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CRUISE HOLIDAYS: HOW ON-BOARD SERVICE QUALITY AFFECTS PASSENGERS' BEHAVIOR

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This study examines the relations ships between the perceived service quality and satisfaction on on-board spending and behavioral action, while it also explores differences in on-board spending. Survey data were collected from 649 cruise ship passengers. A partial least square structural equation modeling was used to test the conceptual model and analysis of variances to explore the influence of passengers' demographic characteristics. Results show a positive link between service quality and satisfaction, and satisfaction and behavioral actions. Spending behavior has a moderating effect on behavioral actions, and is influenced by gender and travel frequency. Investing in the quality of cruise ships is vital, as it influences satisfaction and positive word-of-mouth. How to increase on-board spending, is more complex. On the one hand, the findings show that increased customer satisfaction does not habitually mean increased revenue. On the other hand, the results imply that passengers' on-board spending varies across customer segments.

Key words: Behavioral intention; Cruise tourism; Satisfaction; Service quality; Spending behavior

Introduction

Enjoying a holiday at sea on-board a cruise ship continues to be an appealing option for travel. Various reasons may explain the attraction of cruise holiday, one being that cruise ships provide unique holiday experiences for holiday-makers who are seeking hassle-free, all-inclusive, new, romantic, and pampering experiences. Such experiences are personal and based on emotional processes triggered by multisensory experiences (Radić, 2018). They emerge from the vast range of services cruise ships offer on-board. Such experiences emerge during the voyage and scheduled visits to ports, occurring via interaction between the service provider and the guest, the guest and the service environment,

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and between the various guests (Radić & Popesku, 2018). In creating such an environment, cruise ships are viewed as floating hotels or floating resorts that are comprised of series of complex and multiphase experiences in various environments (e.g., Papathanassis, 2017b). Today's cruise ships are no longer simply a functional mode of transportation; on the contrary, they are containers for the creation of travel experiences (Wu, Cheng, & Ai, 2018).

This study is built on the idea that shipscape is a "context-specific type of servicescape that includes both the man-made physical and social environment in which the cruise service is delivered (the ship)" (Kwortnik, 2008, p. 293). Within this context, passengers can access basic services on-board free of charge, but also spice up their trip by spending "extras" on the go. Due to the increasing influence of the tourism industry within the world economy, tourists' shopping has become an important issue (Brida & Pulina, 2010). On-board spending is an essential source of revenues and a lifeline for cruise lines (Toh, Rivers, & Ling, 2005). Hence, awareness of what drives cruise passengers' quality perceptions, satisfaction, and spending is essential (Le & Arcodia, 2018; Petrick, 2004).

Past research has documented that perceived on-board quality affects passengers' satisfaction (e.g., Petrick, 2004), particularly such quality dimensions as on-board safety (Tarlow, 2017), courtesy (Sirbu, 2013), experiential appearance (Castillo-Manzano, Castro-Nuño, & López-Valpuesta, 2017), and efficiency (Taylor Nelson Sofres, 2011). Furthermore, research has shown that perceived satisfaction affects behavioral actions, such as cruise holiday revisit intentions (Duman & Mattila, 2005; Forgas-Coll, Palau-Saumell, Sánchez-García, & Caplliure-Giner, 2014; Homburg, Koschate, & Hoyer, 2005; Petrick, 2004). However, while past research implies that service quality is a key aspect within the context of hotels and restaurants, as it influences tourists' satisfaction, drives spending behavior, and impacts behavioral actions such as revist intentions (e.g., Rezaei, Mazaheri, & Ramin Azadavar, 2017), the relationship between such constructs remains uncovered within the context of cruise ships. Hence, it is not known how satisfaction with on-board quality drives spending and how such spending affects future behavioral actions.

The lengthy, continuous service consumption on-board makes the shipscape context unique. The uniqueness comes from the fact that cruise ships are at the same time accommodation and transportation in which passengers are "encapsulated" without the opportunity to disembark midcruise (e.g., due to the surrounding sea or immigration issues) (Weaver, 2005). By embracing the uniqueness of cruises, the shipscape deserves to be studied in its own right. To this end, this study builds on recent advances in services marketing theory and draws a conceptual model of the interrelationship between perceived service quality, satisfaction, on-board spending, and future behavioral actions. In this overall structure, the study questions are: 1) How do service quality and customer satisfaction influence on-board spending and behavioral actions? and 2) How does on-board spending mediate the relationship between customer satisfaction and behavioral actions?

To answer the research questions, the next section presents the conceptual foundation for the development of the hypothesis. The third section details the research and analysis methods and the sampling procedure. The findings are presented in section four, and section five sums up the discussion, emphasizing the theoretical and managerial implications and avenues for further research.

Conceptual Background and Hypothesis Development

Service Quality–Customer Satisfaction–Behavioral Action (SQ-CS-BA) Model

The SQ-CS-BA model is based on the idea that perceived service quality (SQ) influences customer satisfaction (CS), which affects behavioral actions (BA). The model was first tested in the 1980s (Woodside, Fray, & Daly, 1989), and has since been proven valid in different types of contexts, such as hotel (Ladhari, 2009), restaurant (Ryu, Lee, & Kim, 2012), shopping malls (Ahmad, 2012), e-shopping (Gounaris, Dimitriadis, & Stathakopoulos, 2010), and transportation, including air (Chang & Yeh, 2002; Chou, Lie, Yih, & Han, 2011), bus (Eboli & Mazzulla, 2007; Shen, Feng, & Hu, 2016), and train (Wu, Lin, & Hsu, 2011). The model's applicability to the cruise industry has also been verified (Petrick, 2004).

The SQ-CS-BA model, which is causal in structure, covers three interlinked phases of the service process: the preservice, service consumption, and postservice phases. The assumption is that service expectations, at least to some extent, take place in the preservice phase, perceptions of SQ emerge in the pre- and service phases, CS in the service and postservice phases, and BA in the postservice phase. The last phase is often measured in terms of repurchase intentions and word-of-mouth (WOM) behavior. The SQ-CS-BA model has primarily been tested for services of short duration. Hence, services that last an extended period of time are as yet unexplored—even those of duration of 1 week or more, as with the travel executed on-board a cruise ship. Notably, in such contexts, BA may emerge already in the core service consumption phase, in the form of posting pictures and dropping comments in social media.

Perceived Service Quality and Satisfaction

Commonly service quality is based on the view that the level of service quality is acceptable if the consumer is satisfied, while consumer satisfaction occurs when the expected service quality equals or exceeds the delivered service quality (e.g., Grönroos, 1984; Parasuraman, Zeithaml, & Berry, 1985). SERVQUAL is an acknowledged instrument to measure service quality, and it measures quality through dimensions such as tangibles, reliability, responsiveness, assurance, and empathy (e.g., Parasuraman et al., 1985; Parasuraman, Zeithaml, & Berry, 1988). As such, past research has documented that perceived on-board service quality influences passengers' satisfaction (e.g., Petrick, 2004). However, quality is a context-dependent construct, whereby quality, related satisfaction, and behavioral actions deserve to be studied via the use of other dimensions as well (e.g., Kauppinen-Räisänen & Grönroos, 2015). The fact is that tourism research in general, and cruise research in particular, shows how quality is evoked through safety (Tarlow, 2017), courtesy (Sirbu, 2013), experiential appearance (Castillo-Manzano et al., 2017), and efficiency (Taylor Nelson Sofres, 2011), and how satisfaction is gained through these dimensions.

Safety is claimed to be an essential quality dimension, particularly as travelers become older (Lindqvist & Björk, 2000). The dimension of safety and tourists' perception of cruise ships as safe environments is stressed as a means to consumer satisfaction, but also for the overall cruise experience (e.g., Le & Arcodia, 2018; Tarlow, 2017). Satisfaction is also found to be influenced by employees' courteous and friendly behavior during interactions with cruise passengers (Sirbu, 2013). Today's cruise ships have been paralleled with floating hotels or floating resorts, but also described as "senses environments" (Agapito, Mendes, & Valle, 2013), as they offer an increasingly large mixture of appealing shopping malls and holiday resort attractions. Thus, the pleasure evoked by cruise ship's experiential appearance, contributed by the shipscape and entartaining environment, has a key role in creating experiences, which contribute to passengers' quality perceptions and satisfaction (Castillo-Manzano et al., 2017). Finally, efficiency, in terms of how well everything went and how employees responded to various requests on-board, is found to have a direct and positive impact on tourists' overall satisfaction (Taylor Nelson Sofres, 2011). Based on the above, the following hypothesis is outlined:

H1: There is a positive cause–effect relationship between perceived on-board service quality and satisfaction

Satisfaction, On-Board Spending, and Behavioral Action

As pointed out, satisfaction occurs when the expected service quality equals or exceeds the delivered service quality (e.g., Grönroos, 1984; Parasuraman et al., 1985). For example, high levels of service quality are found to have an important role in securing both the satisfaction and desired overall cruise experience of a cruise ship traveler (Chua, Lee, & Han, 2017).

The intriguing aspect is that studies show how satisfaction has an ongoing effect on the behavior and behavioral actions of tourists; yet, within cruise research, the links remain uncovered. Past research implies that cruise passengers' satisfaction with the perceived service quality affects behavioral intentions (e.g., Chua et al., 2017; Duman & Mattila, 2005; Forgas-Coll et al., 2014; Homburg et al., 2005; Petrick, 2004). However, within this research field, less scholarly attention has been devoted to

how satisfaction with on-board quality dimensions affects ongoing behavior, particularly spending behavior, and how such ongoing behavior affects behavioral actions like revisit intentions and WOM (Yin, Poon, & Jing-Lei Su, 2017).

The effect of satisfaction on ongoing behavior, such as spending during service consumption, is supported by tourism research, which shows how satisfaction leads tourists to spend more on items like food and beverages, gift shop merchandise, shore excursions, and other services (Disegna & Osti, 2016). When it comes to the current study's quality dimensions, research shows how satisfaction with the perceived safety standards has a positive impact on tourists' spending on food and beverages, and gift shop merchandise (Disegna & Osti, 2016), whereas satisfaction with employees' courteous and friendly behavior has an impact on tourists' actual spending on food and beverages (Rezaei et al., 2017). Studies stress that the physical appearance of service environments triggers multisensory experiences, and in doing so they become essential drivers of purchasing behavior, involvement in sales interactions (Spence, Puccinelli, Grewal, & Roggeveen, 2014), and potentially even on-board spending on cruise ships (Castillo-Manzano et al., 2017). A recent study found that the dimension of efficiency had a direct and positive impact on tourists' overall satisfaction (Taylor Nelson Sofres, 2011), and Sirbu (2013) points out that service employees' efficiency may affect cruise passengers' purchasing.

When it comes to the effect of satisfaction on behavioral actions, past research has found that satisfaction impacts revisit behavior and WOM (e.g., Duman & Mattila, 2005; Forgas-Coll et al., 2014; Homburg et al., 2005; Petrick, 2004). Moreover, a positive perception of the service quality influences repeat cruise passengers' satisfaction, as well as behavioral intentions like loyalty (Chua et al., 2017).

Shopping is an essential activity during holidays. Tourism research implies that holidays tend to reduce anxiety and evoke positive emotions and even holiday well-being, whereby travelers tend to spend more on shopping on holiday (e.g., Björk & Kauppinen-Räisänen, 2017; Brida & Tokarchuk, 2017). In addition, tourism research shows how expenditure on shopping effects behavioral intentions (e.g., Yin et al., 2017). For example, shopping as a holiday activity may contribute in terms of experiences that induce postservice behavior, like repurchasing behavior (Yin et al., 2017). Looking at cruise ships, on-board spending is based a classic monopoly in which passengers are "caught" by cruise companies from the moment they step on-board (Vogel, 2012). Having said that, neoclassical economic theory of consumer behavior suggests that consumers are rational beings engaged in a constant search for the highest functional use, in order to achieve an overall state of satisfaction with both consumed and purchased products and services (Disegna & Osti, 2016). Hence, as positive emotions of pleasure and on-board well-being gained through perceived on-board quality induce satisfaction and may drive on-board spending, most likely such spending behavior triggers behavioral actions like revisit intentions and WOM. Having said that, the following hypotheses are drawn:

H2: There is a positive cause–effect relationship between satisfaction and behavioral actions.
H3: There is a positive cause–effect relationship between satisfaction and on-board spending.
H4: There is a positive cause–effect relationship between on-board spending and behavioral actions.

The research model and hypotheses of this study are shown in Figure 1.

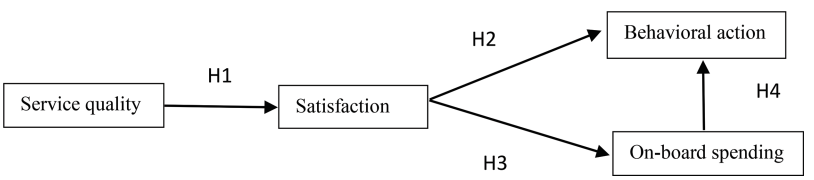

Figure 1. Research model.

Method

For this study, a quantitative research approach was chosen (Veal, 2011). The study employed a survey research with a self-administered questionnaire.

Data Collection

The survey was conducted on a contemporary cruise ship during various itineraries between May 15, 2016 and May 13, 2017. The questionnaire was delivered to randomly selected cruise passengers provided that they had spent money during the cruise. Participants filled in the questionnaire in the presence of one of the authors; the benefit of this approach was that the author was able to clarify certain questions, when needed.

Data Measures

In accordance with the conceptual model, the questionnaire was designed to hold five blocks. Block one was for service quality, block two for satisfaction, block three for behavioral action, block four for on-board spending, and finally block five was designed to collect information about the participants' demographics.

The measurement scales for the conceptual model's variables consisted of empirically tested scales from the literature. Service quality was measured by adopting a scale by Radić and Popesku (2018), satisfaction was measured by using a scale by Crosby and Stephens (1987), and future behavioral action was measured via the implementation of a scale by Zeithaml, Berry, and Parasuraman (1996). The scale for measuring on-board spending was developed by the authors based on the literature (Brida, Bukstein, & Tealde, 2015; Vogel, 2011, 2012, 2017) using the multiphase approach developed by Churchill (1979). On-board spending was measured with items covering the main sources of revenue, such as beverages, ship merchandise, spa treatments and products, photos and videos, shore excursions, and Internet services.

Service quality, satisfaction, and behavioral action were measured on a 5-point Likert scale (1 = *I strongly disagree* and 5 = *I strongly agree*). Also, on-board spending was measured on a 5-point Likert scale. In that scale, 3 indicated that a guest spent equal to the on-board breakeven point ±5%, 2 covered the range from −6% to −20% of the breakeven point, 1 indicated amounts less than 20% of the breakeven point, 4 was designated for quantities between +6 and +20% of the breakeven point, and 5 was for spending more than 20% of the breakeven point. The breakeven point for all items that were used to describe the on-board spending variable had a different value for each itinerary, and they were obtained from the shipboard personnel.[1] A gradation on the 5-point Likert scale was decided based on the shipboard personnel and academic experts. The final block of the questionnaire related to the sociodemographic characteristics of the participants.

Data Analysis

The sample is presented by the means of descriptive statistics; for the analysis, this study benefits from two approaches: analysis of variances (ANOVA) and structural equation modeling using partial least squares (PLS-SEM) (Ali, Rasoolimanesh, Sarstedt, Ringle, & Ryu, 2018; Monecke & Leisch, 2012) with the argument that PLS-SEM also can be used in an "exploratory, model-building fashion" (McIntosh, Edwards, & Antonakis, 2014, p. 210). The authors chose PLS-SEM approach over covariance-based SEM (CB-SEM) because in social science distributions are often unknown and far from normal (Fornell & Cha, 1994), PLS-SEM can predict the indicators by means of the components expansion (Jöreskog & Wold, 1982), and PLS-SEM is suited for research constrained by conditions of low information, very complex structures, emerging theories, and subjective observations of phenomena (Sosik, Kahai, & Piovoso, 2009). Having said that, and bearing in mind that this research is pioneering in a way that explores the effect of on-board spending on satisfaction and behavioral intention, PLS-SEM is an adequate approach for this study because Hair, Ringle, and Sarstedt (2011) recommended PLS-SEM in cases when the research model is an extension of existing structural theory and when the objective of the research is to predict key targets.

Current cruise tourism theory does not indicate heterogeneity with the specific group such as cruise itinerary. Having said that, the breakeven point

for on-board spending during various cruise itineraries[2] was established based on operational costs, the adjusted ticket price of the specific cruises, and on-board spending during the cruise per passenger per day (Carnival Corporation and PLC, 2016; Royal Caribbean Cruises Ltd., 2016). This is in line Becker, Rai, Ringle, and Völckner (2013), who stated that once specific groups become accessible, the theory can be expanded and used for future studies.

When exploring differences between customer segments, ANOVA is used. This study tests four hypotheses by employing a PLS-SEM path modeling method with reflective measurements, meaning arrows pointing from latent constructs to manifest variables (outer model). The inner model consists of four exogenous latent factors and four endogenous ones, of which one is a second-order construct. For the interpretation of the links between the inner and the outer models, manifest variables and latent factors, path coefficients, *t* values, and total effects are used. For estimation of these values, a bootstrap technique is practiced. In this study, 5,000 bootstrap samples are drawn.

Reliability and validity were checked using a) outer loadings of 0.70 and higher, b) composite reliability of 0.70 or higher, and c) convergent validity (AVE) of 0.5 or higher. To test the significance of the path coefficients, *t* statistics were used (Hair, Anderson, Tatham, & Black, 1998; Wong, 2013).

Findings

The findings are presented in two sections. The first section describes the sample and tests for differences in perceived service quality, satisfaction, behavioral actions, and on-board spending based on demographics. The second section tests the four hypotheses portrayed in Figure 1 using PLS-SEM.

Sample Characteristics and Perception of Service Quality, Satisfaction, and Behavior

The sample was dominated by respondents living in North America (84%), women (62.1%), and families traveling with children (74.7%). A large share of the respondents were between 41 and 50 years old (49.2%) and held a bachelor's degree (53.6%). The respondents were approximately equally divided by cruise frequency: first-time cruisers (36.7%), 2–3 times cruisers (26.7%), and ≥4 times (36.7%). Furthermore, it can be noticed that the sample was equally split in terms of respondents traveling in the Caribbean, the Bahamas, and Northern Europe and Baltic, and those traveling in the British Isles and the Mediterranean (Table 1). With reference to the report by the Cruise Lines International Association (CLIA, 2017), the sample used in this study represents the cruise population fairly well.

Results presented in Table 2 indicate some significant differences in how cruise ship passengers perceive service quality and satisfaction, engage in on-board spending practice, and recommend (WOM) cruise holiday to other people (behavioral action).

Table 1
Profile of Respondents ($N = 649$)

Characteristic	*N* (%)
Gender	
Women	403 (62.1%)
Men	246 (37.9%)
Age	
20–29	3 (0.5%)
30–40	181 (27.9%)
41–50	319 (49.2%)
51–60	136 (21.0%)
60+	10 (1.5%)
Education	
High school	40 (6.2%)
Associate degree	236 (36.4%)
Bachelor degree	348 (53.6%)
Master/doctoral degree	25 (3.9%)
Residence	
North America	545 (84.0%)
Europe	51 (7.9%)
Middle East	13 (2.0%)
China & Japan	15 (2.3%)
South America	25 (3.9%)
Travel with child	
Yes	485 (74.7%)
No	164 (25.3%)
Times Cruised	
1	238 (36.7%)
2–3	173 (26.7%)
≥4	238 (36.7%)
Cruise was in	
Caribbean	130 (20.0%)
Bahamas	118 (18.2%)
North Europe & Baltic	137 (21.1%)
British Isles	132 (20.3%)
Mediterranean	132 (20.3%)

Table 2
Service Quality, Perceived Satisfaction, Behavior Intentions, and On-Board Spending

			Significant Differences Between Groups				
	Mean T	*SD*	Gender	Age	Residence	Cruise Zone	No. Times Cruised
Service quality							
Safety							
Safe environment	4.79	0.467			Europe		
Safe on cruise ship	4.77	0.531					
Crew dedicated to safety	4.62	0.719					
Crew are courtesy	4.84	0.453					
Courtesy							
Respected by the crew	4.85	0.436					
Friendly crew	4.83	0.482					
Great show	4.71	0.609					
Show							
Feeling of movie	4.70	0.618		60+	Europe		
Entertaining environment	4.50	0.854		60+			
Efficient crew	4.69	0.722		60+	Europe		
Efficiency							
Everything is as expected	4.61	0.889	Women		Europe	Caribbean	
Passionate crew	4.39	1.119					
Satisfaction				Age	Residence		
Unsatisfied–satisfied	4.68	0.624		51-60	Europe		
Displeased–pleased	4.37	0.797			Europe		
Unfavorable–favorable	4.61	0.622			Europe		
Behavioral action							
Tell positive things	4.71	0.602			Europe	Caribbean	
Recommend	4.71	0.618				Caribbean	
Encourage	4.72	0.602				Caribbean	
Pays off	4.56	0.731	Women			Caribbean	
Continue to visit cruise ship	4.42	0.905	Women				
On-board spending							
Beverage	3.30	0.964	Men		Europe	British Isles	
Merchandise	2.98	1.104			Europe		
Spa & treatments	3.27	1.226					≥4
Photos & videos	2.69	1.015					≥4
Excursions	2.85	1.071					
Internet services	3.69	0.831					

Note. 1 = *Strongly disagree* to 5 = *Strongly agree.* Mean T: total mean = whole sample. Cells with text indicate significant ($p < 0.05$) differences between groups. The groups reported are those, which, in comparison to other groups, agreed the least to the statements.

ANOVA was used to examine differences in how cruise ship passengers perceive service quality and satisfaction, engage in on-board spending practice, and recommend (WOM) cruise holiday to other people (behavioral action). The results revealed the following significant differences:

- gender affected efficiency (service quality), behavioral action, and on-board spending ($p < 0.05$);
- age affected experiential appearance and efficiency (service quality), and satisfaction ($p < 0.05$);
- place of residence affected safety, experiential appearance and efficiency (service quality), satisfaction, behavioral action, and on-board spending ($p < 0.05$);
- cruise itinerary affected efficiency (service quality), behavioral action, and on-board spending ($p < 0.05$);
- travel frequency or number of previous cruises affected on-board spending ($p < 0.05$).

Overall, the perceived on-board service quality was very high with only a few significant segment differences. Generally, those who were not as happy about the on-board service quality were women, passengers that were age 60+, Europeans

(compared to North Americans), and cruise passengers in the Caribbean (compared to all other zones). In terms of overall satisfaction, passengers between the ages of 51 and 60 were less satisfied compared to those under the age of 40, and passengers from Europe were the most dissatisfied (compared to people from other countries and continents).

Regarding behavioral actions and future behavioral intentions, the respondents spoke positively about their journey and encouraged others to cruise. The respondents also found it worthwhile to spend time and money on a future cruise vacation, even if the price increased. A gender comparison showed that women in general did not think that time onboard pays off compared with men, and they were less eager to take another cruise. It can also be noticed that cruise passengers in the Caribbean were less eager "ambassadors" for the cruise ship business in comparison to the passengers of other cruise itineraries, as they scored significantly lower on four out of five behavioral action variables.

Average on-board spending was the same for most passengers, with the exception of spending money on beverages (mean = 3.30), spa treatments (mean = 3.27), and Internet services (mean = 3.69). Furthermore, the findings signal that men spent less on beverages. Passengers from Europe spent less on beverages and merchandise during the cruise, and more experienced cruise ship passengers (cruise ≥4 times) spent less on treatments and products, as well as photos and videos

Measurement Model

The constructs used for PLS-SEM and hypotheses testing were examined for structures and dimensionality before use. The questionnaire consisted of four dimensions (perceived quality, satisfaction, behavioral action, and on-board spending) and 26 items (see the Appendix) sorted into seven first-order and one second-order construct. The second-order construct—service quality—is formed by safety, courtesy, experiential appearance, and efficiency. For the internal consistency test, Cronbach's alpha was on an acceptable level for six out of seven first-order constructs. On-board spending was close to an acceptable level ($\alpha = 0.599$). However, with an AVE of 0.192 and CR of 0.263 (below the acceptance levels), and several nonsignificant variables (Sp1, Sp2, Sp5, Sp6) the on-board spending construct had to be redefined.

In the process of purifying the on-board spending scale and testing the model using PLS-SEM, it turned out that the on-board spending construct only had a moderating effect, indicating that there was no direct relationship between satisfaction and on-board spending, and on-board spending and behavioral action. In the new structure, all the constructs passed the set criteria for AVE, CR, and Cronbach's alpha, and the outer loadings for all items were well above the minimum threshold of 0.600 (Table 3).

The findings presented in Table 3 also indicate how the second-order formative construct—service quality—includes four significant first-order constructs (safety, courtesy, experiential appearance, and efficiency) and that satisfaction and on-board spending have a moderating effect on behavioral action.

Discriminant validity was assessed by using Fornell and Larcker´s (1981) procedure (Table 4). The calculated square root for each AVE (shown in the diagonal) is greater than the interconstruct correlations, indicating adequate interconstruct validity for all reflective constructs.

By using the goodness of fit (GoF) index suggested by Tenenhaus, Amato, and Vinzi (2004), the geometric mean of the average of communality and the average R^2 was computed. The fit is not perfect, but the model possesses large GoF, as the geometric mean is 0.599 (Wetzels, Odekerker-Schroder, & van Oppen, 2009). A calculated root mean square residual (SRMR) of 0.08 supports the notion of an adequate model fit (Henseler, Hubona, & Ray, 2016).

The Structural Model

The PLS-SEM results (Fig. 2) indicate that perceived on-board service quality has a positive cause–effect relationship with perceived satisfaction, and that satisfaction has a positive cause–effect relationship with behavioral action, but not with on-board spending. Furthermore, there was no significant cause–effect relationship between on-board spending and behavioral action.

However, a moderating effect of on-board spending on behavioral action in tandem with perceived satisfaction was identified, and, as indicated in Figure 2, the moderating effect is negative. The

Table 3
Validity and Reliability of the Constructs

First-Order Constructs/Items	Loadings	AVE	CR	Cronbach's Alpha
Safety				
Sa1	0.860	0.752	0.901	0.835
Sa2	0.871			
Sa3	0.872			
Courtesy				
Co1	0.856	0.735	0.892	0.819
Co2	0.841			
Co3	0.876			
Show				
Sh1	0.869	0.789	0.918	0.866
Sh2	0.894			
Sh3	0.902			
Efficiency				
Ef1	0.898	0.684	0.866	0.768
Ef2	0.788			
Ef3	0.792			
Satisfaction				
Sati1	0.894	0.744	0.897	0.828
Sati2	0.878			
Sati3	0.815			
Behavioral action				
Be1	0.817	0.607	0.885	0.838
Be2	0.783			
Be3	0.771			
Be4	0.734			
Be5	0.789			
On-board spending				
Sp3	0.702	0.728	0.839	0.714
Sp4	0.982			

Second-order construct	First-order constructs	Weight	*t* Value
Service quality	Safety	0.268	32.076**
	Courtesy	0.276	27.813**
	Show	0.317	29.334**
	Efficiency	0.275	26.974**

Moderator	Items	Loadings	AVE	CR	Cronbach's Alpha
On-board spending * Satisfaction → Behavioral action	N.A.	−0.143	0.601	0.900	0.868

Note. Critical *t* value: **2.58 ($p < 0.01$).

Table 4
Discriminant Validity: Fornell–Larcker Criterion

	Saf	Cou	Sho	Eff	Sat	BA	OBS
Safety (Saf)	*0.867*						
Courtesy (Cou)	0.713	*0.857*					
Show (Sho)	0.636	0.713	*0.888*				
Efficiency (Eff)	0.618	0.680	0.808	*0.827*			
Satisfaction (Sat)	0.574	0.608	0.692	0.717	*0.862*		
Behavioural action (BA)	0.635	0.664	0.707	0.704	0.758	*0.779*	
On-board spending (OBS)	−0.036	−0.030	−0.008	0.028	−0.038	−0.033	*0.853*

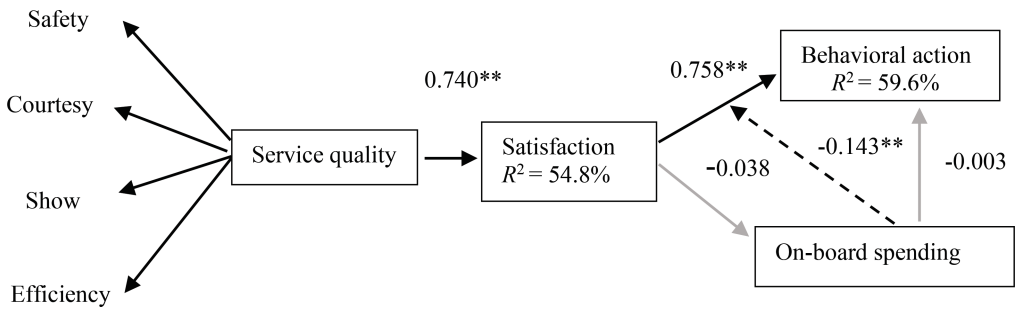

Figure 2. Structural model. $^{**}p < 0.01$ indicates moderating effect.

high explanation power and predictive relevance of service quality on satisfaction ($R^2 = 54.8\%$; $Q^2 = 0.235$) and satisfaction on behavioral action ($R^2 = 59.6\%$; $Q^2 = 0.404$) is also to be recognized in support of theories proclaiming a SQ-SA-BA structure.

The findings presented in Figure 2 give reason to conclude that two out of the four hypotheses can be accepted (leaving two in the rejected category) (Table 5).

Discussion

Service quality, satisfaction, on-board spending, and the future behavior of cruise passengers are essential aspects influencing the success of cruise companies and the cruise sector as a whole. This study attempted to enhance the understanding of and discover underlying relationships between service quality, satisfaction, on-board spending, and behavioral action. Special attention was given to the examination of the causes to and consequences of on-board spending, which turned out to have a moderator effect on behavioral actions.

A self-adminstred survey was designed to collect data on a contemporary cruise ship during various itineraries. The instrument for measuring components largely consisted of previously empirically validated measuring instruments, except for the component on-board spending, which was created particularly for this study based on the existing literature. The quality of the measuring instrument has been shown to possess satisfactory levels of validity and reliability. On-board spending had a Cronbach alpha value of 0.59, which is slightly below the lower limit of acceptance (being 0.6) as recommended by Hair et al. (1998). The low Cronbach alpha value for on-board spending could be a consequence of the choice of scale items used, the relatively small sample (Hair et al., 1998), and biased tau-equivalence (Lance, Butts, & Michels, 2006). However, taking into account that this is a pioneering study in which the moderator impact of on-board spending on behavioral actions was identified and tested, the component was retained after the scale items had been purified.

The results support that service quality has a positive impact on satisfaction, and that satisfaction positively contributes to behavioral actions. Having said that, in this research on-board spending only had a moderating effect, indicating that there was no direct relationship between satisfaction and

Table 5
Test of Hypotheses

	PLS-SEM		
Hypotheses	Coefficient	*t* Value	Conclusions
H1: There is a positive relationship between on-board service quality and satisfaction	0.740	24.416	Accept
H2: There is a positive relationship between satisfaction and behavioral actions	0.758	26.827	Accept
H3: There is a positive relationship between satisfaction and on-board spending	−0.038	0.830	Reject
H4: There is a positive relationship between on-board spending and behavioral actions	−0.003	0.093	Reject

on-board spending, and on-board spending and behavioral action. This result can be explained by the fact that when exploring the relationship between satisfaction and behavioral actions, as well as between on-board spending and behavioral actions, the relationships are influenced by external factors, which act as constraints (Bagozzi, 1992). This effect was noticed by Reichheld (1993), who concluded that, when consumers are buying an automobile, although their level of satisfaction was 85%–90%, only 40% of them actually bought an automobile of the same brand. In the tourism context, regarding their sample of 1994 tourists who visited Austria, Dolnicar, Coltman, and Sharma (2015) concluded that, despite the high level of satisfaction, only 24% of the tourists expressed a wish to revisit the destination, while 41% claimed that they would certainly not return.

Based on the above, the conclusion is that achieving high satisfaction with cruise ship passengers does not guarantee favorable future behavior or increased on-board spending. In this study there were a significant number of passengers who were first-time cruisers (36.7%). Having said that, there was a high level of unfamiliarity with the cruise tourism product, as well as the perception of the value of a cruise experience. For the cruise sector to continue its business successfully, it is of paramount importance to achieve a high level of satisfaction among cruise ship passengers. Evidently, the relationship between satisfaction and behavioral action (i.e., on-board spending and future behavioral intentions) is of a complex nature, and there are various factors influencing passengers' future behavior; however, satisfaction and on-board spending have a limited impact on this specific relationship within this tourist product.

Theoretical Implications

Bearing in mind the fact that cruise tourism is a relatively new field of academic research and, as such, in empirical and methodological terms, represents quite a challenging area for research (Papathanassis, 2017a), this study can be seen to posit a fundamental contribution in two ways. First, although in the field of cruise tourism there are several studies dealing with the relationship between service quality, satisfaction, and behavioral actions, currently there is no study that investigates the impact of satisfaction on on-board spending and the impact of on-board spending on behavioral actions. This study fills this gap by providing pioneering results relating to the moderating impact of on-board spending on passenger behavior. Although in this study the positive relationship between satisfaction, on-board spending, and behavioral actions was not supported, it was confirmed that there are many underlying factors that affect satisfaction, which lead to the lessening influence of satisfaction on on-board spending and on-board spending on future behavior. These results are in line with previous results of Dolnicar et al. (2015), who concluded that the relationship between satisfaction and future behavior is much more complex than that proposed in the models of reason behavior (cited in Dolnicar et al., 2015). Second, considering the fact that none of the existing studies have dealt with cruise ship passengers' on-board spending, and particularly not with the impact of on-board spending on future behavior, this study provides a significant contribution thereof, filling this gap in existing studies in the field of cruise tourism.

The research results of this study are consistent with the results of previous studies (Dawkins & Reichheld, 1990; Oliver, 1999), where authors have concluded that service quality has a positive impact on satisfaction, and that satisfaction has a positive impact on future behavior. Moreover, by observing the results of this research, it can be considered that the results of this study are in line with the conclusion of Dolnicar et al. (2015) and, as such, provide constructive criticism thereof, which enhances the existing models of reason behavior.

Managerial Implications

The findings imply that cruise managers should pay attention to passengers' demographic characteristics, as these affect perceived service quality and satisfaction. In particular, attention should be given to female passengers, passengers who are in the age group of 60+, and passengers who come from European countries. The findings also show that travelers who choose Caribbean cruises have higher expectations when it comes to service quality. Although most passengers find the cruise (as a form of leisure) to be good value for money, female passengers believe that cruise vacations are overpriced. When it comes to on-board spending, cruise companies need to improve their on-board revenue streams so that

the cruise ships provide passengers with high-quality and high-value products and services that cannot be found in visited ports of call. In general, cruise managers and cruising companies should constantly seek new ways to improve the value of the cruise experience if they want to achieve a high level of satisfaction among cruise ship passengers.

Limitations and Future Research

This research was based on recent advances in marketing theory, and the authors attempted to contribute to the fields of maritime tourism and service marketing by exploring on-board spending and its determinants.

The main limitation of this study is that the research was conducted on a single contemporary cruise ship. Yet, while limitation is inevitable, this enabled the survey to be conducted—in situ—in an authentic consumption setting, thus allowing real-time passenger perceptions and behavior. For example, it allowed realistic value for cruise ship operation costs to be used to create breakeven points for the items that were employed to describe on-board spending. However, to continuously improve the theory of cruise tourism, future research should investigate and combine cruise ships from other cruise companies. In a similar vein, the current study was carried out on cruises that are extremely popular (CLIA, 2017). Hence, other itineraries also deserve to be studied in future research.

In addition, the current study's model and the included components deserve to be developed in future research. Although all components showed satisfactory levels of validity and reliability, the component that measured on-board spending was tested for the first time in the case of cruise tourism, so further testing is necessary. The diversity of the population is a constraint that must be emphasized, as only the passengers of a single cruise ship—who were predominantly from Western developed countries—participated in this survey, whereby the results of this research cannot be completely generalized. Regarding the choice of the population, it is necessary to emphasize the total number of respondents as 649, which is quite a small number of respondents and, as such, has a limiting effect. Finally, the selected sample population in this study is somewhat different in terms of demographic characteristics when compared to the studies of other authors; having said that, the demographic characteristics of the sample should be closely examined in future research.

Notes

[1]The breakeven point for on-board spending during various cruise itineraries was established on widely accepted method that stretches over leading cruise companies. In its simplest form it is based on ticket price of the specific cruises and on-board spending during the specific cruise per passenger per day and operational costs (Cruise Market Watch, 2018).

[2]This study was conducted on following cruise itineraries: the Caribbean cruises: Port Canaveral, day at sea, Cozumel, Grand Cayman, Falmouth, day at sea, day at sea, Port Canaveral; Bahamas cruises: Port Canaveral, Nassau, day at sea, Port Canaveral; North Europe & Baltic cruises: Copenhagen, day at sea, Tallinn, Saint Petersburg, Helsinki, Stockholm, Oslo, day at sea, and Copenhagen; British Isles cruises: Dover, day at sea, Newcastle, Invergordon, Kirkwall, day at sea, Greenock, Liverpool, Dublin, day at sea, Le Havre, Guernsey, Dover; and the Mediterranean cruises: Barcelona, day at sea, Naples, Civitavecchia, Livorno, Cannes, day at sea, Barcelona.

Biographical Notes

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Appendix. Scale Items Used for PLS-SEM

Perceived quality (Radic & Lück, 2018; Radić & Popesku, 2018)
Safety
Sa1 = Complete look of the cruise ship creates impression of safe environment
Sa2 = I have felt safe on cruise ship
Sa3 = All crew and officers of cruise ship are dedicated to safety
Courtesy
Co1 = All crew and officers of cruise ship are courteous
Co2 = I felt pleasant and respected during the interaction with crew and officers of cruise ship
Sa3 = All crew and officers of cruise ship are dedicated to safety
Courtesy
Co1 = All crew and officers of cruise ship are courteous
Co2 = I felt pleasant and respected during the interaction with crew and officers of cruise ship
Co3 = Crew and officers on cruise ship are nice, friendly and cheerful
Show (Appearance)
Sh1 = Crew and officers provide great show and "magical movements"
Sh2 = The ambient of the cruise ship, provided me with a feeling of "being on some kind of movie"
Sh3 = Cruise ship provided and entertaining environment
Efficiency
Ef1 = Crew and officers are efficient and if we had any challenges they were excellently handled
Ef2 = I had a feeling that everything is as I have expected
Ef3 = Crew and officers are passionate, responsible and engaging in their roles
Sa3 = All crew and officers of cruise ship are dedicated to safety
***Satisfaction* (**Crosby & Stephens, 1987; Radic & Lück, 2018; Radić & Popesku, 2018)
Sati1 = Overall, I am satisfied with my cruise vacation
Sati2 = Overall, I am pleased with my cruise vacation
Sati3 = Overall, I feel favourable about my cruise vacation
Behavioural actions (Radic & Lück, 2018; Radić & Popesku, 2018; Zeithaml et al., 1996)
Be1 = When other people ask you about your experience on board cruise ship you will tell them positive things
Be2 = If someone asks your advice about cruise ship you will recommend them
Be3 = You will encourage your friends and family to take a vacation on cruise ship
Be4 = It pays off to spend time and money on cruise vacation
Be5 = I will continue to visit cruise ship in near future even if prices increase somewhat
On-board spending (Brida et al., 2015; Vogel, 2011, 2012, 2017)
Sp1 = I spend approx. X USD$ on beverages during my cruise
Sp2 = I have spent approx. X USD$ on ship merchandise during my cruise
Sp3 = I have spent approx. X USD$ on SPA treatments and products during my cruise
Sp4 = I have spent approx. X USD$ on photos and videos during my cruise
Sp5 = I have spent approx. X USD$ on shore excursions during my cruise
Sp6 = I have spent approx. X USD$ on Internet services during my cruise

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