

Cruising in the COVID-19 pandemic era: Does perceived crowding really matter?

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Abstract

Purpose – Cruising is one of the industries most susceptible to the current COVID-19 health crisis, due to the closed environment and the contacts between cruisers and crewmembers. This study aims to understand if the perceived crowding and the health risk perception related to the pandemic situation might threaten passengers' intentions to cruise. The study also examines corporate reputation and trust, as well as social motivation and self-confidence, as possible predictors of consumers' intention to cruise.

Design/methodology/approach – The study is based on the development of a structured questionnaire submitted online via social media. Overall, 553 individuals' responses were used for understanding the factors that can affect consumers' intention to cruise by performing several regression models.

Findings – The results show that the perceived crowding related to the pandemic does not seem to influence people's intention to cruise. On the contrary, trust in the cruise company, corporate reputation, cruisers' self-confidence and research of social motivation are positive predictors of intention to cruise, thus reducing the perceived risk's deterring impact. The importance of such factors differs in respect of repeat and not repeat cruisers.

Practical implications – The study presents several managerial implications as it analyses the variables that could help cruise management cope better with COVID-19's negative impact.

Originality/value – Despite the severity of COVID-19's impact on the cruise industry, no studies have yet focussed on how the current pandemic situation may influence customers' intention to cruise in the future.

Keywords COVID-19, Intention, Crowding, Risk, Trust, Cruise

Paper type Research paper

1. Introduction

Cruise companies cover all profiles of contemporary hospitality management: marketing strategies, human resource planning and development, operations management, corporate strategies, accounting and communication (Chua *et al.*, 2017; Jones *et al.*, 2017; Penco *et al.*, 2019; Raub and Streit, 2006). Within the hospitality industry, cruising is one of the most susceptible industries to the current COVID-19 health crisis, and therefore, associated with amplified safety and security risks for its passengers and crewmembers (Gössling *et al.*, 2020). When COVID-19 first manifested itself, cruise ships turned into traps, with thousands of passengers quarantined



in their cabins and facing the challenge of returning home. Previous critical events that had an enormous impact on humans and the environment are well-documented (Mileski *et al.*, 2014; Penco *et al.*, 2019; Tarlow *et al.*, 2012), especially when these were due to health risks (Liu-Lastres *et al.*, 2019; Liu *et al.*, 2016; Mizrachi and Fuchs, 2016).

When it became clear that cruise ships were an optimal field for infectious diseases due to the closed environment and the contacts between cruisers (from many countries) and the crew members, who are normally transferred between ships (Gössling *et al.*, 2020), cruises became global tourism's worst scenario.

On 4 February 2020, the Japanese Health Ministry confirmed that more than 60 people on board the Diamond Princess – then moored in Yokohama Bay – had tested positive for COVID-19 (Mallapaty, 2020). When the cruise ship Diamond Princess's passengers were diagnosed with COVID-19, the vessel offered a rare opportunity to understand features of the new virus that were hard to investigate in the wider population (Gallego and Font, 2020; Sharma and Nicolau, 2020).

Subsequently, at least 25 other cruise ships were found to have confirmed COVID-19 infections on board (Moriarty, 2020). Potential future cruisers will probably not forget the media images of passengers quarantined for weeks, trapped on ships rebuffed from multiple ports of call and denied an opportunity to disembark. These images could impact their perception of cruises' health risk, and, therefore, their future travel choices.

The director of the US Department of Health and Human Services-Centers for Disease Control and Prevention (CDC) issued cruise ships with a no sail order, which came into effect on 14 March 2020. This order was, first, because of cruise ships being crowded and having large numbers of people in closed or semi-closed settings where they are likely to have close contact. The second reason was that cruise ships might be a means by which infected persons could travel between different geographic locations (home ports/ports of call/destinations and their home community).

Focussing on the first reason, crowding and mass gatherings in close-contact environments facilitate the transmission of respiratory viruses from person to person through exposure to respiratory droplets or contact with contaminated surfaces. In the cruise mass market, the common areas and large numbers of cruisers might specifically lead to human density problems, thus hindering the recommended physical and social distance and making the control of COVID-19 very difficult. This pandemic has stimulated interest in crowding, which, as a central safety issue for cruises, will probably have a potential impact on cruisers' decision-making process.

In the future, past and potential cruisers will probably not only evaluate the health risk but also the crowding due to the spatial and human density, which is part and parcel of a cruise vacation (especially in the mass-market segment). Such evaluations could influence customers' future intention to cruise. Cruisers might modify their travel behaviours in the COVID-19 era, including travelling to a safer destination, cancelling their cruise and shortening their vacation. On the other hand, they might confirm their intention to cruise when cruises start again. Whatever the case, it is important to underline that currently, COVID-19 is a unique global crisis of an unprecedented scale and nature (Niewiadomski, 2020), affecting not only consumer behaviours but also the globalisation of tourism and the organisation of hospitality services (Jiang and Wen, 2020; Lai and Wong, 2020; Liu *et al.*, 2021). Several authors have, however, maintained that this pandemic offers a challenge regarding reshaping the existing economic system (Renaud, 2020) and in terms of a "Schumpeterian" creative destruction (Niewiadomski, 2020).

Based on this premise, COVID-19's influence on potential cruisers' travel behaviours should be investigated to understand the potential demand and create a discussion about cruise services' reorganisation. Our grasp of the complexities of consumers' intention to cruise may be incomplete and should, therefore, be investigated in greater depth. In

particular, this paper analyses how the crowding on cruises (Hyun and Kim, 2015) and cruisers' health risk perceptions (Le and Arcodia, 2018; Liu-Lastres *et al.*, 2019) might influence the intention to cruise in the current pandemic era.

Previously, scholars found that trust (Luhmann, 1991; Mishra, 1996) and a cruise's prior reputation (Laufer and Coombs, 2006) play a role in "risk absorption" in uncertain situations. The paper also addresses whether these variables could have a positive influence on the likelihood of consumers going on a cruise even in a pandemic situation. We furthermore control for the roles that cruise motivation (Hung and Petrick, 2011) and self-confidence play (Valencia and Crouch, 2008). In addition, the study attempts to clarify whether there are differences between novice cruisers and repeat cruisers.

Taking the current COVID-19 situation into account, this study aims to answer to the following research question: *during the COVID-19 pandemic era, which factors influence consumers' intention to cruise?* By focussing on the aforementioned issues, our study contributes to the extant literature in several ways. As far as we know, no previous studies have focussed on how COVID-19 could affect consumer intention to cruise. Our paper therefore, adds to the relatively limited research on the effects of health-related risk perceptions associated with emerging crisis issues on individuals' evaluation of their perceived safety and their consequent intention to purchase a cruise (Liu *et al.*, 2016; Liu-Lastres *et al.*, 2019). Secondly, the study advances crowding literature in the cruise industry context, in which space and human interactions could be very critical. The study results also have significant practical implications for the cruise industry by highlighting how crowding perceptions are related to the intention to cruise, thus helping cruise companies manage the space and the social interaction on their ships, as well as cruisers' risk perceptions and trust, which could be useful for the communication strategies in the pandemic period.

2. Literature review and hypotheses setting

In the cruise industry, attention to critical events, such as health crises, has become an imperative due to the number of critical events at sea and passengers' vulnerability increasing (Tarlow *et al.*, 2012). Safety is, therefore, emerging as an important issue, especially in the COVID-19 era, as it might influence customers' attitudes regarding purchasing cruises and even their decision-making process (Cleeren *et al.*, 2008; Souiden and Pons, 2009). According to the protection motivation theory (Rogers, 1975), future intentions to cruise in risky situations are related to individuals' perceptions of the threat intensity, the likelihood that a threat might occur and the estimation of their ability to cope with the threat. This theory suggests that in risky situations, such as a health crisis as the COVID-19 pandemic, the likelihood of having to engage in protective behaviours will increase and consumers' intention to buy will, therefore, diminish. Hence, in the present pandemic situation, consumers' intention to cruise may be influenced by many factors, which can have an impact on the perceptions of the seriousness of the threat or can help consumers to cope with the danger.

2.1 Crowding

Crowding is a multivariate phenomenon, resulting from spatial, sociological and individual factors' interaction (Stokols, 1972). Researchers have mainly investigated crowding in the retail context (Eroglu and Machleit, 1990; Machleit *et al.*, 2000). This context has largely revealed spatial crowding's negative effects on individuals' perceptions and behaviours, while human crowding's effects are mixed and dependent on various factors (Blut and Iyer, 2019). Researchers have also investigated the perceived crowding construct in the tourism and hospitality context (Vaske and Shelby, 2008). In terms of tourist destinations, perceived

crowding is mainly associated with over-tourism and its negative effects on the environment and/or the local communities (Cheung and Li, 2019; Jacobsen *et al.*, 2019). Several studies focussing on the hospitality domain have underlined crowding's effect on consumers' attitude, especially in terms of their satisfaction (Song and Noone, 2017) and behavioural intention (Hwang *et al.*, 2020; Jang *et al.*, 2015). These studies suggest that consumers' response to perceived spatial and human crowding is largely negative.

While there are several contributions regarding the negative crowding effect on cruise destinations (Jacobsen *et al.*, 2019), the literature on the role of cruise ships (that is, the hospitality infrastructure, i.e. the "shipscape") and cruise services is limited (Han and Hyun, 2019). Given that cruise ships are bounded spaces in which consumers want to relax and be comfortable (Ahn and Back, 2019; Calza *et al.*, 2020; Chen *et al.*, 2016), these amplify crowding's negative effects, specifically those of large ships (Kwortnik, 2008). Cruises could simultaneously be interpreted as a hedonic, experiential and symbolic service, whose functional goal is not very important (Han and Hyun, 2019), making perceived crowding's role less negative for various profiles. Some cruisers enjoy the feeling of being pampered on cruises and because they tend to lounge on the decks, congestion is less likely to cause annoyance than when they try to swim in an over-crowded pool (Mahadevan and Chang, 2017). Beyond the cruise mass market, Hyun and Kim (2015), when focussing on the moderating role of the need for uniqueness in respect of a perceived luxury brand value and brand identification, found that perceived crowding has a negative effect on a perceived luxury brand's value.

The table in Appendix 1 summarises the most significant research dimensions of prior contributions focussed on crowding in the hospitality domain. Nevertheless, our review finds that researchers have not yet developed an overarching conceptual framework for assessing crowding's role, nor the influence of other variables, such as trust, risk, reputation, motivation and self-confidence, on intention to cruise during a crisis situation. The COVID-19 pandemic has increased crowding's importance for the cruise industry. The CDC (2020) found that high volumes of cruisers and common areas are related to density problems, especially in terms of human presence, which make keeping to the recommended physical and social distance very difficult and facilitate COVID-19 transmission.

In line with the mainstream literature on crowding in the tourism industry, our study proposes that the crowding perception may influence the behavioural intention to cruise, especially during this period when crowding is considered a major threat. The perception of personal space's violation may lead to negative emotions and avoidance reactions associated with the feeling of being in an unsafe environment, amplifying crowding's negative effects. In other words, as crowding on cruise vacations could be interpreted as a concern related to health and safety issues, the negative emotions would be prevalent on the positive ones, lowering consumers' intention to cruise.

We, therefore, propose the following hypothesis:

- H1.* During a health crisis, such as COVID-19, consumers' overall perception of crowding is negatively related to their intention to cruise.

2.2 Cruisers' health risk perception

Over the past few years, the increasing number of infectious disease outbreaks, such as Ebola, bird flu and severe acute respiratory syndrome (SARS), has emphasised the importance of safety and security in the tourism domain. An increasing number of tourists consider safety one of the most important issues in their complex travel decision-making process (Liu *et al.*, 2016) that might change their risk perception (Zhang *et al.*, 2020). Many

factors, including bad weather, terrorist attacks, strikes, crime, natural disasters and health – in terms of diseases or the lack of sanitation – increase tourists' perceived risk level (Fuchs and Reichel, 2006). However, only a limited number of studies have concentrated on risk perception in the context of cruises (Ahola *et al.*, 2014; Liu *et al.*, 2016; Liu-Lastres *et al.*, 2019).

Scholars have identified risk perception as a situation-specific and multi-faceted construct (Le and Arcodia, 2018; Roehl and Fesenmaier, 1992) that creates negative emotions related to anxiety, insecurity and fear of the consequences of a purchase decision. The latter has a deterring impact on intention to travel to locations perceived to be risky (Henthorne *et al.*, 2013; Jonas *et al.*, 2011). In the context of cruises, researchers have reported that passengers' risk perceptions affect their intention to travel, as they hesitate to take cruises or cancel their bookings (Bowen *et al.*, 2014). Health problems, which range from illness, respiratory diseases, to viral diseases and global pandemics (Liu *et al.*, 2016), are specifically one of the major risk factors in the tourism industry (Mizrachi and Fuchs, 2016). These problems could threaten tourists' safety and security, enhancing their risk perception. Nevertheless, despite health problems' centrality in tourist risk perceptions, very few scholars have specifically focussed on these factors in the cruise industry context.

Some of the above studies have not found that concerns about health are a major obstacle inhibiting cruise travel (Liu-Lastres *et al.*, 2019), while tourism studies on outbreaks of contagious diseases, such as Ebola, only reported a minimal plan to avoid travel (Cahyanto *et al.*, 2016). Nevertheless, the COVID-19 pandemic's international repercussions are so wide and its related health-safety concerns so severe, that we surmise that travellers will avoid risky situations such as cruises. The COVID-19 pandemic, a unique major global threat emphasising the importance of social distance, is probably increasing cruisers' negative emotions towards crowded spaces on ships, which will increase their perceptions of the health risks. We, therefore, posit the following hypothesis:

- H2.* During a health crisis, such as COVID-19, consumers' perceived health risk is negatively related to their intention to cruise.

2.3 Trust

Trust plays a key role in uncertain situations characterised by risk. In this sense, trust plays a role in risk absorption by reducing the uncertainty level (Luhmann, 1979, 1991; Mishra, 1996). As the presence of risk is a fundamental trigger for enacting the trust role, trust is bound to have an attenuating function by generating certainty as a response to the presence of risk. Trust can, therefore, reduce the risk level that the uncertainty associated with a given situation causes. More precisely, trust implies the substitution of a difficult to manage "external risk" (such as the risk caused by crowding and the health risk related to COVID-19) by means of a "relational risk" (commonly defined as vulnerability), which is more cognitively manageable. According to Moellering (2006, p. 110), a "leap of faith", which is "the process that enables actors to deal with irreducible uncertainty and vulnerability (suspension)", is an essential feature of trust.

Risk and vulnerability are so important in trust literature that some authors define the trust concept as "risk acceptance and incorporation" or "to be in a situation of vulnerability". According to Luhmann (1979), trust is "an attitude that allows for a risk-taking decision". Coleman (1990) defines trust as incorporating risk into a decision whether or not to engage in an action. Consequently, willingness to take risks may be one of the few characteristics common to all trust situations (Johnson-George and Swap, 1982). A great deal of evidence supports the positive relationship between trust and behavioural intentions (Singh and Sirdeshmukh, 2000). In particular, researchers have

found that trust's role is especially important in service sectors, such as tourism and, specifically, cruises (Forgas-Coll *et al.*, 2014; Wu *et al.*, 2018). Trust reduces these sectors' perceived risk and increases consumers' intention to buy (Castaldo, 2007; Laroche *et al.*, 2004); consequently, trust is also an essential part of the relationship quality, which is required to maintain stable relationships between companies and their customers over time.

We, therefore, focus on the trust construct, which could be one of the main elements that help customers manage the risk and vulnerability related to the COVID-19 pandemic situation. In particular, we assume that the level of trust in a specific cruise company might play an active role in "absorbing" the perceived risks related to crowding and health safety, thereby supporting consumers' intention to cruise. We, therefore, propose the following hypothesis:

- H3.* During a health crisis, such as COVID-19, consumers' trust in the specific cruise company is positively related to their intention to cruise.

2.4 Reputation

Corporate reputation is defined as an overall evaluation of the organisation, which reflects the extent to which consumers (and stakeholders in general) see the firm as "good" or "bad" (Laufer and Coombs, 2006). Reputation has been shown to impact consumers' reactions to critical events, which, such as trust, can reduce their uncertainty (Walsh *et al.*, 2009). Trust, which is a key corporate reputation correlate, is a cognitive construct, while reputation is an affective concept, based on a company's overall evaluation (Park *et al.*, 2014). If the corporate reputation is good, the negative impact of a product harm crisis on consumers' purchase intentions diminishes (Siomkos, 1999).

In terms of the cruise industry, Petrick (2011) argued that corporate reputation is an important concept that strengthens customers' confidence and reduces their risk perceptions (Wu *et al.*, 2018). Penco *et al.* (2019) reported that a prior good reputation mitigates critical events' negative effect on future decisions to cruise by retaining consumers' confidence in the company and its products/services (Souiden and Pons, 2009). Customers with better perceptions of the corporate reputation are therefore, more likely to have favourable behavioural intentions, which mitigate a critical event's effect. We assume that a cruise line's previous positive reputation will help sustain consumers' positive attitude towards taking a cruise, even during the COVID-19 period. To not decrease their reputation, cruise companies will probably follow safety protocols very strictly, thus decreasing consumers' risk perceptions. We, therefore, assume the following:

- H4.* During a health crisis, such as COVID-19, a cruise company's good reputation is positively related to consumers' intention to cruise.

2.5 Social motivation

Although the tourism literature has broadly investigated travel motivations, there is only limited research on the underlying motivations for taking a cruise and the issues that constrain this. According to the literature on cruise motivations, consumers not only choose a cruise vacation because it meets their need for escape/relaxation, "self-esteem and social recognition" and "learning/discovery and thrill" but also because it meets their desire to "bond" (Chen *et al.*, 2016; Han and Hyun, 2019; Hung and Petrick, 2011). Focussing specifically on this last motivation, a cruise vacation is related to sociality and taking a

cruise is considered a way to strengthen a friendship or a relationship, thus reinforcing the notion of social ties and experiences (Huang and Hsu, 2009). Consumers consider cruiser-to-cruiser interactions relevant (Chua *et al.*, 2017), while Qu and Ping (1999) found that “social gathering” is a popular motivation.

The social perspective that a cruise vacation offers can, therefore have a positive impact on consumers’ intention to cruise. We expect that even during the COVID-19 period, this positive impact could be a relevant factor regarding consumers’ behavioural intentions. Crowding might even be tolerated in this pandemic situation, nevertheless its presence in some components of the cruise package (i.e. leisure activities on the ship deck) is considered noising (Mahadevan and Chang, 2017):

H5. During a health crisis, such as COVID-19, the social motivation to go on a cruise is positively related to consumers’ intention to cruise.

2.6 Self-confidence

Consumer self-confidence is defined as the extent to which consumers feel capable of doing research and are certain that their ability to do so will allow them to make good future decisions and exhibit good consumer behaviours (Bearden *et al.*, 2001). In this way, the self-confidence concept reflects the subjective evaluations of one’s ability to generate positive buying decisions. According to Locander and Hermann (1979), self-confidence can moderate an individual’s perception of risk, which has been found to be related to purchase intentions (Xu *et al.*, 2004). In the tourism industry, self-confidence is a variable that can affect how and why tourists respond when faced with a range of adverse events involving an increased risk to their travel safety and security (Valencia and Crouch, 2008). Specifically, the higher consumers’ level of self-confidence, the less a critical event’s influence on their decision to travel because they trust their capacity to handle risk and search for information. We, therefore, expect self-confidence to have a positive influence on consumers’ intention to cruise:

H6. During a health crisis, such as COVID-19, self-confidence is positively related to consumers’ intention to cruise.

Figure 1 shows the conceptual framework and hypotheses development. We have also inserted two control variables in the model, namely, familiarity and past cruise experience. Given that Milman and Pizam (1995) suggested that travel experience is linked to familiarity, which might consequently reduce the perceived risk level and that the relationship between passengers’ past cruise travel experience and cruise ships’ safety perceptions has already been identified (Liu-Lastres *et al.*, 2019), some differences in consumers’ intention to cruise might result from the mentioned variables.

3. Method

3.1 The background: why Italy?

The empirical research focusses on the Italian cruise market, which is an ideal empirical field for investigations. Italy was the first country in the European Union to register more than 30,000 COVID-19-related deaths and the first to impose a lockdown in February 2020 (Tuite *et al.*, 2020). Within Europe, Italy is the most important destination market for the cruise industry and is the third-largest source market in Europe (CLIA – Cruise Line International Association, 2018). When the survey was carried out, it was not possible to go on a cruise, although the cruise companies were planning to inaugurate the cruise season in August 2020.

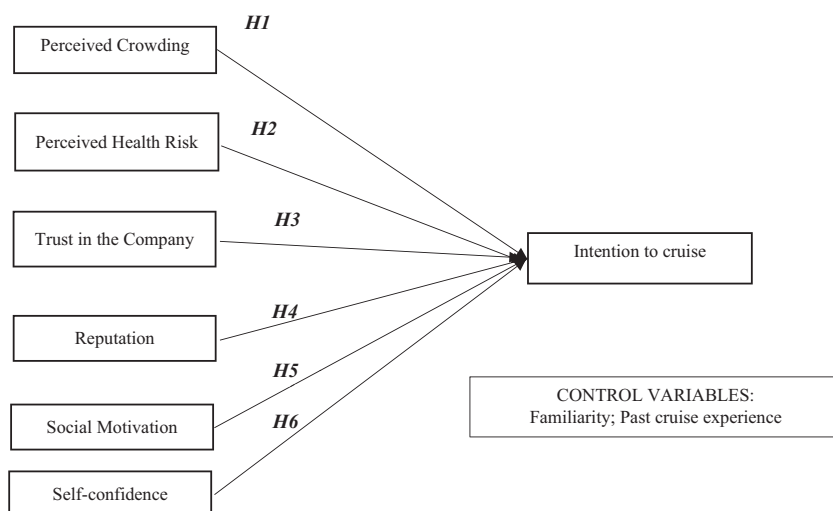


Figure 1.
Conceptual model

3.2 The research instrument: the questionnaire

We undertook the study by preparing a structured questionnaire, which we shared online via a cruise blog and social networks. We took several steps to ensure the measurements' validity. Firstly, we based the questions on those in previous literature and clarified the questionnaire's focus on COVID-19 in the introduction.

Before launching the final survey, the researchers pre-tested the preliminary version to guarantee its content validity, readability and user-friendliness. Subsequently, the questionnaire was administered to 10 people and further revised in keeping with their feedback. Thereafter, five cruise experts were contacted by telephone for an additional short pilot test. When asked to comment on the questionnaire in terms of its clarity, readability and friendliness, the experts maintained that it fitted the aforementioned topics perfectly and did not require any amendments in terms of the rewording of items.

The final questionnaire was structured into five sections. Section 1 focusses on cruising, exploring the respondents' familiarity with this type of vacation. Section 2 is devoted to evaluating "the target company" in terms of trust in it and its reputation. Section 3 explores the respondents' self-confidence and motivations. Section 4 is the core of the research and aimed at evaluating the perception of the human crowding associated with a cruise vacation and the cruise package and shipscape's specific components, as well as the risk perception related to the COVID-19 situation and the respondents' future intention to cruise. Section 5 focusses on the respondents' socio-demographic data. The respondents had to answer all the items on seven-point Likert scales (1 = strongly disagree, 7 = strongly agree), with the exception of the demographic information.

3.3 Data collection and profile of the respondents

The final version of the questionnaire was published online via Google Forms and shared through a cruise blog and Facebook profiles. The choice of social media to disperse the questionnaire was due to the quarantine period, which inhibited direct and physical contact. The sample size was not determined a priori and the research strategy was to define a small "window of time" (4–12 June 2020) for the online survey. Overall, 553 individuals participated in the survey

and constituted our final sample. Table 1 provides the sample's major socio-demographic data and behavioural dimensions.

3.4 The measures

In keeping with extant literature, the relevant constructs in the questionnaire were mainly operationalised by adapting previous multi-item scales. We adapted the measurement items related to the intention to cruise from previous cruise studies (Hung and Petrick, 2011). The scales that Machleit et al. (2000) and Hyun and Kim (2015) developed were used to measure the perception of crowding. We operationalised the risk perception by taking previous literature focussed on tourism during a pandemic period into account (Lee et al., 2012; Novelli et al., 2018), while using items that Bart et al. (2005) and Guenzi et al. (2009) adopted to measure the trust construct. The same procedure was followed with the other variables. To validate the scales used for measuring the variables, we performed a confirmatory factor analysis on all the questionnaire's constructs, with the exception of the demographics and calculated the items' Cronbach's alpha in respect of each extracted factor.

Table 2 shows the constructs, factors and Cronbach's alpha values. The reliability statistics, measured by Cronbach's alpha values, ranges from 0.893 to 0.984 in respect of all the factors, therefore exceeding the 0.7 rules-of-thumb (Nunnally and Bernstein, 1994).

	Count	(%)		Count	(%)
<i>Gender (GEN)</i>			<i>Marital status (MARI)</i>		
Male	162	30.4	Single	93	17.4
Female	366	68.7	I live together with my partner	78	14.6
Non disclosed	5	0.9	Married	285	53.5
Total	533	100.0	Separated/divorced	17	3.2
<i>Age (AGE)</i>			Widowed	4	0.8
18–24	81	15.2	Not disclosed	56	10.5
25–34	89	16.7	Total	533	100.0
35–49	149	28.0	<i>Education (EDU)</i>		
50–64	165	31.0	Post Lauream/PhD/postdoc	41	7.7
>64	45	8.4	Bachelor/master	179	33.6
Not disclosed	4	0.8	High school	259	48.6
Total	533	100.0	Primary school	54	10.1
<i>Income (INC)</i>			Total	533	100.0
<€25,000	166	31.1	<i>Past experiences (CRUISER)</i>		
€25,000–€50,000	144	27.0	<i>No repeaters</i>	167	31.3
€50,000–€75,000	22	4.1	0 previous cruises (potential cruisers)	86	16.1
>€75,000	32	6.0	One previous cruise (new cruisers)	81	15.2
Not disclosed	169	31.7			
Total	533	100.0	<i>Repeaters</i>	366	68.7
<i>Employment (EMP)</i>			2–5 cruises	172	32.3
Entrepreneur/self-employed	88	16.5	Between 6 and 10 cruises	81	15.2
Employee	145	27.2	More than 10 cruises	113	21.2
Teacher/professor	27	5.1	Total	533	100.0
Healthcare profession	23	4.3			
Workman	42	7.9			
Student	95	17.8			
Retired/housekeeper/ unemployed	113	21.2			
Table 1. Demographics	Total	533	100.0		

Theoretical constructs	Measurement items	Mean	Std. deviation	% of variance	Loading factor	Cronbach's alpha	Cronbach's alpha standardised items
Intention to cruise (INT) (dependent variable) <i>Hung and Petrick (2011)</i>	I intend to go on a cruise as soon as possible	4.44	2.309	88.432	0.908	0.955	0.956
	I will say positive things about cruising to other people	5.04	1.973	0.928			
	I will recommend cruising to other	4.80	2.114	0.968			
	I will encourage friends and relatives to go on a cruise	4.53	2.216	0.956			
Perceived crowding (CROW) <i>Macheit et al. (2000), Hyun and Kim (2015)</i>	There are too many people on the cruise ship	4.63	1.871	82.336	0.921	0.892	0.893
	Overall, the waiting time for using facilities on the cruise ship was too long	4.68	1.845	0.911			
	The cruise ship is too crowded for me	3.95	1.973	0.889			
Perceived health risk (RISK) <i>Novelli et al. (2018), Lee et al. (2012), Cahyanto et al. (2016)</i>	It is dangerous to take a cruise right now because of COVID-19	3.98	2.116	73.735	0.858	0.910	0.910
	Because of COVID-19, cruises should be avoided right now	3.41	2.153	0.817			
	People around me seem to refrain from going on a cruise right now because of COVID-19	4.53	2.116	0.923			
Trust in the cruise company (TRUST) <i>Bart et al. (2005), Guenzi et al. (2009)</i>	COVID-19 is more dangerous than other pandemics (i.e. NI-HI, SARS)	4.21	2.119	0.876			
	I am afraid because COVID-19 is a very frightening disease	3.87	2.007	0.814			
	I trust my Cruise Company	5.48	1.754	93.924	0.973	0.984	0.984
	Customers can trust my Cruise Company	5.46	1.719	0.971			
Reputation (REP) <i>Siomkos and Kurtzbard (1994)</i>	My Cruise Company keeps its promises	5.36	1.739	0.976			
	My Cruise Company has my best interests at heart	5.21	1.807	0.948			
	My Cruise Company is trustworthy	5.46	1.745	0.978			
	The reputation of the Cruise Company is high	5.83	1.564	87.492	0.935	0.852	0.857
	The reputation of the Cruise Company is comforting during the COVID-19	5.12	1.797	0.935			

(continued)

Table 2.
Theoretical constructs indicators and composite reliability indices

Table 2.

Theoretical constructs	Measurement items	Mean	Std. deviation	% of variance	Loading factor	Cronbach's alpha	Cronbach's alpha standardised items
Social Motivation (MOTIS)	I desire to gain knowledge and enjoy activities that provide a thrill	5.52	1.757	78,828	0.882	0.865	0.886
Hung and Petrick (2011), Qu and Ping (1999)	I want to stay with my friends/family and to interact with them	5.41	1.856		0.902		
	Cruising provides me with a chance to meet new people and I like to meet different people on a cruise ship	4.96	1.922		0.880		
Self-confidence (CONFID)	When I am selecting a cruise, I know where to find proper information	5.61	1.726	91.373	0.947	0.968	0.969
Valencia and Crouch (2008)	When I am selecting a cruise, I am confident about my research abilities	5.60	1.697		0.956		
	When I am selecting a cruise, I know exactly what to ask	5.57	1.724		0.969		
	When I am selecting a cruise, I trust my judgement	5.72	1.617		0.951		
Familiarity (FAM)	I am well-informed about cruise	4.78	2.112	94.298	0.966	0.970	0.970
Nepomuceno <i>et al.</i> (2014)	In comparison to my friends and acquaintances, my level of expertise about cruises is higher	4.82	2.207		0.969		
	My level of familiarity and knowledge about the cruise is high	4.62	2.166		0.979		

Consequently, the scales show adequate reliability and internal consistency. All measurement items present standardised loading estimates ranging from 0.814 to 0.978, indicating the convergent validity of the measurement model. To test the discriminant validity amongst the items, we performed an exploratory factor analysis and Pearson's correlation matrix. Overall, the measurement results are satisfactory and suggest that it is appropriate to proceed with the regression models.

4. Results

After the factor analysis, we used the extracted factors to investigate their impact on the intention to cruise. We examined the correlations between the predictor variables, which Table 3 presents. The correlations between INT and the other variables are strong, except for CROW (-0.036 ; p -value > 0.05).

We, therefore, built several multiple regression models, adding the factors one by one, to identify the incremental change of explanatory power of each variable (Table 4). For identifying which factors best predict the intention to cruise, we performed a stepwise regression model. The stepwise regression starts with no candidate predictive variables in the model, testing the addition of each variable using the R^2 test.

Amongst the factors, trust (TRUST) presents the greatest influence on the intention to cruise (Model 1: adjusted $R^2 = 0.444$), showing that such intention increases when consumers trust a cruise company, even in this pandemic situation (TRUST = 0.667; p -value < 0.01). However, when the other factors were added, the significance of TRUST in explaining the intention to take a cruise progressively decreased (from Models 1 to 5). The introduction of social motivation (MOTIS) and perceived health risk (RISK) in Model 3 contributes to enhance the explanatory power of the regression (adjusted $R^2 = 0.544$) and reveals a significant negative effect of RISK, as expected. The introduction of CONFID (Model 4) enhances the influence of RISK on the intention to cruise (-0.270 ; p -value < 0.01), while, in Model 5, REP presents a significant positive impact on the dependent variable (0.205; p -value < 0.01), but seems to lessen TRUST's significance (0.217; p -value < 0.01).

Model 6 considers all the independent variables' impact on the intention to cruise. The regression results show the variables' overall high significance (F statistics = 118.255, $p < 0.01$) and good explanatory power (adjusted $R^2 = 0.569$). In particular, trust in the company (TRUST), reputation (REP), self-confidence (CONFID) and social motivation (MOTIS) have a highly significant positive impact on the intention to cruise (INT), while, as predicted, the perceived health risk (RISK) affects this intention negatively. We instead fail to find any relation between the perceived crowding (CROW) and cruisers' intention to travel, even if, as

Variable	INT	CROW	RISK	TRUST	REP	MOTIS	CONFID	FAM	CRUISER
INT	1								
CROW	-0.036	1							
RISK	-0.195**	0.603**	1						
TRUST	0.667**	0.091*	0.008	1					
REP	0.665**	0.153**	0.031	0.846**	1				
MOTIS	0.616**	0.146**	0.115	0.691	0.713	1			
CONFID	0.584**	0.305**	0.201**	0.699**	0.708**	0.723**	1		
FAM	0.568**	0.124*	0.038	0.616	0.544	0.586	0.697	1	
CRUISER	0.333**	-0.018	-0.069	0.240	0.189	0.271	0.302	0.547	1

Notes: **. Significant at 0.01 (one-tail); *. Significant at 0.05 (one-tail) (Pearson's index)

Table 3.
Correlation matrix

Table 4.
Regression models

Variable	Model							
	1	2	3	4	5	6	7	8
<i>TRUST</i>	0.667*** (20.623)	0.462*** (10.762)	0.429*** (10.540)	0.344*** (7.781)	0.217*** (3.868)	0.213*** (3.755)	0.161*** (2.815)	0.169*** (2.960)
<i>MOTIS</i>		0.297*** (6.928)	0.347*** (8.462)	0.255*** (5.683)	0.218*** (4.777)	0.215*** (4.682)	0.195*** (4.277)	0.189*** (4.168)
<i>RISK</i>			-0.238*** (-8.048)	-0.270*** (-9.034)	-0.265*** (-8.943)	-0.251*** (-6.942)	-0.239*** (-6.678)	-0.233*** (-6.526)
<i>CONFID</i>				0.213*** (4.567)	0.182*** (3.875)	0.198*** (3.927)	0.099* (1.883)	0.103** (1.971)
<i>REP</i>					0.205*** (3.565)	0.209*** (3.614)	0.240*** (4.174)	0.249*** (4.340)
<i>CROW</i>						-0.025 (-0.673)	-0.023 (-0.615)	-0.020 (-0.549)
<i>FAM</i>							0.167*** (4.061)	0.110** (2.362)
<i>CRUISER</i>								0.087** (2.541)
Constant	4.702E-16 (0.000)	3.228E-16 (0.000)	3.081E-16 (0.000)	3.687E-16 (0.000)	3.307E-16 (0.000)	3.348E-16 (0.000)	1.195E-16 (0.000)	-0.128 (-2.223)
Observations	553	553	553	553	553	553	553	553
Adjusted R^2	0.444	0.489	0.544	0.560	0.570	0.569	0.582	0.586
F-statistics	425.319***	255.477***	212.398***	170.495***	141.963***	118.255***	106.701***	95.141***

Notes: *T*-statistics are shown in brackets. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

expected, the sign is negative ($CROW = -0.025$).

In Model 7, where the control variable FAM is inserted, the significance of the analysis increases (Adjusted $R^2 = 0.582$; $\Delta R^2 0.013$). Such factor has a positive impact ($FAM = 0.167$; p -value < 0.01) on the intention to cruise, but seems to lessen self-confidence's significance ($CONFID = 0.099$; p -value < 0.1).

In Model 8, we also controlled for the cruisers' past experience (CRUISER), in which we searched for differences between "no repeat cruisers" (those who went on less than two cruises) and "repeat cruisers", to obtain additional information on the results' robustness. The model's significance increased when we inserted the variable CRUISER, reaching an Adjusted R^2 of 0.586. Model 8's results did not change in terms of the variables' significance. RISK continues to have a highly significant negative influence on intention to cruise ($RISK = -0.233$; p -value < 0.01), while REP, TRUST and MOTIS have, as predicted, a significant positive effect. In addition, CONFID is significant, although at a lower level and has a positive influence ($CONFID = 0.103$; p -value < 0.05). $H2$ – $H6$ are therefore, accepted. $H1$, on the other hand, is not accepted, as the relationship is not significant ($CROW = -0.020$; p -value > 0.1).

The two inserted control variables have a positive effect on the intention to cruise and their significance is good ($FAM = 0.110$; p -value < 0.05 and $CRUISER = 0.087$; p -value < 0.05). CRUISER's result is very interesting, meaning that there are some differences between the no repeat cruisers' and repeat cruisers' intention to go on a cruise. The literature on cruise tourism has investigated the differences between the two groups in terms of their future intentions, word of mouth (WOM), motivations, price sensitivity and money spent (Li and Petrick, 2008; Jones, 2011). Consequently, it is worthwhile investigating whether the intention to cruise varies between the two sub-samples and whether the aforementioned predictors work similarly.

In the first post hoc analysis, we, therefore, split the sample into two groups ("no repeat cruisers" and "repeat cruisers") and developed another two regression Models (9 and 10) for the two sub-samples (Appendix 2). The two models have a good level of significance, reaching an adjusted R^2 of 0.571 and 0.514, respectively. Reputation and risk (in a negative way) seem to influence expert cruisers' intentions more. The "no repeat cruisers" model revealed that trust in the company and social motivation have a strong positive effect, which is contrary to risk's significant negative effect. Crowding continues to have no effect in both the sub-samples.

We further divided the no repeat cruisers into two groups, namely, "potential cruisers" ($N = 86$) and "first-time cruisers (only one cruise taken)" ($N = 81$). Although the sample sizes are very limited, we explored another two regression Models (11 and 12). The two models have a good level of significance. The potential cruisers model revealed that social motivation has a stronger positive effect on the intention to cruise followed by self-confidence and risk (negative). For first-time cruisers, trust in the cruise company and self-confidence are good predictors of the intention to cruise (Appendix 3).

5. Conclusions and discussions

5.1 Conclusions

This study shed light on how cruisers (no repeaters and repeaters) perceive and react to the COVID-19 pandemic event, particularly in terms of their intention to go on a cruise in future. Given the severity of COVID-19's impact on the cruise industry, an understanding of these issues is urgently required to guarantee this industry's recovery. We decided to focus on intention to cruise, as a good demand is the first factor to ensure cruises' future (Soulard and Petrick, 2016). We, thus, investigated how the perception of crowding, the health risk, the

corporate reputation and trust, together with social motivation and self-confidence influence intention to cruise during this pandemic period.

Although social distance is one of the most important issues that reduce the risk related to COVID-19, the perceived crowding during a cruise does not seem to influence people's intention to cruise. *H1* is, therefore, rejected. It is well-known that cruise ships and vacations (especially in the mass market) are normally crowded and, analogously to other entertainment services, crowding is not considered completely negative, as it is a "part of the game". Moreover, social gathering is one of the most important factors that influence people's attitudes towards a cruise vacation positively. Our results found that this reason is probably more important than the social distance issue in terms of intention to cruise during the COVID-19 time.

Conversely, a high health risk perception (RISK) seems to diminish the intention to cruise, confirming *H2*. This result is congruent with previous literature on the role of risk perception during crises (Henthorne *et al.*, 2013; Jonas *et al.*, 2011) and with studies focussed on health risks in tourism (Bowen *et al.*, 2014; Liu *et al.*, 2016; Mizrahi and Fuchs, 2016). As expected, the health concern related to COVID-19 creates negative emotions associated with anxiety, insecurity and fear, which have a deterring impact on cruisers' intention to travel.

Trust in the cruise company (TRUST) is confirmed as a positive important predictor of the intention to cruise (*H3* accepted) because it reduces the perceived risk level (Laroche *et al.*, 2004). It is true that trust in the company could probably compensate for an "external risk", such as the health risk related to COVID-19, which is difficult to manage, by means of a "relational risk", which is much more manageable. Bialaszewski and Giallourakis (1985) defined trust as an attitude displayed in situations where a person relying on another person is risking something of value. During the COVID-19 situation, cruisers relied on the cruise companies, thus risking their health.

A cruise line's prior good reputation might influence potential customers' future cruising decisions after a critical event such as COVID-19. In particular, as several studies have already found, a cruise company's previous good reputation (REP) reduces the likelihood of a critical event affecting customers' intention to cruise (Coombs and Holladay, 2007), thus confirming *H4*. The result is consistent with marketing scholars' observations that consumers' intention to purchase after a critical event increases if the company's corporate reputation is good (Laufer and Coombs, 2006; Penco *et al.*, 2019; Siomkos, 1999). A positive prior corporate reputation will probably reduce the risk perception, increasing a positive attitude towards the company (Jin *et al.*, 2010). A good company reputation might support consumers' confidence in a company and its products/services (Souiden and Pons, 2009), leading to consumers' information processing being biased, which might lead them to discount or minimise negative news about a critical event (Cleeren *et al.*, 2008), even if this is related to a global pandemic.

Even in a pandemic situation, MOTIS influences INT positively, confirming *H5*. Social motivation is indeed the second factor which presents a greater influence on the intention to cruise. Prior literature on cruise motivations found that cruising is a vacation where customers research social gatherings, especially those in the cruise mass market. Consequently, crowding is not normally considered negative and congestion is less likely to cause annoyance (Kwortnik, 2008; Mahadevan and Chang, 2017). Cruise motivations do not seem to change much during a health crisis, which is, perhaps, why customers tolerate crowding more on cruises than in other hospitality services, explaining the unexpected finding regarding crowding.

Our findings demonstrate that self-confidence (CONFID) enhances the intention to cruise, confirming previous literature's results (Dickman, 2003). *H6* is therefore, accepted. If cruisers are self-confident about their ability to find information and to evaluate the risks

related to the situation, this awareness influences their intention to buy a cruise positively. The role of the control variables is interesting. The level of familiarity affects INT moderately, confirming that good knowledge of a cruise vacation is a positive predictor of customers' intention to cruise.

The post hoc analyses (Appendixes 2 and 3) present intriguing results. No repeat cruisers and repeat cruisers consistently revealed differences in their intention to cruise: the mean of the intention to cruise is 5.1 for repeaters, 4 for cruisers with 1 cruise taken, but only 3.45 for potential cruisers. Literature has found that individuals who have been on cruises before tend to have a higher level of knowledge of cruise safety but also tend to perceive cruise travel as safer than those who have never been on a cruise (Baker and Stockton, 2013; Liu-Lastres *et al.*, 2019). The less experienced cruisers consider TRUST the strongest influencing factor on INT. Trust plays a "risk absorption" role, especially for less experienced cruisers, by reducing their level of uncertainty (Luhmann, 1979, 1991; Mishra, 1996). In other words, if you do not know the cruise industry well, you need to trust the company. Social motivation also seems an important variable for no repeat cruisers: the willingness to meet other people and strengthening a friendship or a relationship seems to lessen the high perceived health risk.

Reputation (REP) is the most important predictor for expert cruisers. These cruisers consult blogs and social networks and are more aware of cruise lines' reputations than less experienced ones. As confidence is an important factor in the creation of the trust (Morgan and Hunt, 1994), a strong corporate reputation can strengthen customers' confidence and reduce consumers' risk perceptions when they assess the organisational performance and the products or services' quality. The final post hoc analyses, focussed on the "no repeat cruisers", enrich the previous implications: for "potential cruisers", the research of social motivation seems to lessen their risk perception. For "first-time cruisers (only 1 cruise taken)", instead, trust in the cruise company and self-confidence are good predictors of their intention to cruise.

Based on these findings, we describe the various implications from a theoretical and a practical perspective.

5.2 Theoretical implications

Pandemic events (e.g. SARS, bird flu and Ebola) have been studied in crisis management and tourism literature, but there is only a rather limited specific focus on the cruise industry (Liu *et al.*, 2016; Mileski *et al.*, 2014), especially regarding the analysis of such events' consequences for consumers and for the company (Liu-Lastres *et al.*, 2019). The present study contributes to this underdeveloped area of research, highlighting the variables related to future cruisers' intentions to cruise during the COVID-19 pandemic.

Moreover, this analysis contributes to the crowding literature in the cruise context (Chen *et al.*, 2016; Han and Hyun, 2019; Hyun and Kim, 2015; Kwortnik, 2008; Mahadevan and Chang, 2017), which is mostly focussed on the negative crowding effect on cruise destinations (Jacobsen *et al.*, 2019). This is the first study that endeavours to understand the importance of crowding on cruise ships and during cruise services, as well as the relationship between perceived crowding and future intentions to cruise. During the COVID-19 pandemic, crowding's effects on passengers could be severe; consequently, it is important to study this issue in the tourism management area.

From an academic perspective, the study also expands tourism management studies by analysing how trust in and the reputation of cruise lines can reduce the likelihood of the public's future cruise decisions being influenced during and after a pandemic. Our contribution supports the role of corporate trust (Coleman, 1990; Luhmann, 1979) and a

cruise line's reputation (Coombs and Holladay, 2007; Siomkos, 1999), both of which reinforce consumers' intention to go on a cruise and decrease COVID-19's perceived risk.

Given that reputation has a greater influence on more expert cruisers' intention to cruise during a pandemic, these findings could also enrich the crisis management and communication literature by inspiring crisis communication strategies that fit the different consumer groups best. In addition, the outcomes of the analysis reinforce those studies that paid specific attention to corporate reputation and image during a crisis and underline that the two constructs are useful tools for decreasing a critical event's negative pressure (Souiden and Pons, 2009). Finally, the study enriches tourism management literature on cruisers' motivations by underlining the role of social motivation, which seems to lessen consumers' perception of the risk that the lack of "social distancing" plays in the COVID-19 era. This is, as far we know, the first study to try to understand the relationship between social motivation and tourism risk.

5.3 Practical implications

Cruise-critical events are usually very serious, attracting international media's attention. The cruise industry is currently suffering enormously from the COVID-19 pandemic's negative economic repercussions. Further, the pandemic's negative effects on the EU economy are unprecedented in the continent's history. Intention to cruise is the first driver of recovery from a critical event (Penco *et al.*, 2018; Soulard and Petrick, 2016); consequently, this study helps managers understand COVID-19's impact on consumers' intention to cruise enabling them to minimise this impact on their companies. Cruising is first of all associated with the social distancing problem, which is considered one of the most important tools to avoid COVID-19 infection.

From our research, cruisers do not seem to be concerned about human crowding during a cruise. As crowding's direct impact on intention to cruise does not appear to be significant, perceived crowding and social distancing are a problem for cruise companies if they are to avoid future quarantined ships, damage in terms of their legal responsibility and a negative image. Cruise lines need to implement a number of health and safety procedures to reduce the chances of COVID-19 spreading through a ship by following the CDC's and National Ministries' recommendations. Cruise companies have to reinvent how their passengers move on their ships and interact with other cruisers and crew, creating new logistic paths and substituting their recreational services with other forms of relaxation. Moreover, cruise lines must plan architectural interventions to revamp all highly trafficked areas (e.g. restaurants and buffets, pubs and discos). Before undertaking these interventions, cruise managers need to involve cruisers to identify the proper tools to use for education about a pandemic, thus preventing the risk of future quarantines, without creating a higher risk perception or fear, which might have a negative impact on their future intention to cruise.

Repeaters are mainly "ready to cruise" because of their wide experience and knowledge of the cruise product, the cruise line's reputation and their trust in the company. For less experienced cruisers, trust and self-confidence have a stronger influence on their intentions to cruise; however, they seem less likely to do so in this period. The latter could create a problem for cruise companies in terms of their capacity and revenue management. Repeaters represent 55% of the Italian cruise market, but they only fill 40% of cruise ships' capacity, which leaves cruise companies with a breakeven-point problem.

A pandemic event could have a negative effect on people's intention to cruise in the future, which could also lead to the spread of negative WOM; consequently, cruise managers should use crisis response strategies to lessen their effects. It is, therefore, important for cruise managers to detect and manage the most important factors that nurture repeaters and attract less experienced cruisers. As the model has identified the most important influencing factors, cruise companies

should shape the content of their crisis communication by emphasizing those factors and should specifically invest in creating and maintaining the trust and a good corporate reputation. By taking the differences between less expert cruisers and repeat cruiser (trust vs reputation) into account, cruise managers should create a tailor-made communication for each targeted audience: enhance the less expert cruisers' trust in the company and in the cruise as a whole and, for repeat cruisers, reinforce the cruise company's reputation.

According to [Soulard and Petrick \(2016\)](#), managers should use expert cruisers who are familiar with and well-informed about cruises to share their positive opinion about cruising's safety. Expert cruisers could, especially during crisis events, be involved as activists on online forums and other social media. These "testimonials" could reinforce trust in the entire industry and in the company's reputation. Expert cruisers are ideal communicators to use with potential, first cruisers and other repeaters because they act as a shield against damaging opinions and dwindling purchase intentions. Another problem is cruise companies' relationship with destinations. Communicating, also through experienced cruisers, that cruises could be made as safe as other vacations, should encourage local communities and public bodies to support them.

From a broader perspective, this paper has implications for the entire society. Given that a cruise package is a mix of several services (e.g. restaurant, hotellerie, entertainment and retailing), it could serve as a laboratory for other sectors, helping service organisations understand the most important factors that facilitate or inhibit the intention to use services during the COVID-19 pandemic. Finally, the focus on the cruise industry sheds light on the global mass-tourism problem, as mass-tourism has proved to be fragile and unreliable, leading to a debate on more responsible tourism and on the development of more economically equitable, as well as more socially and more environmentally sustainable, hospitality services ([Jones and Comfort, 2020](#)).

5.4 Limitations

This study has some limitations. Firstly, the empirical study focusses only on Italian respondents. Secondly, the data collection method was internet-based and mainly directed at the Facebook pages of cruisers and a cruise blog. Consequently, the sample population might not accurately reflect cruise ship passengers' demographics and, specifically, potential cruisers' role. Future studies should include other research instruments that resemble the current cruising population more closely. The data collected for this study reflect people's attitude towards and intention to cruise during the present COVID-19 outbreak, without any comparison with previous scenarios without pandemic situations. Experimental research could help enhance this research's validity. Moreover, although many studies have used multiple regressions to analyse intentions to buy, a structural equation model could further enhance the findings' validity to detect latent variables and more complex relationships. Finally, this study is only focussed on the demand and does not analyse corporate communication's role in shaping consumers' attitude or local destinations' possible restrictions on mega-ships and the cruise tourism in general.

5.5 Future research

This study suggests the need for more pandemic education and related health risk communication. Future studies should include research focussed on different countries. Moreover, future research should focus on the disparity between the attitude of passengers on larger ships versus those on smaller/luxury cruise ships. As perceived crowding perceptions might also be relevant for crewmembers, future studies should also focus on them, to understand the effect of crowding, trust and their company's reputation on their risk perception. Additionally,

it could be interesting to investigate interpersonal trust's role because it is one of the drivers that influence concerns about crowding and social distancing behaviour. Finally, future studies could include an observational component to measure actual behaviours, as observational studies could help reduce the risk of self-reporting bias because self-reporting measures do not always reflect actual protection motivation behaviour. According to Wen *et al.* (2020), the implementation of interdisciplinary research on neurosciences and psychology sciences could have important results, such as evaluating future vaccinations' role.

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Further reading

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Appendix 1

Study	Context and research	Crisis	Crowd			Other Profiles	INT	Sector	Trust Comp.	Staff	RISK	REP	MOT	Others
			Spatial	Human	Overall									
Our study	Cruise (533 Italian cruises)	X		X		Shipscape	X	X	X	X	X	X	Self-confidence, familiarity, past experience Conservation attitude	
Ávila-Fontc et al. (2013)	Vessel (410 whale watching tourists)			X			X					X	Anticipated loneliness; evaluation	
Her and Seo (2018)	Restaurant (248 solo diners)		X				X						Emotions: pleasure, arousal and dominance; desire for privacy	
Hwang et al. (2012)	Restaurant (61 students)		X				X					X	Power and promotional cues	
Hwang et al. (2020)	Restaurant (181 US solo consumers)		X				X					X	Need for uniqueness	
Hyun and Kim (2015)	Cruise (342 luxury cruises)		X									X	Power	
Jang et al. (2015)	Restaurant (500 consumers)		X				X		X		X	X	Emotions: negative and positive	
Kim et al. (2016)	Festival (423 visitors)	X	X											
Kwortnik (2008)	Cruise (260 cruises)	X	X	X		Shipscape	X					X	Attitude to cruise	
Mahadevan and Chang (2017)	Cruise (162 Canadian consumers)					Shipscape	X			X	X	X	Goal (utilitarian/edonic)	
Noone and Mattila (2008)	Restaurant (198 students)	X	X	X			X			X	X	X	Demographics/ski level/social behaviour	
Pikkemaat et al. (2020)	Sky area (27 in-depth interviews)	X		X		Skiscape (restaurant)							National culture	
Pons et al. (2006)	Disco (226 Canadian undergraduates and 244 Lebanese undergraduates)	X (personal space)	X										Perceived service encounter/perceived pace	
Song and Noone (2017)	Restaurant (215 individuals)	X							X					
Tse et al. (2002)	Restaurant (300 inhabitants)			X										
Zehrer and Raich (2016)	Winter sport setting (285 visitors)			X										

Table A1. Literature review

Appendix 2. First post hoc analysis

The sample was split into two groups, namely, “no repeat cruisers” and “repeat cruisers”. The sample sizes of the two groups were 167 (less experienced cruisers, with 0 cruises taken, but interested in cruising, and 1 previous cruise) and 366 (highly experienced or repeat cruisers, with 2 or more previous cruises). On the basis of this distinction, two regression models were built. Model 9 includes only the sub-sample “no repeat cruisers”, while Model 10 includes the “repeat cruisers”.

Variable	Model	
	9	10
<i>CROW</i>	-0.039 (-0.601)	-0.014 (-0.297)
<i>RISK</i>	-0.164** (-2.584)	-0.273*** (-5.753)
<i>TRUST</i>	0.298*** (3.190)	0.149** (2.023)
<i>REP</i>	0.123 (1.334)	0.329*** (4.134)
<i>MOTIS</i>	0.269*** (3.676)	0.156** (2.554)
<i>CONFID</i>	0.187** (2.563)	0.134** (2.023)
Constant	-0.175 (-3.315)	0.090 (2.492)
Observations	167	366
Adjusted R^2	0.571	0.514
<i>F</i> -statistics	37.779***	65.233***

Table A2.
Models 9 and 10

Notes: *T*-statistics are shown in brackets. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Appendix 3. Second post hoc analysis

The no repeat cruisers were split into two groups, namely, “potential cruisers” ($N = 86$) and “first-time cruisers” (only one cruise taken $N = 81$). Although the sample sizes were limited, we explored another two regression models (11 and 12). The two models have a good level of significance, reaching an Adjusted R^2 of 0.536 and 0.583, respectively. The potential cruisers model revealed that social motivation and risk have a stronger positive effect.

For first-time cruisers, who have only a little experience of a cruise vacation, the role of *TRUST* in and *REP* of the cruise company, as well as the role of self-confidence, is higher than for potential cruisers.

Variable	Model	
	11	12
<i>CROW</i>	-0.134 (-1.344)	0.012 (-0.121)
<i>RISK</i>	-0.184** (-2.052)	-0.135 (-1.414)
<i>TRUST</i>	0.195 (1.130)	0.354*** (3.033)
<i>REP</i>	0.177 (1.087)	0.163 (1.216)
<i>MOTIS</i>	0.320*** (3.276)	0.129 (1.097)
<i>CONFID</i>	0.191* (1.872)	0.235** (2.004)
Constant	-0.178 (-2.229)	-0.153 (-1.987)
Observations	86	81
Adjusted R^2	0.536	0.583
<i>F</i> -statistics	17.332***	19.654***

Table A3.
Models 11 and 12

Notes: *T*-statistics are shown in brackets. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

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