Generation Z: Young People's Perceptions of Cruising Safety, Security and Related Risks

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Truc H. Le and Charles Arcodia

As cruising has become one of the most rapidly growing sectors of tourism, it recently has been experiencing a significant movement in cruise passenger demographics, for which Generation Z is increasingly becoming an appealing market. Previous research has indicated that perception of risks, safety and security is a mediator in the cruising decision-making process, which significantly influences cruising intention and satisfaction. By using an online survey, this empirical study investigated Generation Z's perceptions of safety, security, and risks on cruise ships. The findings highlight this market is concerned about cruise-related accidents, terrorism, piracy and crime, and motion sickness, and to a lesser extent about infection outbreaks and sexually transmissible infections. The findings suggest significant implications of how cruise operators can develop policies, customise on-board mitigation strategies and develop marketing communications to fulfil this market's demand.

Keywords: risk perceptions, risk management, cruise ships, tourism risks, Gen Z

Introduction

The increase in demand for cruising in all markets worldwide signifies that the industry is on an upward trend (Cruise Lines International Association - CLIA, 2019), contributing to increasingly sophisticated passenger expectations and a requirement for higher satisfaction levels during cruise trips. Cruising's rapid growth and progressively sophisticated customer demands suggest that competition within the industry is becoming more intense. This competitiveness prompts significant concerns for cruise operators, who must satisfy their current customers in order to increase customer retention and attract new customers (Baker & Stockton, 2013). To remain viable with this retention rate, it is vital for the cruising business to improve cruise experiences and implement effective marketing strategies.

Previous research found that customer satisfaction and cruising constraints are key variables impacting customer cruise retention (Baker & Stockton, 2013; Bowen, Fidgeon, & Page, 2014; Le & Arcodia, 2018). Moreover, safety and security of cruise passengers play key roles in determining on-board cruise experiences and satisfaction (Bowen et al., 2014), thus influence purchase intentions, and mediate the decision-making processes (Henthorne, George, & Smith, 2013; Le & Arcodia, 2018). As a result, having a thorough understanding of both new and returning passengers, especially their perceptions of risk, safety and security while on a cruise, is a significant success factor for cruise companies who wish to remain competitive.

Characterised by a long period of cohabitation, restricted space and a variety of activities both on-board and at ports of call (Kak, 2007), cruise passengers are exposed to a number of risks on-board, which have commonly been reported and reviewed in the cruising literature: infection outbreaks, sexually transmissible diseases, motion sickness, cruise accidents, and terrorism, piracy, and crime. Nevertheless, very few studies investigate how people perceive risks, safety and security on cruise ships (i.e. Ahola, Murto, Kujala, & Pitkänen, 2014; Baker & Stockton, 2013; Bowen et al., 2014; Henthorne et al., 2013; Le & Arcodia, 2017, 2018; and Neri, Cramer, Vaughan, Vinjé, & Mainzer, 2008). These studies, however, only examine passengers' perceptions of a single risk, so consequently they lack a holistic approach that offers a more comprehensive understanding of risk perceptions from a consumer perspective. This scarcity has posed significant gaps in understanding cruise passengers' behaviour, specifically perceptions of risks, safety and security.

More importantly, the population targeted in the aforementioned studies was cruise passengers in the actual ships, while the investigation among potential cruisers has generally been absent, not to mention the emerging segment of youth markets (Le & Arcodia, 2018). A number of recent studies have indicated that cruisers are becoming younger and have been an attractive market segment (CLIA, 2019; Le & Arcodia, 2017, 2018). Young people regarded in this study are Generation Z/Post-Millennials, who were born from the mid-1990s to the late 2000s (Montana & Petit, 2008; Williams & Page, 2011). According to CLIA (2019), Gen Z (Generation Z) is a new category of cruisers that is set to become the largest consumer generation by the year 2020 and set to outpace even the Millennials. This generation like the Millennials, prefers experiences over material items and is seeking travel to multiple destinations and unique experiences, such as for example, music festivals at sea (CLIA, 2019). In terms of travel motivation, CLIA (2018) points

out that the majority of Millennials and Gen Z cruisers and non-cruisers take cruise vacations to see and do new things and to explore new adventures. In terms of risk-taking behaviour, young people particularly possess different travel motivations and personality traits from the broader population, such as sensation-seeking and a stronger inclination to engage in physical risks (Carr, 2001; Lepp & Gibson, 2003). Further, they are more prone to the sensation seeking phenomenon of 'out of space, out of time, and out of mind' (Pritchard & Morgan, 2006) that can easily distort their risk perceptions and trigger risk-taking behaviour (Berdychevsky & Gibson, 2015). Considering cruisers enjoy travelling in groups (i.e. with friends, companions, spouses and family), and their travel motivation is to have fun and adventure (CLIA, 2018) and to search for authentic experiences (Le, Arcodia, Abreu Novais, & Kralj, 2019), it is therefore imperative to understand how the emerging Gen Z market perceives risks and safety on cruise ships.

Following this, the ensuing inquiry is put forward with the aim of gaining a better understanding of this important cruising market segment: how and to what extent Gen Z perceives safety, security and risks associated with cruise ships. In response to this question, the paper utilises the relationship between the two risk components: uncertainty and adverse consequences (Bauer, 1960; Le & Arcodia, 2018) to approach risk perceptions expressed by Gen Z. Specifically, this study seeks to answer two research questions: (1) to what extent Gen Z feels safe and secure when on a cruise ship; and (2) how Gen Z perceives physical risks on cruise ships. These questions are significant to understand the behaviours of young people and obtain appropriate responses to changes in this market demand.

The next section consists of a brief analytical review of current literature on cruising risk perceptions, and a discussion of risk perception measurement. The methodology used is then explained and the empirical findings are subsequently presented and discussed. Finally, research implications and recommendations for cruise operators are provided.

Literature Review

Defining perception of cruise-related risks

Defining risk perception

Defining risk perception firstly requires the understanding of risk conceptualisation. Risk is defined as the uncertainty of buying a product (Dowling & Staelin, 1994), or the unfavourable outcomes of a purchase (Cunningham, 1967). Above all, however, Dowling (1986) and the

international standard, ISO 31000 (2009) offer a relatively sufficient definition of risk by conceptualising a risk in a combination of the likelihood of occurrence, and the consequences resulting from that event.

The aforementioned risk definition has directed how risk perception is conceptualised in this study. Specifically, this study adopts a similar two-dimensional framework of risk perception proposed by Bauer (1960) including uncertainty and adverse consequences. As risk perception is seen as subjective risk judgments for harmful activities (Slovic, Fischhoff, & Lichtenstein, 1982), the framework proposed by Bauer (1960) is sufficient to conceptualise this somewhat fuzzy consumer behaviour concept (Dowling, 1986). Specifically, Bauer (1960) defines uncertainty as probabilistic beliefs, and adverse consequences as the importance of loss when trying to accomplish a set of buying objectives. Apart from the risk conceptualisation, perceptions of risk can also be defined in terms of multi-faceted types of loss such as social, physical, financial, psychological, and time loss (Dowling, 1986). This study focuses on physical risks since it deals with the loss caused by the surrounding physical environment on the ship, specifically, the five types of physical risks on cruise ships which have attracted research interest over the last decades: infections outbreaks; sexually transmitted infections (STIs); motion sickness; cruise accidents; and terrorism, piracy and crime. This typology of physical risks has been proposed in Le and Arcodia's (2018) conceptual framework.

Types of physical cruise-related risks

Infection outbreaks on cruise ships represent a significant public health issue considering the increasing number of passengers potentially at risk (Mouchtouri et al., 2010). The infectious agents can enter and spread easily through the water and food supply or sanitation systems and result in substantial illness, which is even worse considering the proximity and interactions among passengers and crew members in confined spaces (Bert et al., 2014; Kak, 2007).

Sexually transmissible infections (STIs) are the most common sexual health issues, acquired by engaging in unprotected sexual behaviour or having multiple sexual partners (Bellis, Hughes, Thomson, & Bennett, 2004; Berdychevsky & Gibson, 2015). Travellers, especially young people, are most at risk of involving themselves in risky sexual behaviours and acquiring STIs because of the absence of normal strictures during the travel period (Sadovszky, 2008); and the higher

hedonistic, sensation-seeking and risk-taking behaviour of young people which distorts their risk perceptions and normative inhibitions (Bellis et al., 2004; Berdychevsky & Gibson, 2015).

Motion sickness is one of the main reasons why travelling by sea can be regarded as a risky mode of travel and acts as a constraint which demotivates cruising intention (Weeden, Lester, & Jarvis, 2016). There have only been a few studies that have investigated motion sickness as a cruising problem that may affect passengers' experiences negatively. Cooper, Dunbar, and Mira (1997) revealed 47.8% of all hospital incidents were for motion sickness. Bledsoe, Brill, Zak, and Li (2007) observed patterns of injuries and illnesses among cruise passengers in Antarctica and found that motion sickness was the most common cause for medical visits. Motion sickness was also found to have significant impacts on on-board safety since it reduces the crew members' effectiveness and improvising capability when confronting a hazardous situation (Fernandez, 2013).

The incident of collision, equipment failure, explosion, fire, or flooding on cruise ships can result in severe damage with catastrophic consequences (Ahola et al., 2014; Ventikos, 2013), thus placing ship safety as a key priority for ship design and operation (Spyrou, 2010). Existing literature places significant emphasis on determinants and severity of cruise-related on-board accidents, yet how people perceive safety within the cruising context is mostly under-examined.

Terrorism, piracy, and crime are major security threats that can cause serious violence to cruise passengers (Bowen et al., 2014; Panko, George, & Henthorne, 2009; White & Wydajewski, 2002) and even force the shipping companies to end their operation in several geographic areas. While terrorism is increasingly becoming one of the greatest threats to cruise passengers (Bowen et al., 2014; Rubackly, 2010), pirate attacks continue to be a serious problem for cruise operators and cruise passengers in certain regions (Nikolić & Missoni, 2013). It is argued that although safety and security are considered a signature feature of cruising, cruise ships still experience inherent vulnerabilities from unpredictable terrorist attacks (Bowen et al., 2014; Greenberg, Chalk, Willis, Khilko, & Ortiz, 2006), possible threats from piracy (Kraska & Wilson, 2009), and assaults, thefts, and other crimes on-board (Dickerson, 2014).

Measuring risk perception: The interaction between uncertainty and adverse consequences

The two-dimensional framework of risk perception proposed by Bauer (1960) further suggests a measurement of risk perceptions by determining the relationship between the two components of

risks: uncertainty and adverse consequences (see Table 1). This framework has been utilised by many perceived risk scholars since 1976 (e.g. Mitchell & Vassos, 1997; Peter & Ryan, 1976; Winter & Parker, 2007). Table 1 presents two approaches to determine the interaction between uncertainty and adverse consequences; however, the multiplicative equation is considered less conceptually approachable than the additive because it poses some limitations from a mathematical standpoint, that if either uncertainty or adverse consequences equals zero, it will result in a perceived risk of zero (Dowling, 1986).

Table 1. The relationship between uncertainty and adverse consequences (adopted from Le & Arcodia, 2018)

MULTIPLICATIVE VERSION	Perceived risk = Uncertainty x Adverse Consequences Overall perceived risk = $\sum_{i=1}^{n}$ **Uncertainty** x Adverse Consequences n = the number of types of loss i
ADDITIVE VERSION	Perceived risk = Uncertainty + Adverse Consequences Overall perceived risk = $\sum_{i=1}^{n}$ Uncertainty + Adverse Consequences n = the number of types of loss i

Perceptions of safety, security and cruise-related risks

Previous cruising literature demonstrates a limited knowledge of risk perceptions and their impacts on cruiser decision-making and behaviour. Henthorne et al. (2013) investigate risk and safety perceptions on cruise ships and suggest that risk and safety perceptions have significant impacts on cruisers' intentions to return to a specific destination. Ahola et al.'s (2014) findings indicate perceptions of the surrounding cruise environment significantly affect cruise behaviour, suggesting that passengers' conduct may put all other passengers' safety at risk if they obtain inadequate safety perceptions. Peter (2017) examines cruise passengers' security perceptions and reports 70% of the participants from all ages considered security to be a serious issue and they take it into consideration when deciding on a cruise holiday. However, the generalisability of this study is questionable since the findings emerged from only 81 questionnaire responses.

Other studies delimit their scope by examining perceptions of specific cruise-related risks. For instance, Neri et al. (2008) examine passengers' hand sanitation beliefs and practices and found that that passengers did not perceive the disease's consequences as serious and did not understand the risk factors associated with contracting the disease. Baker and Stockton (2013) study passengers' perceptions of food safety and indicate that cruise ship's food safety practices were

not the major concern for cruise passengers because they are knowledgeable about food safety and highly aware of serious incidents widely reported by media. Bowen et al. (2014) focus on investigating perceptions of terrorist threats in UK and report nearly half of the respondents perceived the possibility of a terrorist attack on a cruise ship to be likely, even though safety and security is seen as a 'hallmark' of cruising. Peter (2016) examines security awareness among cruise passengers and observes that the cruise passengers did not see any visible security which had taken place; however, they were not concerned with the security invisibility and were not willing to experience a high level of 'invasive' security (Peter, 2016). However, the subsequent study (Peter, 2017) reports cruise consumers were not very concerned about security when planning a cruise holiday. The lack of methodological clarity calls for a more rigorous research approach towards risk perceptions on cruise ships. Specifically, the extant literature has touched only the smallest tip of the iceberg where perceptions have been examined among a single risk, calling for a holistic view of risk perceptions on cruise ships and a systematic methodological approach towards such perceptions.

Risk perceptions in youth travel behaviour

In the context of consumer behaviour, existing literature places significant emphasis on the effect of risk perceptions on purchase intentions (Henthorne et al., 2013; Le & Arcodia, 2017, 2018; Sönmez & Graefe, 1998b). Reisinger and Mavondo (2006) further emphasise that risk perceptions create anxiety and fear affecting the purchasing intentions, which place substantial travel constraints, encourage more cautious behaviours, and therefore negatively affect tourist experiences and satisfaction. On the other hand, risk perceptions can simulate risk-taking behaviour that, while risk-adverse may always attempt to reduce the perceived risk, risk-taking is inclined to ignore the risk consequences (Le & Arcodia, 2018).

However, inadequate research in travel risk perception has been conducted among young travellers, even though this segment represents an increasingly dominant actor in contemporary tourism (Sarman, Scagnolari, & Maggi, 2016). Previous studies on the topic of young travellers' risk perception are listed as followings (i.e. Adam, 2015; Carr 2001; Desivilya, Teitler-Regev, & Shahrabani, 2014; Lepp & Gibson 2003; Lin, Lee, & Wang, 2012; Qvarnström & Oscarsson, 2014; Pizam et al. 2004; Sarman et al., 2016). Adam's (2015) study on backpackers' risk perceptions found that although backpackers were found to mostly be associated with physical risks due to

their risk-taking and sensational-seeking nature (Adam, 2015; Carr, 2001), they are more concerned with expectation risks (or service failure) than physical risks. Likewise, despite many potential risks imposed when travelling overseas, young tourists are inclined towards adventure tourism which exposes them to novel and sensational experiences (Lin et al., 2012). Young tourists are also akin to 'out of space, out of time, and out of mind' behaviour (Pritchard & Morgan, 2006) which easily distorts their risk perceptions (Berdychevsky & Gibson, 2015), makes them more vulnerable to STIs and increases risk-taking behaviour with little experience in prevention efforts against HIV/STIs, especially when it comes to travelling abroad (Qvarnström & Oscarsson, 2014). These research, however, mentioned young tourists as a generic cohort, which lacks substantial attention on the specific travel behaviour of Gen Z. It is indeed important for tourism researchers to be up-to-date with this emerging market, as well as to understand the market's behaviour in advance in order to accommodate their travel needs and wants.

These issues therefore raise significant awareness of understanding youth risk perceptions in the context of cruise ships, which has been generally overlooked thus far. Moreso, no research has attempted to examine Gen Z's perceptions of risk on cruise ships. As a result, two questions are explored in this study as follows:

1) To what extent does Gen Z feel safe and secure when travelling on a cruise ship? This question is posed in order to gain a better understanding of this segment's perceptions of cruise ships concerning with their feelings of safety and security.
2) To what extent does Gen Z perceive physical risks on cruise ships?
   This question is posed in order to determine this segment's perceptions of specific physical risks that have been discussed in the literature and are of significance for the cruise industry.

Methodology

This study utilises a quantitative approach to respond to the two research questions and adopts Bauer's (1960) two-dimensional framework of risk perception. The population considered for this study is Gen Z, who were born from the mid-1990s to the late 2000s, following the age range defined by Montana and Petit (2008) and Williams and Page (2011). However, due to ethical concerns regarding research dealing with participants under 18 years old, the focus is on participants who were 18 and above. Following this, a questionnaire was developed as a tool to

examine perceptions of cruising safety, security and related risks among Gen Z. The questionnaire used in this study consisted of eight closed-ended questions. Table 2 specifies the items and the scales used in each question. The questionnaire was subsequently pre-tested among 10 participants to identify any ambiguity and to test if the research questions and elicited responses were congruent with the aims of the study. The 10 participants were chosen on the basis that they had never cruised before, to ensure that all questions could be understood by potential respondents irrespective of their cruising experience.

The questionnaire was in English and administered via an online survey and targeted young people whose ages ranged from 18 to 25 years (representing the upper age range of Gen Z) and who were members of social media networks. Snowball sampling was chosen for this study to make use of the widespread network generated through social media. Initially 60 participants were identified and approached through the researchers' social network and asked to suggest the questionnaire link to other participants who also fit the criteria, which allowed a snowball effect of the sample. Of the total 270 responses received, there were 243 valid responses.

Table 2. Construct and selection of its measures.

Construct Measured	Question	Scale	Items
Perceptions of cruise ship safety and security	How safe you would feel when you are: - Participating in pool activities on-board - Participating in alcohol-related scenes (e.g. bars, clubs) on-board - On a ship going through uncomfortable weather - Dining in a restaurant with lots of people on-board - On a ship visiting unstable political regions	Five-point scale (1 = very unsafe; 5 = very safe)	Items related to perceptions of cruising safety in selected situations. Items resembles Pinhey and Iverson's (1994), Reisinger and Mavondo's (2005), and Sönmez and Graefe's (1998a) seven-item scale used to measure travellers' perceptions of safety in various tourism and recreation situations (i.e. sightseeing, water sports).

Perceptions of cruise-related risks	How likely do you think these risks will happen on cruise ships? How severe do you think the consequences of these risks will be?	Five-point scale (1 = rare; 5 = almost certain) Five-point scale (1 = negligible; 5 = severe)	Five cruise-related risks documented from existing cruising literature: infection outbreaks; sexually transmissible infections; motion sickness; cruise accidents; and terrorism, piracy and crime. Scale adapted from Cunningham's (1967) and Mitchell and Vassos's (1997) measurement of perceived risk: Overall perceived risk = Perceived probability + Perceived severity of the consequences.

Responses from the questionnaire were tabulated and analysed and the means of these two components and the overall perceived risk scores were calculated to examine perception of each risk. The perceived risk score was then classified into a five-scale ranking which closely resembles the risk rating matrix (see Table 3). In this study, this matrix presents a perceived risk rating that is used during perceived risk assessment to define various levels of perceived risk based on the two components: perceived probability and perceived severity (Ruan, Yin, & Frangopol, 2015). This perceived risk rating incorporates the additive version of perceived probability and perceived severity (on a scale of one to five for each element) in representing the perceived risk (the overall perceived risk score ranging from two to ten).

Table 3. Perceived risk rating.

		Perceived Probability				
		1	2	3	4	5
Perceived Severity	1	2 Minimum	3 Minimum	4 Low	5 Low	6 Moderate
	2	3 Minimum	4 Low	5 Low	6 Moderate	7 High
	3	4 Low	5 Low	6 Moderate	7 High	8 High
	4	5 Low	6 Moderate	7 High	8 High	9 Extreme
	5	6 Moderate	7 High	8 High	9 Extreme	10 Extreme
		Overall Perceived Risk Score = (2;10)				

Findings and Discussion

Table 4 presents the characteristics of the sample respondents in terms of gender, ethnicity, age and past cruise experiences. The majority of respondents was from the 22-25 age range (60.1%), yet only 28% respondents from this age range had cruised before. A higher proportion emerging from the 18-21 age range had cruised before (33%), which may potentially result from having cruise trips with families. Overall, cruisers (who had cruised before) only accounted for nearly one third (30%) of the Gen Z sample in this study. Nevertheless, this study does not focus solely on the cruiser's perspective, since the insights emerging from ones that had no cruise experiences will also be particularly useful for implementing marketing strategies to attract new cruise customers. This responds appropriately to the notion that Gen Z is set to become the largest consumer generation by 2020 (CLIA, 2019). Also, while the majority of sampled respondents (51.5%) was of Asian ethnicity (yet 35% had cruised before), which may compromise the study's generalisability, this is considered a preliminary effort to target more specifically the Asian cruisers - a strongly potential and loyal market since 95% of Asian ethnicity (the highest among other ethnicities) are very likely to book a cruise for their next vacation (CLIA, 2018).

Table 4. Characteristics of respondents.

Characteristics	Responses	Percentage	N
Gender			
Female	132	54.3	
Male	111	45.7	
Ethnicity			
Asia	157	51.5	
North America	75	24.6	
Europe	37	12.1	
Oceania	31	10.2	N = 243
Others	5	1.6	
Age			
18 to 21	97	39.9	
22 to 25	146	60.1	
Past cruise experiences			
Have cruised	73	30.0	
Have never cruised	170	70.0	

Perceptions of safety and security

Feelings of safety may vary depending on the circumstances with which people are involved (Pinhey & Iverson, 1994; Sönmez & Graefe, 1998a). Table 5 depicts the means and standard deviations of respondents' perceived safety and security in relation to selected cruising situations. Specifically, dining in a restaurant with many people (M=3.7) received the highest safety assessments, followed by pool activities and alcohol-related scenes (M=3.6). These perceptions appear to contradict the actual risk measures, that: swimming pools usually experience high numbers of passengers, who are more inclined to suffer from Legionnaires' disease (Kak, 2007), and from other serious diseases that result from close interaction with others and poor sanitation systems (Cramer, Blanton, Blanton, Vaughan, Bopp, & Forney, 2006). Also, a cruise ship setting with high alcohol consumption is argued to potentially lead to crimes; sexual assaults; and even unprotected sexual behaviour, which causes a considerably higher likelihood of acquiring STIs (Berdychevsky & Gibson, 2015; Panko et al., 2009). These high perceived ratings can also be explained through the less significant information people (Gen Z) expose to mass-media and social media when it comes to risks associated with crowded areas such as swimming pools and restaurants, as well as hedonic activities induced from the high level of alcohol consumption.

Table 5. Perceived safety in selected cruising situations.

Cruising situations	Mean	SD
Pool activities	3.6	0.9
Alcohol-related scenes (e.g. bars, clubs)	3.6	0.9
Uncomfortable weather	2.4	1.1
Restaurant with lots of people	3.7	0.9
Unstable political regions	2.2	1.1

Note: 1 = Very Unsafe

5 = Very Safe

On the other hand, respondents reported feeling least safe when visiting unstable political regions (M=2.2). This finding supports the results from Sönmez and Graefe (1998b) that perceived safety is strongly related to avoiding politically unstable regions, and Brun, Wolff, and Larsen's (2011) and Peter's (2016, 2017) studies that tourists were more concerned about their own safety and security especially after major terrorist incidents. For example, in Sönmez and Graefe's (1998b) study, it was reported that people felt safer during cruise travel to North America, Europe, and Africa, whereas they reported feeling more unsafe visiting Asia and South America. Cruise operators also tend to avoid troubled regions and countries (or even terminate the route as in the case of MSC and Costa after the Tunisia attack in 2015) as they would not get the number of passengers required nor the insurance providers who are willing to absorb the associated risks (Peter, 2017).

Perception of physical risks on cruise ships

Perceptions of the five cruise-related risks were ranked in terms of the three perceived risk components: perceived probability, perceived severity, and overall perceived risk. Table 6 depicts the mean scores and standard deviations for each risk according to the three perceived risk components. It was found that motion sickness (M=3.40) was believed to most likely occur on cruise ships followed by infection outbreaks (M=2.60), which corresponds to the actual measured risk that motion sickness and infection outbreaks were the most common on-board illnesses (Bledsoe et al., 2007). Terrorism, piracy, and crime (M=2.35) was perceived as the least likely risk, supporting the argument that the world's oceans have not historically been a major locus of

terrorist activity with only 2% of the international incidents in the last 30 years (Greenberg et al., 2006). The finding also aligns with Nikolić and Missoni's (2013) assertion that the probability of being injured or killed on-board by pirates is actually very low in the context of declining piracy on the world's seas.

Table 6. Means and standard deviations of perceived probability, perceived severity, and overall perceived risk.

Cruise-related risks	Probability		Severity		Overall Risk	
	Mean	SD	Mean	SD	Mean	SD
Infection Outbreaks	2.60	0.94	3.27	0.99	5.87	1.56
STIs	2.41	1.09	3.04	1.11	5.45	1.72
Motion Sickness	3.40	1.10	2.67	1.04	6.07	1.68
Cruise Accidents	2.50	0.98	3.94	1.08	6.44	1.48
Terrorism, Piracy & Crime	2.35	1.12	3.91	1.27	6.25	1.63

Note: 1 = Rare, Not at all

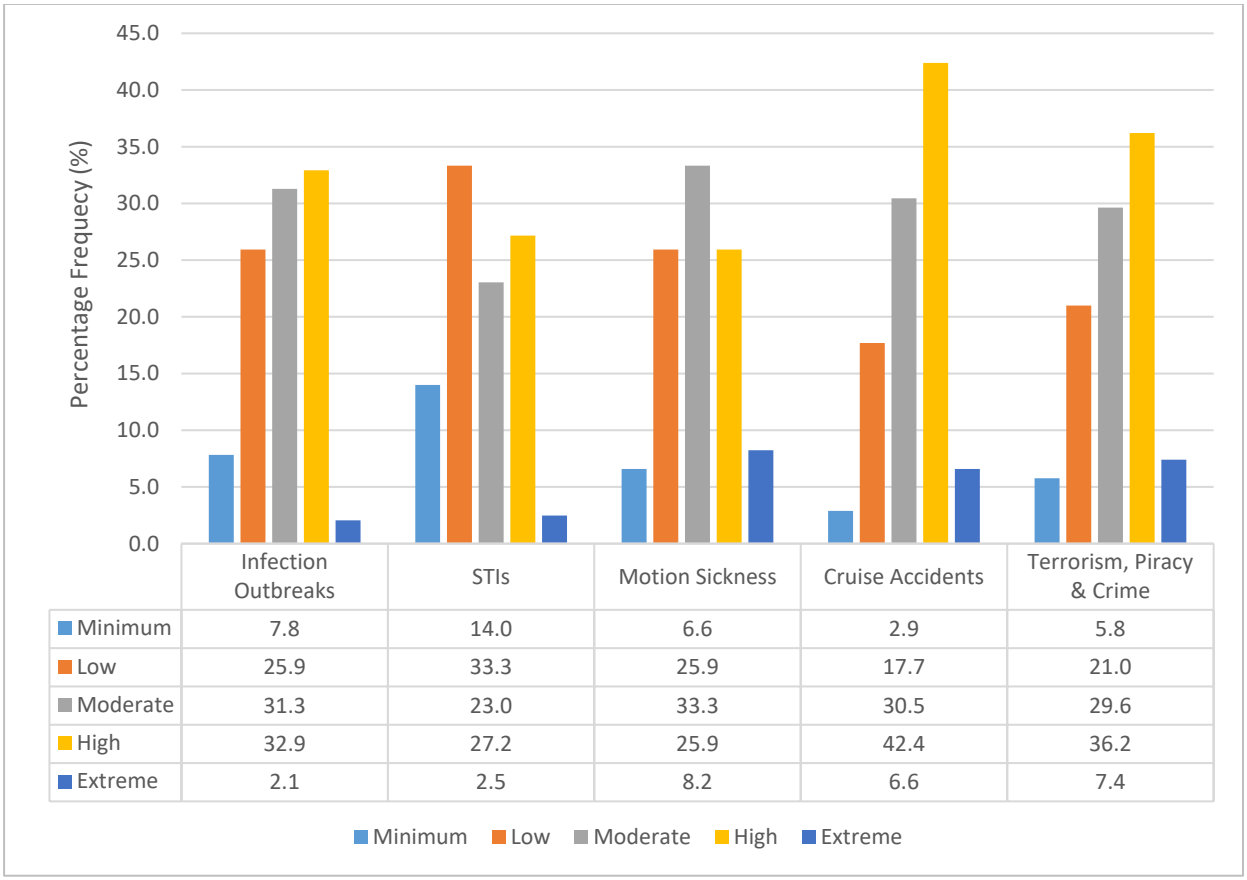
5 = Almost Certainly, Severe

While motion sickness was believed to most likely occur on cruise ships, it was perceived as resulting in the least severe consequences (M=2.67). In contrast, although terrorism, piracy, and crime were regarded as the most unlikely risk, it received the second highest perceived severity level (M=3.91). Cruise accidents (M=3.94) were in fact considered as the most severe risk. Overall, one emerging theme is that the risk with very high probability was regarded as less severe in terms of consequences, and vice versa. This signifies an interesting assumption about Gen Z's perceptions: that they are inclined to believe that risks with high possibility are less harmful than uncommon risks. Overall, cruise accidents (M=6.44) received the highest overall perceived risk assessment, followed by terrorism, piracy, and crime (M=6.25). This finding supports the work of Bowen et al. (2014), Panko et al. (2009) and Rubackly (2010) that one of the greatest threats cruise passengers face today is terrorism and crime. This also aligns with Greenberg et al.'s (2006) argument that despite the low incident rate, there has been ongoing concern regarding maritime terrorism since a single strike can lead to disastrous injuries.

Infection outbreaks

Percentage distributions of the overall perceived risk component of the five cruise-related risks are presented in Figure 1. In general, the respondents were concerned about infection outbreaks on

cruise ships. The probability of infection outbreaks was regarded as the second most likely risk to happen (*M*=2.60), which is aligned with Baker and Stockton's (2013) and Bert et al.'s (2014) suggestion that perceived a higher likelihood of infection diseases on a cruise ship. Also, infection outbreaks received significant concern regarding the severity of consequences (*M*=3.27), meaning that young people were highly aware of the serious health consequences resulting from infection outbreaks (Bert et al., 2014; Kak, 2007; Mouchtouri et al., 2010). This could be the positive influence of effective media coverage of the escalated number of infection outbreaks on ships in recent years.



	Infection Outbreaks	STIs	Motion Sickness	Cruise Accidents	Terrorism, Piracy & Crime
Minimum	7.8	14.0	6.6	2.9	5.8
Low	25.9	33.3	25.9	17.7	21.0
Moderate	31.3	23.0	33.3	30.5	29.6
High	32.9	27.2	25.9	42.4	36.2
Extreme	2.1	2.5	8.2	6.6	7.4

Figure 1. Percentage distributions of overall perceived risk.

Sexually transmissible infections (STIs)

Gen Z generally did not place sufficient awareness on STIs and were not very concerned about them (47.3% of respondents viewed STIs as a low or minimum risk). Specifically, the perceived possibility of acquiring STIs on-board was extremely low (*M*=2.41), indicating that young people

participating in this study did not perceive STIs as a common risk while on a cruise. More importantly, the respondents perceived STIs as causing minor to negligible consequences (M=3.04), signifying STIs were overlooked by Gen Z in terms of both probability (ranked as *the most unlikely*) and consequence severity (ranked as *the second least severe*), whereas the issue of acquiring STIs among young people when travelling by cruise ship has been emphasised in the existing literature (López, 2013; Ward & Plourde, 2006). However, the perceived probability of acquiring STIs is determined by how likely the individual is open to unprotected sexual behaviour or having multiple sexual partners, which are bound by certain cultural orientations (Le & Arcodia, 2018). As a result, there are possibilities to explore this matter further by incorporating a cultural lens in examining risk perceptions.

Motion sickness

In contrast with the initial assumption that motion sickness should be perceived as the least important risk when travelling by cruise ship, the respondents were highly aware of motion sickness on-board, and the majority (67.4%) portrayed moderate and high level of concern. Indeed, motion sickness was considered as the most likely risk to occur on-board (M=3.40), aligning with Cooper et al.'s (1997) and Bledsoe et al.'s (2007) findings that motion sickness accounted for nearly half of all medical encounters during cruise trips. As expected, the respondents did not regard motion sickness as a harmful risk (M=2.67). Efforts should be made to emphasise the potential impacts of motion sickness, which can result in severe consequences for on-board safety and crew members' effectiveness and improvising capability when confronting a hazardous situation (Fernandez, 2013).

Cruise accidents

It was shown that nearly half of the respondents (49%) perceived cruise accidents as a high risk with the second highest overall risk assessment (M=6.44), indicating that Gen Z respondents were highly concerned about cruise-related accidents. This level of concern is essential for people's wellbeing while on a cruise, as Chang and Liao (2008) argue that obtaining an accurate perception of cruise safety will reduce the possibility of placing cruise passengers' and others' lives at risk. Cruise accidents were considered as relatively unlikely (M=2.50) (following terrorism, piracy and crime and STIs); however, cruise accidents received the highest severity assessment (M=3.94).

This finding is comparable with Ahola et al.'s (2014), Spyrou's (2010), and Ventikos' (2013) studies which supported the fact that the amount of severe damage and number of lives lost due to cruise accidents has been substantial in recent decades, resulting in catastrophic consequences to the ship, its passengers, and the environment.

Terrorism, piracy, and crime

Figure 1 indicates that the majority of Gen Z (73.2%) showed moderate and high level of risk concern about terrorism, piracy, and crime with the second highest overall risk assessment (M=6.25). These findings support the claim of Bowen et al. (2014), Panko et al. (2009), and White and Wydajewski (2002) that terrorism, piracy, and crime are major security threats that cause serious violence to a large number of cruise passengers, and correspond to Peter's (2017) finding that 70% of cruise passengers stated that terrorism-related security was a major factor determining their cruising intention. While terrorism, piracy, and crime were perceived as the least likely risk to occur on-board (M=2.35), the respondents were highly aware of severe consequences caused by terrorism, piracy, and crime (resulting in *the second most severe consequences*) (M=3.91). These findings, on one hand, do not align with Bowen et al.'s (2014) study, whose findings revealed that nearly half of 144 respondents considered a terror attack on a cruise ship as probable. This significant difference might also be explained by the high level of security alert that the UK was experiencing at the time Bowen et al. (2014) conducted the study. The perceived probability of such risks therefore is dependent on the geographical areas in consideration, as well as past experiences the individual had with politically unstable regions. This engenders a number of avenues for future research focusing specifically on factors influencing risk perceptions among Gen Z. On the other hand, the low probability of piracy at sea perceived by Gen Z aligns with Nikolić and Missoni's (2013) and White and Wydajewski's (2002) claim that the probability of piracy on-board is actually very low. The finding regarding the perceived severity also supports previous studies of Bowen et al. (2014), Panko et al. (2009), and White and Wydajewski (2002), which reinforce the claim that terrorism, piracy and crime result in serious violence and severe consequences to the cruise industry. The finding suggested Gen Z participants were fully aware of the significance of terrorism, piracy and crime and its impacts on their cruise travel.

Conclusion and Implications

As mentioned earlier in those studies by Brun et al. (2011), Peter (2016, 2017) and Sönmez and Graefe (1998b) regarding perceptions towards different cruising situations, Gen Z felt significantly less safe when the ship passed politically unstable regions or encountered uncomfortable weather. However, in contrast with initial predictions, Gen Z respondents generally perceived fewer risks emerging in restaurants with many people, pool activities, and alcohol-related situations. These findings imply that Gen Z may not be aware of the potential risks associated with these settings, or they may believe they are capable of mitigating or avoiding the risks themselves.

The investigation into perceptions of the five cruise-related risks revealed that motion sickness and infection outbreaks were perceived to be the two most common risks on-board, supporting Bledsoe et al.'s (2007) claim that these two risks accounted for most of the medical interventions on cruise ships. More importantly, respondents were highly aware of the severity of consequences which resulted from cruise accidents and terrorism, piracy and crime, corresponding to the actual ship incidents reported in the extant cruise literature. While terrorism, piracy, and crime was viewed as the most unlikely risk to happen (accounted for 2% of international cruise incidents according to Greenberg et al. (2006) and Nikolić and Missoni's (2013) within the last 30 years), yet, received the second highest perceived severity level among Gen Z respondents, supporting the conclusions of Bowen et al. (2014), Panko et al. (2009) and Rubackly (2010) that one of the greatest threats cruise passengers face today is terrorism and crime. Peter (2017) emphasises the need of warranting the security on-board among cruise passengers by stating that 70% of passengers placed security issues as a top priority when travelling by cruise ship. This study also found that STIs were overlooked in terms of both probability and consequence severity, suggesting that young people do not place enough awareness on STIs and do not have significant concern about the severity of STIs on cruise ships. This unanticipated outcome to some extent, has reinforced the finding which emerged from the previous section that young people especially Gen Z lacked significant attention to personal health and safety when participating in alcohol-related situations on-board.

Implications and recommendations

The findings in this study have generated several implications that are beneficial to academic researchers and cruise operators. Firstly, the measurement model of perceived risk incorporated

by the two components (perceived probability and perceived adverse consequences) is believed to offer some possibilities to conduct investigations into perceived risk/risk perception in different contexts where future research of risk perceptions can build upon. This measurement model is believed to facilitate the examination of relationships between risk perception and other constructs (e.g. demographic factors). Secondly, since there have been no empirical studies offering a holistic picture of the extent to which people perceive different types of cruise-related risks, and even no studies targeting the youth market, this study calls for future research attention on the youth market and its behaviour, especially Gen Z, leading to better predictions on cruising intentions which are based on developing decisions involving physical risk assessments.

In terms of managerial implications, firstly, cruise operators should not neglect ship safety and security since there was evidence that the significant variations in Gen Z's perceptions was associated with their past cruise experiences. In addition, cruise operators should implement more specialised marketing campaigns to raise attention among the Gen Z market, thus establishing more clearly the safety and security 'hallmark' of cruising. Secondly, the examination of risk perceptions on cruise ships can aid the development of cruise risk management plans tailoring specifically how passengers are aware of the risks and their responses when the risks occur. For example, cruise operators should be more aware that young people especially Gen Z tends to overlook their personal health and safety in crowded restaurants, alcohol-related contexts, and pool activities, and therefore should generate more appropriate safety and security policies on ships that involve young customers, especially the alcohol-involved settings, to mitigate the possibility of any emerging risks that negatively affect their customers' cruise experiences.

Thirdly, Gen Z respondents were greatly concerned about cruise accidents and terrorism, piracy and crime risk. The cruise ship industry readily understands that due to these considerably high perceptions, any single attack on the vessel would severely damage the cruise operator's reputation and impact revenues, as it would intensify the concern among customers and could potentially result in delayed bookings or trip cancellations (Bowen et al., 2014; Peter, 2016, 2017). Taking into account recent terror attacks, cruise operators should carefully consider which routes and destinations they choose for cruise voyages, as well as establish effective cooperation with insurance providers to allay customers' concerns about safety and ease their fears of terrorism.

Finally, the examination of perceptions of each cruise-related risk implies a need for more rigorous communication of health and safety information, specifically tailoring the needs and

demands of Gen Z passengers, which is a proactive approach mitigating the likelihood of infection outbreaks and on-board accidents. Customer trust is vital in the risk communication process because it is intrinsically related to market demand (Baker & Stockton, 2013). In addition, cruise operators should implement more sophisticated alcohol policies on-board, promote safe sex practices among Gen Z cruise passengers, and enhance security measures, especially during high seasons.

Limitations and suggestions for future research

Although the sample size was sufficient, the first limitation of this study relates to the representativeness of the sample due to the snowball sampling technique. Also, bias generated from conducting an online questionnaire only in the context of social media somewhat reduces the findings' generalisability. Furthermore, as shown in Table 2, since the majority of participants in the sample was from Asian ethnicity, the findings from this study should be applied and interpreted with caution in other contexts. Risk perceptions of Gen Z sampled in this study therefore may not represent risk perceptions of the whole Gen Z's market. Nevertheless, considering the limited literature on perceptions of cruise-related risks among young people, especially Gen Z, findings from this study act as preliminary results that offer significant insights for future research. More importantly, further research based on risk perceptions among Gen Z cruise passengers or among Gen Z across different geographic areas would make a stronger contribution to the generalisability of risk perceptions on cruise ships.

Also, some significant variations in perceptions of cruise-related risks were observed in this study, which suggest influences of various factors on Gen Z's risk perceptions and call for the specific examination on the cultural factor and nationality in determining risk perceptions. Future research therefore can fulfil this gap by examining the potential factors affecting risk perceptions on cruise ships. Past research also suggests the overarching effect of national cultures on other demographic factors (Le & Arcodia, 2018; Reisinger & Mavondo, 2005, 2006), consequently, further research is needed to validate this claim in the cruising context.

Considering the severe impacts of COVID-19 on the cruising industry and the extensive media attention on COVID-19 cases on cruise ships (e.g. Ruby Princess outbreak in Australia; Diamond Princess and Grand Princess outbreaks in the US), perception of risks on cruise ships among the public has changed substantially. It is therefore imperative for cruise operators to start

investigating risk perceptions more deeply to understand customers' needs as a means to enhance business and industry recovery post COVID-19. Understanding risk perceptions among cruisers also contributes to the effectiveness of control measures, as long as these are communicated effectively to cruisers. A full investigation into risk perceptions of Gen Z post COVID-19 and a comparison between pre- and post-COVID-19 pandemic are indeed essential for understanding this segment's cruise behaviour in an attempt to recover cruise businesses.

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