		
0–3	324	87.6
4 or more	46	12.4
Most frequent meal of the day eaten out solo		
Breakfast	43	11.6
Lunch	255	68.9
Dinner	72	19.5
Period of time eaten out solo		
Weekdays	332	89.7
Weekends	38	10.3
Type of restaurant		
Fast-food restaurant	107	28.9
Fast-casual restaurant	147	39.7
Full-service restaurant	116	31.4
Type of restaurant ownership		
Chain restaurant	245	66.2
Independent restaurant	125	33.8
Type of advertisement		
Walk-in	239	64.6
Internet	17	4.6
Social media	6	1.6
Friend/relative	84	22.7
Newspaper	3	0.8
Coupon book	1	0.3
Other	20	5.4

Next, a structural equation model (AMOS 21.0) was utilized to determine the validity of the proposed model and test the hypotheses (Figure 2). Table 6 presents the standardized path coefficients. The hypothesized relationship between perceived food quality and satisfaction (hypothesis 1-a) was supported by the corresponding estimate of .57 ($t = 7.55$, $p < .001$). The standardized path coefficient from perceived food quality to return patronage intentions (hypothesis 1-b) was .30 ($t = 4.32$, $p < .001$), indicating that perceived food quality was a significant predictor of return patronage intentions.

Hypothesis 2-a was also supported by a significant estimate of .43 ($t = 8.18$, $p < .001$), directly linking perceived service quality and satisfaction. Hypothesis 2-b, however, which hypothesized a positive relationship between perceived service quality and return patronage intentions, was not supported. This result suggests that just providing good service may not be enough to attract solo diners for another visit.

Hypothesis 3-a, which predicted a positive relationship between perceived physical environment quality and satisfaction, was supported with the coefficient of -0.002 ($t = -0.43$, $p < .001$). In contrast, hypothesis 3-b predicting a positive relationship between perceived physical environment and return patronage intentions was not supported. Similar to hypothesis 2-b, there should be more than just a satisfactory physical environment for solo diners to return to a restaurant for another meal.

Table 3. Means and standard deviations of measurement items

Construct	Items
Food quality	There was a diverse menu
	The food ingredients were fresh and good quality
	Food portion was big
	Food was delicious
	Food was well presented
Service quality	The server greeted me cheerfully and friendly
	The server's appearance was neat and clean
	There were seats available as quickly as possible
	Food was served in a timely manner
	The server was attentive to my needs and checked back in with me often
Physical environment quality	Dining equipment (e.g., tableware, linens, and table setting) was of good quality
	Seat space was big enough
	Temperature was comfortable
	Lighting was comfortable
	Wall décor was appealing
	Aroma was enticing
Satisfaction	I was pleased to dine in at the restaurant
	The overall feeling I got from the restaurant was satisfactory
	The overall feeling I got from the restaurant put me in a good mood
	I really enjoyed myself at the restaurant
Return patronage intentions	I would like to come back to the restaurant in the future
	I would recommend the restaurant to my friends or others
	I would more frequently visit the restaurant

Finally, the path from satisfaction to return patronage intentions was significant ($\beta = .72$, $t = 8.83$, $p < .001$). Therefore, hypothesis 4 was supported.

The mediating role of satisfaction was further investigated. The structural equation model was reestimated by constraining the direct effect of satisfaction on return patronage intentions (set to 0). The first three conditions suggested by Baron and Kenny (1986) were met in the original structural model. That is, the effect of perceived food quality on satisfaction ($\beta = .82$, $t = 8.96$, $p < .001$), the effect of satisfaction on return patronage intentions ($\beta = .90$, $t = 17.94$, $p < .001$), and the effect of perceived food quality on return patronage intentions ($\beta = .63$, $t = 8.62$, $p < .001$) were all significant. The fourth condition was also satisfied; the parameter estimate between perceived food quality and return patronage intentions in the mediating model became less significant ($\beta = .29$, $t = 3.83$, $p < .001$) than the parameter estimate in the constrained model (partial mediation).

Similarly, a full mediating role for satisfaction was observed between perceived service quality and return patronage intentions. The parameter estimates between perceived service quality and return patronage intentions in the mediating model ($\beta = -.09$, $t = -1.28$) became insignificant, while the one in the constrained model was significant ($\beta = .65$, $t = -10.23$, $p < .001$).

Satisfaction again acted as a full mediator between perceived physical environment and return patronage intentions. In the constrained model, the parameter estimates between perceived physical environment quality and return patronage intentions were significant ($\beta = .69$, $t = 9.61$,

Table 4. Confirmatory factor analysis of study variables

Construct	Items	Standardized factor loadings	Composite reliabilities	Average variance extracted	Cronbach's alphas
Food quality			.84	.52	.80
	FQ1	.50			
	FQ2	.80			
	FQ3	.50			
	FQ4	.80			
	FQ5	.75			
Service quality			.86	.55	.77
	SQ1	.71			
	SQ2	.84			
	SQ3	.57			
	SQ4	.57			
	SQ5	.61			
Physical environment quality			.87	.53	.81
	PQ1	.65			
	PQ2	.61			
	PQ3	.64			
	PQ4	.68			
	PQ5	.67			
	PQ6	.64			
Satisfaction			.95	.82	.91
	SAT1	.86			
	SAT2	.85			
	SAT3	.85			
Return patronage intentions	SAT4	.83	.92	.80	.88
	RI1	.89			
	RI2	.57			
	RI3	.70			

Chi-square = 803.10 ($df = 220$)

CFI = .88; NFI = .85; TLI = .87; RMSEA = .09

CFI: comparative fit index; NFI: normed fit index; TLI: Tucker-Lewis index; RMSEA: root mean square error of approximation.

$p < .001$). However, the parameter estimate in the mediating model was insignificant ($\beta = .001$, $t = 0.02$); thus, satisfaction had a full mediating role.

In addition, the indirect effect of perceived food, service, and physical environment quality was examined to explain the role of satisfaction. The indirect effect of perceived food quality on return patronage intentions through satisfaction was .55, which was larger than the direct effect of .29. Similarly, the indirect effect of perceived service quality on return patronage intentions through satisfaction ($\beta = .74$) was larger than the direct effect of service quality on return patronage intentions ($\beta = -.09$).

Finally, the magnitude of indirect effect of perceived physical environment quality on return patronage intention via satisfaction was .70, while the direct effect was .00. Hence, the mediating

Table 5. The relationship between average variance extracted and coefficient of correlation

Variables	FQ	SQ	PQ	SAT	RI
FQ	.52*				
SQ	.60	.55*			
PQ	.61	.60	.53*		
SAT	.68	.68	.68	.82*	
RI	.68	.57	.61	.81	.80*

FQ: food quality; SQ: service quality; PQ: physical environment quality; SAT: satisfaction; RI: return patronage intentions.

Note: Numbers with asterisks represent the AVE, and others signify coefficients of correlations.

Figure 2. Structural results of the proposed model.

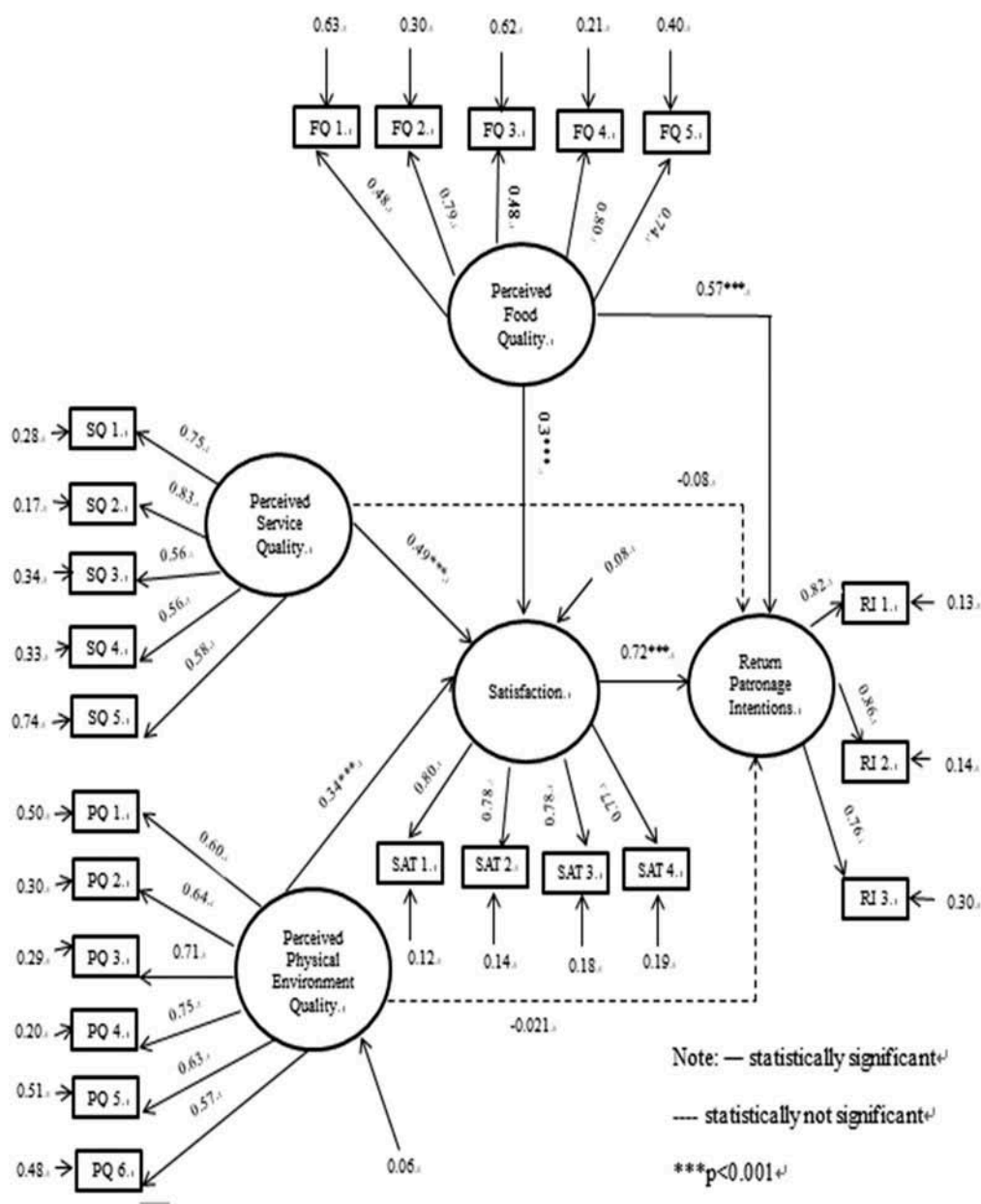


Table 6. Structural parameter estimates

Hypothesized path	Standardized path coefficients	t-value	Results
H1-a: perceived food quality → satisfaction	.57	7.55***	Supported
H1-b: perceived food quality → return patronage intentions	.30	4.32***	Supported
H2-a: perceived service quality → satisfaction	.43	8.18***	Supported
H2-b: perceived service quality → return patronage intentions	-.08	-1.47	Not supported
H3-a: perceived physical environment quality → satisfaction	.34	6.35***	Supported
H3-b: perceived physical environment quality → return patronage intentions	-.02	-0.43	Not supported
H4: satisfaction → return patronage intentions	.72	8.33***	Supported

*** $p < 0.001$.

effects of satisfaction demonstrated that excellent food, service, and physical environment quality may induce favorable future patronage behavior via enhanced satisfaction.

5. Conclusions and discussion

5.1. Theoretical implications

This study examined the dynamics among perceived qualities of restaurant attributes, customer satisfaction, and the consequent return patronage intentions with a focus on solo diners. While numerous studies have assessed the relationship among the aforementioned variables (i.e. perceived quality, satisfaction, and return intentions), there is a paucity in the hospitality literature that examines the behavior of solo diner customers. This study attempted to narrow such gaps in the existing research. The findings of this study showed that perceived quality of food, service, and physical environment were positively related to solo diner's satisfaction. This is consistent with the findings of previous research (Bitner & Hubbert, 1994; Bolton & Drew, 1994; Oh & Parks, 1997; Zeithaml et al., 1996).

With regard to return patronage intentions, however, only perceived food quality has a positive influence on return intentions of solo diners. Neither perceived service quality nor perceived physical environment quality was related to return patronage intentions. The results indicated that not all proposed relationships were supported, and the influence of perceived qualities associated with satisfaction and return patronage intentions may vary with a different customer group, solo diners as in this study. This empirical evidence could be further served as a base to draw from in developing hypotheses for future studies.

Another contribution of this study was the examination of the mediating effect of satisfaction between the three types of perceived quality and return patronage intentions. Despite the importance of customer satisfaction in association with perceived quality and return intentions, the mediating role of satisfaction has not been widely tested or has produced different results: mediation or no mediation effect (Bansal & Taylor, 2015; Cronin & Taylor, 1992; Dabholkar et al., 2000; Qin & Prybutok, 2009). The results of this study demonstrate how perceived food, service, and physical environment quality can affect solo diners' return patronage intentions through satisfaction. The findings also

support that satisfaction has a stronger positive indirect effect than the direct effect from perceived qualities (food, service, and physical environment) on return patronage intentions.

5.2. Managerial implications

The results provide restaurant managers with helpful insights into how the quality of restaurant attributes can improve solo diner's satisfaction. The findings suggest that in order for solo diners to be satisfied with the restaurant experience, restaurant practitioners should provide high-quality food, service, and physical environment. Similar to nonsolo diners, individuals eating on their own expect high standards of restaurant attributes quality.

Additionally, the study findings indicate the path from perceived quality to return patronage intentions was only significant between perceived food quality and return patronage intentions and not between perceived service quality/perceived physical environment quality and return patronage intentions. The results imply that food quality may be considered the most critical factor when solo diners decide to return to the restaurant, whereas service quality and physical environment quality do not necessarily elicit future returns. Thus, restaurateurs should recognize the primary purpose of being in restaurant business and perform well in terms of providing high-quality food.

Regardless, restaurant managers should maintain quality of service and physical environment at a level that meets customer standards because satisfaction gained from high quality clearly leads to future return intentions. This is further corroborated by the mediating role of satisfaction between perceived qualities and return intentions.

The findings of the study demonstrated that satisfaction acted as a full mediator between perceived service quality/perceived physical environment quality and return patronage intentions, while it was a partial mediator between perceived food quality and return intentions. Thus, restaurant managers could increase the possibility of favorable solo diner's return patronage intentions by ensuring that the food, service, and physical environment are kept at their best quality, which would enhance solo diner's satisfaction.

6. Limitation and recommendation

This study reinforced the understanding of factors that are critical in determining solo diners' satisfaction and return behavioral intentions. However, there are several limitations to be recognized and addressed in future studies. First, data for this study were collected from solo diners in the United States, so the generalizability of the results is limited. If the survey were expanded to include more countries, results may have shown different directions and magnitude of the relationships among study variables. Given the increase in solo diners across the globe, more studies are expected to assess the dynamics among perceived quality of restaurant attributes, satisfaction, and behavioral intentions.

Next, other factors that may affect solo diner's satisfaction and return intentions can be included in future studies. For instance, it may be possible to examine the influence of perceived value, efficiency, sense of belongingness to a restaurant on solo diner's satisfaction and return patronage intentions. In addition, empirical studies may be more effectively analyzed with more detailed typology of restaurants.

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