

The Relationship between Crowding and Perceived Health Risk in the COVID-19 Era*

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Abstract

The current COVID-19 pandemic, and the related social distancing policies adopted in many countries, are deeply affecting consumers' perceptions towards crowding. This study tries to understand in particular if the perceived human and spatial crowding might increase consumers' health risk, with an impact on intentions to buy, and if corporate reputation can reduce such impact.

As tourism and hospitality is one the sectors most susceptible to the current COVID-19 health crisis, we focus our empirical study on the cruise industry.

The empirical study was conducted on a sample of cruise passengers using a structured questionnaire submitted online. Overall, 447 individuals' responses were used for understanding such relationships by performing a regression model.

The results indicate that both human and spatial crowding seem to influence people's perceived health risk, while corporate reputation does not seem to reduce such deterring impact.

The study presents several managerial implications for different service industries, as in the cruise package the customer can find many different services, from restaurant to shopping. The results, in fact, may be useful for better understanding how to cope with COVID-19.

Keywords: Health Risk; Crowding; Corporate Reputation; COVID-19; Hospitality and Tourism; Global Markets

1. COVID-19 and the Increasing Relevance of Social Distancing in the Tourism and Hospitality Sector

On March 11th, 2020, the World Health Organization (WHO) declared COVID-19 crisis a pandemic. Since then, the rapid worldwide outbreak of the novel coronavirus has triggered an alarming global health crisis (Kraus et al., 2020; Zheng et al., 2020). At the beginning of October 2020, we had over 39 million people infected and more than 1 million deaths across the globe¹. With no vaccines or antiviral drugs, most

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Governments at a global level have imposed social distancing to slow down the transmission and spread of the coronavirus, which is referred to a wide portfolio of prevention activities (e.g. voluntary or mandatory self-quarantine, smart working, service at a distance) (Tuzovic et al., 2020).

Consistently with these social distancing policies, people have been encouraged to avoid mass gatherings. Several regions and entire countries have been entirely locked down with the implementation of a full curfew. These severe measures were aimed to reduce avoidable social contacts as much as possible to prevent a rapid spread of the coronavirus and to avoid that public health systems are not overcome beyond their capacity systems (Dominic et al., 2020). Lockdowns usually required closing of non-essential businesses and limiting operations of essential businesses (Kirk, 2020). Enforced or recommended lockdown and “stay-at-home” policies for the general population are currently in place in more than half of EU/EEA countries and the UK (17 countries out of 31, 55%) and eighteen countries present “stay-at-home” recommendations for risk groups (18 countries out of 31, 58%) (ECDC, 2020).

Non-essential businesses generally include entertainment services like movie theaters, stadiums, no-food retailers. The organization of essential businesses, like grocery stores, required to change the way they serve their customers (Tuzovic et al., 2020). Restaurants and cafes have been forced to close and most of them changed the business model, turning into home delivery or shops that sell prepared meal (Nicola et al., 2020). Moreover, densely crowded places (e.g. schools, universities, government offices, libraries, museums, and factories) have been closed at the peak of the outbreak. Taking in account these premises, the present COVID-19 pandemic stimulates the interest about crowding and its impact on the perceived health risk.

□ *During the pandemic, crowding is probably increasing consumers' perception of health risk, which is a multi-faceted construct (Roehl & Fessenmaier, 1992; Le & Arcodia, 2018) that creates negative emotions related to anxiety, insecurity and fear about the consequences.*

In this vein, this paper tries to investigate how the perceived crowding can influence the risk perceptions related to COVID-19 infection, focusing on the tourism domain.

□ *Tourism and hospitality, in fact, has been the worst affected of all major economic sectors (Wen et al., 2020), as being a non-essential business related to people mobility, with a high risk of mass gatherings and it may represent an ideal setting of analysis. Tourism and hospitality services are currently considered dangerous, since they can increase the risk of getting COVID-19, facilitating the spread of the virus, thanks to the close contacts with others or the use of shared public facilities (like restrooms or picnic areas).*

CDC (2020) assessed the different tourism and hospitality activities, identifying the progression of risk (Table 1); the principle is that “the more an individual interacts with others, and the longer that interaction, the higher the risk of COVID-19 spread” (CDC, 2020).

Table 1: *Risk and Tourism and Hospitality Activities* ^{2,3}

	Lower Risk	More Risk	Even More Risk	Highest risk
Transport/ travel	<p>Staying home is the best way to protect yourself and others from COVID-19.</p> <p>Short trips by car with members of your household with no stops along the way</p>	<p>Longer trips by car or RV with one or more stops along the way</p>	<p>Trips by car or RV with people who are not in your household</p> <p>Long-distance train or bus trips</p> <p>Direct flights</p>	<p>Flights with layovers</p> <p>Traveling on a cruise ship or river boat</p>
Lodgings/ hotellerie	<p>Staying home is the best way to protect yourself and others from COVID-19</p>	<p>A house or cabin with people from your household (e.g., vacation rentals)</p>	<p>Hotels or multi-unit guest lodgings (e.g., bed and breakfasts)</p> <p>Staying at a family member's or friend's home</p> <p>A house or cabin with people that are not in your household</p>	<p>Shared spaces with many people and shared bathroom facilities (e.g., dormitory-style hostels)</p>
Food/ restaurant	<p>Bringing your own food and drinks</p> <p>Using drive-through, delivery, and curbside pick-up options</p> <p>Wear a mask when interacting with restaurant employees</p>	<p>Picking up take-out food or drink inside of a restaurant</p> <p>Eating outside at a restaurant where:</p> <ul style="list-style-type: none"> - Distancing at least 6 feet is possible; - Servers and other restaurant staff wear masks; - Diners wear masks when not eating or drinking <p>Self-service options that minimize touching of surfaces, such as touchless drink dispensers</p>	<p>Eating inside at a restaurant where:</p> <ul style="list-style-type: none"> - Dining area is well ventilated; - Distancing at least 6 feet is possible; - Servers and other restaurant staff wear masks; - Diners wear masks when not eating or drinking <p>Self-service options that require limited touching of surfaces, such as touch-screen drink dispensers or use of touchpads for ordering</p>	<p>Eating inside at a restaurant where:</p> <ul style="list-style-type: none"> - Dining area is poorly ventilated; - Distancing at least 6 feet is not possible; - Where servers and restaurant staff do not wear masks; - Diners do not wear masks <p>Self-service options that require extensive touching of surfaces, such as buffets</p>
Camping	<p>Staying home is the best way to protect yourself and others from COVID-19</p>	<p>Camping with people from your household only and not sharing facilities with persons outside of your household</p> <p>All wear masks when interacting with people they do not live with</p>	<p>Camping with people from your household only, but sharing facilities with people outside of your household, where distancing at least 6 feet is possible</p> <p>Camping with friends or family who are not in your household and sharing tents or cabins with them</p> <p>Most (not all) wear a mask when interacting with people they do not live with</p>	<p>Camping in large dormitory-style settings with many people and shared facilities</p> <p>Few wear a mask when interacting with people they do not live with</p>

Source: Our elaboration from CDC (2020 – accessed 24th October).

In order to focus on the relationship between crowding and perceived health risk, we address:

- the crowding literature (Erouglu & Machleit, 1990; Her & Seo, 2018; Hwang, et al. 2020; Jang et al. 2015; Machleit et al, 2000; Noone, & Mattila, 2009;Stokols, 1972), together with
- the research on the perception of risk within the hospitality and tourism literature (Ahola et al., 2014; Baker & Stockton, 2013; Henthorne et al., 2013; Le & Arcodia 2018; Liu et al., 2016; Liu-Lastres & Schroeder, 2019), and
- the psychology studies, which provide comprehensive evidence that a pathogen threat shapes people behaviour (Wang & Ackerman, 2019).

To the best of our knowledge, this is the first study to study a direct relationship between the perceived crowding and the perceived health perception during the COVID-19 era. Moreover, as corporate reputation has been found to strengthen customers' confidence and reduce risk perceptions (Wu et al., 2018) in critical situations, the paper addresses also if this variable may have an influence in reducing the perceived risk.

In seeking to focus on the aforementioned issues, our study contributes to the literature in several ways:

- First, it adds to the relatively limited research on crowding and health-related risk perceptions, associated with emerging crisis issues on individuals' evaluation of perceived safety (Liu et al., 2016; Liu et al., 2017; Liu-Lastres et al., 2019), thus advancing our understanding of this issue, so important in the present pandemic era.
- Second, the study advances crowding literature, in a context as tourism and hospitality industry, in which space and human interactions may be very critical. Understanding the altered customers' psyches will be a crucial success factor for both tourism researchers and businesses during and after the COVID-19 era.

The results have also significant practical implications for service companies, thus helping them to manage the space and the social interaction within their service factory, together with risk perceptions and corporate reputation, which may be useful for the communication strategies in the post pandemic period.

The remainder of this paper is organized as follows. Section 2 addresses the extant literature on crowding, risk perception and reputation providing the theoretical framework. Section 3 describes the application of this framework to the cruise industry, describing the methodology and the main results. Lastly, Section 4 discusses the results, while Section 5 concludes highlighting the emerging issues, in terms of academic and practical implications.

2. The Emergence of the Crowding Concerns and the Impact on Health Risk

2.1 Crowding Effects on Consumers

In the COVID-19 era, as crowding is considered the most source of infection, the interest on the theme is emerging. Addressing the mainstream literature, the contributions on crowding, since the early 70s, are generally related to the study of consumer satisfaction especially in the retail field (Erouglu & Machleit 1990);

Machleit et al., 2000), following the growing spread of superstores and shopping centers (Bellenger et al., 1977). This field was a laboratory for a better definition of the topic. Stokolos (1976), distinguished “density” from “crowding”: if the first derives from a mere “spatial limitation”, the second turns out to be an “experiential state in which the restrictive dynamics of the spatial limitation are perceived by the individuals subjected to the latter” (Stokolos, 1972: p.275). Rapoport’s (1975) defined crowding as “(...) a subjective experience of sensory and social overload” (p.134). In sum, if density is a univariate condition of spatial limitation, crowding is a multivariate phenomenon, resulting from the interaction of spatial, sociological and individual factors.

Crowding effects on consumers have been also studied in the transportation sector (Haywood et al., 2017; Tirachini et al., 2013). In this case, researchers have addressed the discomfort effects associated to crowding, which negatively affect the passenger experience, in terms of: increased anxiety and stress related to proximity to other passengers (Evans & Wener, 2007), propensity to arrive late at work (Mahudin et al., 2011), and a higher perception of risk to personal safety and security (Cox et al., 2006).

In general, the effects of crowding are mainly negative, impacting on the perceived emotions and on the psychological sphere of the individual: thanks to laboratory experiments, a correlation between perceived crowding and shopping satisfaction has been found (Erouglu & Machleit 1990; Machleit et al., 2000). The phenomenon has been split into two components: “spatial crowding” and “human crowding” (Machleit et al., 2000: p. 30). The term spatial crowding refers to the perception of space available to the customer inside a shop or a place. Spatial crowding, therefore, appears to depend not only on the presence of other individuals within the commercial premises, but also on possible physical impediments, as well as restrictions in the space available to the customer. Differently, human crowding refers to the perceptions deriving from the “number of people, as well as the frequency and extent of social interaction between individuals within a given environment” (Machleit et al., 2000, p. 30).

Although with specific reference to spatial crowding, academic research has mostly revealed negative effects on the perceptions and behaviors of individuals; as far as human crowding is concerned, the effects turned out to be mixed and dependent on various factors (Blut & Iyer, 2019). Dense environments may activate the neuropsychological avoidance system, resulting in more avoidance-focused mindsets (Kennedy et al., 2009; Maeng et al., 2013), and response such as coping strategies (Pearlin & Schooler, 1978).

2.2 Crowding and Health Risk

Exploring the extant literature on crowding, the contributions that studied the relationship between crowding and healthy risk have been very limited. The literature on transport has found that a high-density situation, being perceived as crowded, creates a general perceived lack of control, resulting in physical discomfort, psychological burden and perceived risk and insecurity (Cox et al., 2006): crowding may be an antecedent of a perception of risk to personal safety (Cullen, 2001) and especially in relation to train crashes. The perceived risk of injury/fatality is related to overcrowding on the train or platforms (Thomas et al., 2006).

Focusing on a mega event, nevertheless the extant literature is concentrated on the impact of crowding on satisfaction and intention to participate, Liu & Wilson (2014) found that, after a bird flu epidemic, tourists are more aware of the possible health risks associated with attending large-scale, public gatherings. Macintyre & Homel (1997) reported, instead, that, in the nightclubs, an excessive crowding directly leads to increased aggressions through its effects on patron and staff behavior, compromising the safety and the security.

In this vein, crowding has been associated with an increasing in risk perceptions, due to a general perceived lack of control (Langer & Saegert, 1977) and, more specifically, lack of control over proximity to others (Lam et al., 1999; Nicosia et al., 1979) that increases the stress levels of people.

□ *In case of COVID-19, the increased potential for human contacts in dense social environments carries also a higher likelihood of disease transmission, which suggests that people should be averse to socially dense situations. In this sense, it is expected that they will avoid crowded environments that limit people's ability to escape germ exposure and may obscure identification of who, specifically, is infected (Wang & Ackerman, 2019).*

2.3 Crowding in the Hospitality and Tourism Domain: The Effects on Health Risk

The perceived crowding construct has been investigated also in the tourism and hospitality context (Vaske & Shelby, 2008). Concerning the touristic destination, perceived crowding is mainly associated to the concept of over-tourism (Seraphin et al., 2018); these studies are generally referred to urban contexts and natural sites, where the social crowding can negatively affect the quality of the environment and/or the local sociality (Adie et al., 2019; Brondoni, 2016; Neuts, B., & Nijkamp, P. 2012). Focusing instead on the hospitability domain, several studies have underlined the effect of crowding on the consumer attitude, especially in terms of satisfaction (Pikkemaat, et al. 2020; Song & Noone, 2016) and behavioral intention (Ávila-Foucat et al., 2013; Her & Seo, 2018; Jang et al. 2015; Noone & Mattila, 2009), suggesting that consumer response to perceived spatial and human crowding is largely negative. Limited contributions are focused on domains where an accepted level of crowding is higher (Kim et al., 2016; Pons et al. 2006).

The recent COVID-19 pandemic has increased the importance of crowding in the tourism and hospitality sectors. Considering that most of them are characterized by high labor intensity and by a high degree of interaction/customization in the same area, this can create density and crowding problems, especially in terms of human presence, that make the recommended physical and social distance very difficult, probably increasing the perceived health risk of tourists. The present pandemic calls therefore for more research on the relations between crowding and health risk.

Health problems are one of the major risk factors in the tourism industry (Mizrachi & Fuchs, 2016); they are wide and cover issues from sickness due to unfamiliar foreign food or hygiene problems, respiratory diseases, increased stress levels, to viral diseases and global pandemics (Liu & Pennington-Gray, 2015; Liu et al., 2016; Mizrachi & Fuchs, 2016). Moreover, in the last few years, the increasing number of

outbreaks of infectious diseases, such as Ebola, bird flu and Sars, has stressed the importance of safety and security in tourism.

□ *During the COVID-19 outbreak, crowding creates a huge concern because the disease is highly contagious and transmitted through human-to human contact (Chan et al., 2020) and this will increase the negative emotions connected to consumers' health risk perceptions.*

Therefore, following the mainstream literature on crowding in the hospitality and tourism industry, our study proposes that the perceived human and spatial crowding may influence the risk perception, especially during this period where crowding is considered a major health threat. The perception of the violation of personal space may lead to negative emotions and avoidance reactions connected to the feeling of being in an unsafe environment. In other words, crowding could be interpreted one of the most relevant concerns related to health and safety issues. We therefore propose the following hypotheses:

H1: During COVID-19, the perceived human crowding is positively related to the perceived health risk

H2: During COVID -19, the perceived spatial crowding is positively related to the perceived health risk

2.4 The Role of Corporate Reputation

Corporate reputation has been shown to impact stakeholders (Perrini & Vurro, 2014) and consumers' reaction to critical events (Cassano, R., 2020; Laufer & Coombs, 2006). Siomkos & Kurzbard (1994) and Siomkos (1999) found that consumers' intention to purchase after a critical event increased in cases of good corporate reputation.

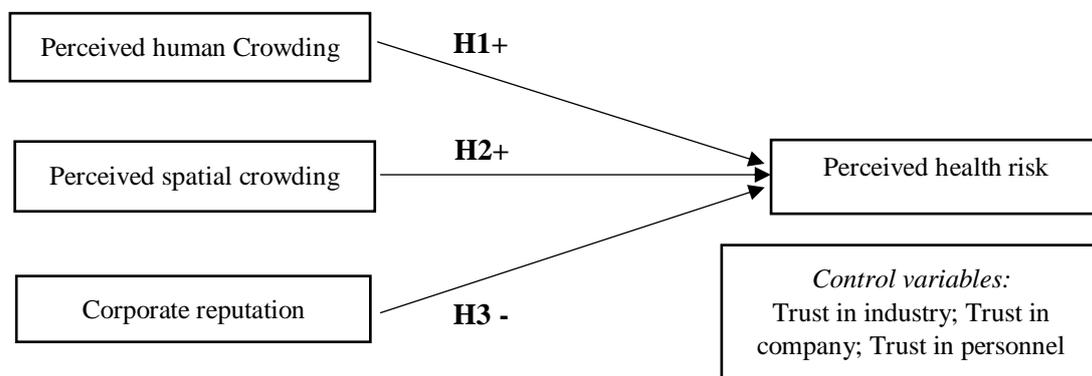
In the tourism and hospitality industry, Petrick (2011) reported that the cruise company's corporate reputation is an important element for strengthen customers' confidence and reduce risk perceptions (Wu et al., 2018). In the same direction, Penco et al. (2019) showed that a prior good reputation is a factor able to mitigate the negative effect of critical events on future decisions to take a cruise, maintaining consumers' confidence in the company and its products/services.

Consumers with a high perception of reputation towards a company are therefore more likely to perceive such organization as trustworthy (Wu et al., 2018). In this vein, we assume that a previous positive corporate reputation will help to lower down the perceived health risk related to the COVID-19 pandemic. A good company reputation might support consumers' confidence in the capacity of a company to implement all the possible actions to mitigate the event (Souiden & Pons, 2009), leading to consumers' information processing being biased; this might lead them to discount or minimize a critical event (Cleeren et al., 2008), even if this is related to a global pandemic. We, therefore, propose the following hypothesis:

H3: During COVID -19, corporate reputation is negatively related to the perceived health risk

The conceptual framework and hypotheses development are depicted in Figure 1. We have also inserted in the model three control variables related to different levels of trust: trust in the industry, trust in the company and trust in the personnel. In this way, we can control the effect of trust on the level of perceived risk. We expect this variable to have an effect on actions and intentions to behave (e.g. to buy, to use) and not directly on perceived risk, that should be directly related to the level of perceived human and spatial crowding and inversely related to company reputation. Trust transforms external risk in relational risk, which is more cognitively manageable and reduces the level of uncertainty: for this reason, we should have an effect of trust on a behavioral variable (such as intention to buy), but not directly on perceived risk.

Figure 1: *The Conceptual Model*



Source: Authors' own elaboration

3. An Application to Tourism and Hospitality: The Case of the Cruise Industry

3.1. The Background: Why Cruise?

The empirical research focuses on the cruise industry, which is an ideal empirical field for investigation (Tuite et al., 2020). First of all, cruises are considered risky since cruise ships are crowded and the large numbers of people in closed or semi-closed settings are likely to generate close contacts. Especially in the cruise mass market, the high number of common areas and volumes of cruisers might lead to human density problems, thus hindering the recommended physical and social distance and making the control of COVID-19 very difficult. Secondly, considering that a cruise vacation is a package composed of several hospitality services (e.g. *hotellerie*, restaurant, gym, pool, theatre), it is an interesting laboratory, whose results can be applicable to several service industries.

3.2. Methods

The research is grounded on an online survey: a structured questionnaire was shared online via a cruise blog and social networks. Overall, 553 individuals participated in the survey, but focusing the attention only on people who has already taken one cruise, and are familiar with the cruise experience, the final sample is 447. The respondents had to answer all the items (perceived health risk; human and spatial

crowding; corporate reputation; trust in cruises, trust in the cruise company, trust in the cruise personnel) on seven-point Likert scales (1 = strongly disagree, 7 = strongly agree), with the exception of the demographic information. In keeping with extant literature, we measured the risk perception (RISK) by taking into account previous literature focused on tourism during a pandemic period (Lee et al., 2012; Novelli et al., 2018). The scales that Machleit et al. (2000) and Hyun & Kim (2015) developed were used to measure the perception of crowding, regarding both people (CROWDPERS) and space (CROWDSP), while items that Siomkos & Kurzbard (1994) adopted were useful to measure corporate reputation (REP). The studies of Bart et al. (2005) and Guenzi et al. (2009) has been followed for the operationalization of three levels of the trust construct (TRUSTCRO; TRUSTCO; TRUSTPERS). In order to validate the scales used for measuring the variables, we performed a confirmatory factor analysis (CFA) on all the questionnaire's constructs, except for the demographics, and we calculated the items' Cronbach's alpha values of each extracted factor. The reliability statistics, measured by the Cronbach's alpha values, ranges from 0.842 to 0.985 for all factors, therefore exceeding the 0.7 rule-of-thumb (Nunnally & Bernstein, 1994).

3.3. Results

After the Factor Analysis, the factors extracted have been used to investigate the impact of crowding and corporate reputation on health risk perception. Thus, a stepwise multiple regression analysis was used to identify which factors best predict cruisers' health risk perceptions.

Stepwise regression is a hybrid forward selection and backward elimination procedure (Jennrich, 1995). It is a validate computer assisted model building method, useful for the examination of consumer behavior (Wang et al., 2005). The stepwise regression starts with no candidate predictive variables in the model, testing the addition of each variable using the R-squared test. After each step in which a variable is added, all candidate variables in the model are checked to see if their significance has been reduced below the tolerance level. If a no significant variable is found, it is removed from the model.

The results of the final regression model, reported in Table 1, show an overall high significance (F ratio = 134.059, $p < .000$) and a good explanatory power (adjusted R-squared = 0.374).

Table 1: Results of Stepwise Regression Analysis for the Perceived Health Risk (RISK)

	Adjusted R ²	Adjusted R ² change	B	Std. error	t	Sig.
	0.374					
CROWDPERS		0.353	0.505	0.044	11.534	.000
CROWDSP		0.021	0.175	0.044	3.994	.000
Excluded variables						
REP			-0.042		-1.089	.277
TRUSTCRU			-0.028		-0.724	.469
TRUSTCO			-0.017		-0.439	.661
TRUSTPERS			0.024		0.615	.539

As can be seen in the table, only the variables “CROWDPERS” and “CROWDSP”, contributed to the dependent variable (RISK). Among the factors, human crowding has the greatest influence on health risk ($B = 0.353$, $p < .000$), showing that the physical contact between people is indeed considered a risky situation in this pandemic. Hypotheses 1 and 2 are therefore accepted. Corporate reputation (REP) instead, unexpectedly, was excluded from the model, as not significant, even if the expected negative sign: H3 may not be accepted. Also, the control variable trust, at the three levels (TRUSTCRU, TRUSTCO and TRUSTPERS), is not significant and excluded from the model.

We then split the sample into three groups, to search for differences among the groups. The respective sample sizes of the three groups were 212 (less experienced or new cruisers, with 1-4 cruise taken), 122 (experienced cruisers, with 5-10 cruises taken) and 113 (high experienced cruises, with more than 10 cruises). On the basis of this distinction, we employed an ANOVA, detecting the differences between the groups regarding the independent variables, crowding and reputation.

4. Discussion

This paper studied how the perceived crowding can influence consumers' risk perceptions related to COVID-19 infection, focusing on the tourism domain. It is in fact well known that tourism and hospitality activities can increase the risk of getting COVID-19, facilitating the spread of the virus.

Leveraging on the crowding, tourism, and psychology literature, we built a model, trying to understand the relationship between crowding perception and perceived health risk, inserting also corporate reputation and trust.

We then applied this model to the cruise industry. We selected the cruise domain since the cruise package is considered a mix of several services (e.g. restaurant, *hotellerie*, entertainment, retailing) and could serve as a laboratory for other industries, helping service organizations to understand the most important factors that affect the perceived risk during the COVID-19 pandemic.

The results confirm that the perceived human and spatial crowding increase the perceived health risk perception during the COVID-19 era. This result is congruent with previous literature on crowding which focused on the perceived lack of control over proximity to others (Langer & Saegert, 1977; Nicosia et al., 1979, Lam et al., 1999).

In the COVID-19 era, perceived crowding creates negative emotions associated with anxiety, insecurity, and fear, which have a deterring impact on cruisers' health risk perceptions. In this sense, will probably avoid crowded environments that limit people's ability to escape germ exposure (Wang & Ackerman, 2019).

The effect of corporate reputation does not reduce the cruiser's perceived risk. Even if a good company reputation might support consumers' confidence in the capacity of a company to implement all the possible actions to mitigate the event, consumers will probably evaluate the pandemic as a very risky event and the structure of the cruise vessels as insufficient to guarantee a safe social distancing. Moreover, also the different levels of trust are not significant, confirming the role of trust as 'risk absorber', by reducing the level of uncertainty (Luhman, 1979, 1991). Since 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 perceived risk, without directly reducing it.

More precisely, we assume that 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 that is something clearly perceived by the demand) by means of a 'relational risk' (commonly defined as vulnerability), which is more cognitively manageable and making possible the act of cruising in presence of external risk (Castaldo, 2007).

5. Conclusions and Emerging Issues

The paper provides insights useful for both scholars and practitioners. Concerning academic implications, the manuscript develops literature on crowding in the tourism and hospitality context (Chen et al., 2016; Han, & Hyun, 2019; Hyun & Kim 2015; Kwortnik, 2008; Mahadevan & Chang, 2017), evaluating its relationship with health risk. Extant literature is focused on the impact on the behavioral intentions, while the relationship between crowding perceptions and the perceived risk during the COVID-19 pandemic is still an unexplored topic both in the strategic management field and in the marketing studies, notwithstanding crowding is one of the principal risk factor.

This paper presents several managerial implications, since it sheds light on the role of crowding in increasing consumers' perceived risk. Hospitality and tourism sectors are currently enormously suffering from the COVID-19 pandemic's negative economic repercussions.

□ *Perceived crowding and social distancing are critical aspects for hospitality and tourism companies, as they need to implement a number of health and safety procedures in order to reduce the chances of COVID-19 spreading. Managers need to educate customers, thus preventing the risk of future infections; they have to reinvent the mobility of their customers and how they interact with other customers and personnel, creating new logistic paths and modifying the relational services.*

Referring to cruise, we also asked the interviewees about the activities they consider dangerous due to the crowding aspects during the COVID-19 pandemic. In general terms, activities that can be developed in closed environments are considered more dangerous (mean: 5.11). Moreover, these activities (measured from 1-7 on a Likert scale) are those requiring closer personal contact such as: nightclubs, pubs, discos and casinos (mean: 4.81), theatres and entertainment (4.75), lunch and dinner (4.48). Terminal (4.84) and excursions (4.28) are considered also dangerous. Focusing on the three groups of respondents, considering their experience with the cruise package, the ANOVA found significant differences between the groups only for the excursions. On the basis of these results, cruise lines, for example, must substitute their recreational services with other forms of relaxation, and plan architectural interventions to revamp each highly trafficked area in which is difficult

to maintain social distancing (e.g., restaurants and buffets, pubs, discos). These issues are applicable also to other businesses within the tourism and hospitality industry.

Moreover, this paper can help the communication managers.

□ *Since the model has found a positive relationship between crowding and risk, the hospitality and tourism companies should shape the content of their crisis communication, specifically investing in communicating the appliance and the respect of the social distancing policies. Focussing only on corporate reputation and trust may not be an effective message in the pandemic period.*

In a broader perspective, underling the importance of crowding during a risky situation such as a pandemic, our research presents a social relevance.

□ *If crowding enhances the perceived risk during the COVID-19, we assume that the risk perception might reduce irrational and imprudent behaviours of people and enhance the adoption of more correct procedures; so, in terms of institutional communication, the image of crowding can be used in order to reduce the usage of irresponsible behaviours.*

Finally, the exploration of the “crowding concern” on cruises helps identify the most important criticisms for each component of the cruise package that corresponds to different tourism and hospitality services. Moreover, the focus on cruises sheds light on the problem of global mass-tourism, which has been proved fragile and unreliable, soliciting the debate on a more responsible tourism and on the re-development of more economically equitable, more socially and more environmentally sustainable hospitality services.

Despite its contributions, the manuscript still suffers some inherent limitations, which might be ironed out in future research. Firstly, the empirical study is focused only on the cruise industry. Further studies are needed in order to extend the scope by investigating other industries within the tourism and hospitality domain. Moreover, this study is only focused on the demand and does not analyze companies’ side as, for example, corporate communication’s role in shaping consumers’ risk perception.

Finally, considering that a pandemic event could have a negative effect on people’s behavioral intentions in future, which could also lead to the spread of negative WOM, further research could help to investigate the impact of risk, corporate reputation and trust on the behavioral intentions. In this vein, experimental research could help to enrich this point. Moreover, although many studies have used multiple regressions for risk perceptions, a structural equation model (SEM) could further enhance the findings’ validity in order to detect latent variables and more complex relationships.

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Notes

¹ <https://www.worldometers.info/coronavirus>

² <https://www.cdc.gov/coronavirus/2019-ncov/travelers/travel-risk.html>

³ <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/business-employers/bars-restaurants.html>