Risk Perception and Risk Reduction Strategies in Travel Decisions: A Literature-Based Framework

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Abstract. Risk perception and how it is managed are critical factors in travel decisions, as perceived risk is considered a constraint of travel experiences, and it is vital to alleviate it. Little attempt has been made in conceptualizing the components of risk reduction strategies comprehensively in the tourism literature. The fragmented studies in the literature suggest a more integrated approach to understanding the concept. This paper reviews tourists' risk reduction strategies and highlights the parallel construction of risk perception and risk reduction strategies in the context of travel decisions. This paper analyzes and summarizes related literature on risk-related constructs focusing on their different components, measurements, and conclusions. This study puts forward the multidimensional risk perception and risk reduction strategies. Since perceived risk involves multiple dimensions, several risk reduction strategies can be broadly classified into information search, financial, physical, time substitution, social, and emotion regulation components. The relationships between tourist risk perception, risk reduction strategies, and travel decisions in a single framework seem rational to provide empirical supports. Risk reduction strategies have the potential to mediate perceived risk and travel decisions. Findings also show different approaches in measuring risk-related constructs, with the quantitative analysis as the commonly used research method.

Keywords: risk · risk perception · risk reduction strategies · travel decisions

1 Introduction

Decision-making is not entirely risk-free for several reasons. Firstly, from the tourist side there is a limitation in human capacity. One cannot know precisely the future, while he or she can try to predict it. Thus, it is the estimate of probabilities guide people in decision-making to get the optimal outcomes they desire with both cognitive and affective processes involved [1]. Second, the intangible nature of tourism product makes one cannot know precisely for what one will get before consumption [2]. The increasing human and natural-induced crises and disaster events affecting tourism have heightened the challenges of making travel decisions and have elevated the importance of safety

[3]. More recently, the COVID-19 pandemic's impact on international travel has been the most devastating crisis for the tourism industry since the beginning of international tourism in the 1950s. The emergence of the COVID-19 outbreak with its global scale impact is unprecedented as Gossling et al. argued [4] that the impacts of COVID-19 have shaped travel behavior as travelers are more cautious in their decisions, including postponing their plans, reducing consumption, and/or traveling more locally, if at all [5]. It is clear the awareness risk avoidance in travel is apparent in recent decades. However, it is also noticed in the literature, the subjective nature individual's tolerable level of risk, in which acceptance of risk can fulfil one sense of well-being as noted by Holm et al. [6].

Although, tourism has been considered for its ability to bounce back after crisis, that people are likely to travel when the crisis is over. The impact of crisis is rather short-term in the tourists' memory. However, there is the problem is when the crisis happens for long duration, such that COVID-19 Pandemic as there is a concern that the future of tourism will likely be impacted more by natural disasters. The number of natural disasters in the world has increased tenfold from 1900 to 2021, including those from drought, floods, extreme weather and temperature, landslides, dry mass movements, wildfires, volcanic activity, and earthquakes as quoted from the International Disaster Database (www.emd at.be). Such prediction of disasters elevates the potential risk facing tourists' behavior in the future. This tells that tourism may face a bumpy road ahead and in the other hand it suggests for strategies to deal with.

From micro aspect, the way tourists manage risks need also be considered, as individuals are the ones who process all the information and make decisions. While risk-taking can be considered an attractive factor, risk-taking behavior does not mean a death wish. Naturally, in any travel decision-making entails risk which can also be multi-dimensional (financial, physical, social, etc.). Certain type of risk (e.g., natural disasters) can be more dominant than other types of risk. Risk cannot be eliminated, and it needs to be balanced by safety controls. Similarly, although risk can be interpreted as the likelihood of negative outcomes, it can give an early warning for tourists to take precautionary measures. It is a common sense for tourists to reduce the perceived risks to protect themselves. In recent decades, studies examining tourists' behavior in managing risks have also emerged, including the potential to mediate the perceived risk and travel decisions [6] Particularly, the theory of risk aversion suggests that tourists are engaged in various risk reduction strategies when they face risks in decision making. Currently, studies on risk reduction strategies are fragmented. Therefore, understanding the different dimensions of risk reduction strategies in a more comprehensive approach are lacking.

2 Objectives

The notion of tourists' risk has predominantly in the tourism literature in the last few decades. With studies of risk has become the determining factor in travel decisions. Based on researching the literature of scholars studying tourism risk perception and risk reduction strategies, this study provides conceptual reference of risk perception and risk reduction strategies to inform future theoretical and empirical research. Examining the risk reduction strategies in the travel decision context is important to enhance travel

experiences. In the context of unforeseeable future and the possibility of risk facing travel decisions, the tourism industry needs for tourists who can manage risk and make sound decisions.

3 Method

This study used a qualitative approach and secondary data collection technique. The sample used in this study is a purposive sample from the literature using the keywords: 1) risk; 2) risk perception; 3) risk reduction strategies. The references were taken from Google Scholar and EBSCO's Hospitality and Tourism database. The search period was between 1970s to 2021, in which the studies related to risk has emerged in the tourism literature. Following the data collection, there are 50 articles are synthesized to identify common theme.

4 Review of Literature

4.1 Perceived Risk and Risk Reduction Strategies

Perceived risk is grounded on rationality for loss aversion, which can override judgments towards destination selection, and greater sensitivity to risk can motivate people to modify behavior for safer alternatives or choices, such as avoiding risky destinations or taking precautionary measures [3]. In line of the study, perceived risk has an impact on future travel behavior, and these studies suggest the need to manage risk [7, 8]. The types of risks identified are commonly associated with the source of risks. Hasan et al. [9] identified 22 different kinds of travel-related risk, which include: financial, physical/health/personal, social, psychological, functional/performance, natural disasters, time, terrorism and war, food safety, equipment, satisfaction, political instability, service quality, crimes, travel-related, epidemic diseases, cross-cultural differences, property, availability of facilities, security or law and order, medical and opportunity loss. Although there are different types of risks, these risks are not equal in influencing a decision. Some risks can be more prominent in influencing decisions. Political instability, terrorism, health, crimes, and natural disasters are significant sources of physical risks that prevent travel decisions, including those experienced travelers.

A destination has specific types of risks that are different than travel risks in general. Schroeder et al. [10] highlighted that destination-associated risks include physical risks such as terrorism, natural disasters, disease outbreaks, crimes, political coups, and financial crises. Sharifpour, Walters, and Ritchie [11] separated destination risks from physical and general risks. Destination-related risks include performance/functional, time, and financial risks. In general, travel involve risks are multi-dimensional [12]. While several scholars have taken a multidimensional approach to examine tourist risk perception, which assumes that different risk factors could influence decisions, others paved attention to a specific risk. It is reasonable to assume that an emerging risk brings immediate attention, such as the effects of the COVID-19 pandemic on health risk perception [13]. The multiple dimensions of perceived risk allow a trade-off between one dimension with

the other dimension. For instance, tourists expect financial compensation to compensate for reduced destination attractiveness [14].

The parallel constructions and risk perception to risk reduction strategies and the interconnection of risk-related constructs and decision-making have existed in the tourism literature. Risk perception can influence the adoption of risk reduction strategies at the pre-trip and consumption stages. Perceived risk, from a minor one (e.g., the hotel not the same as the brochure) to a major one (e.g., political instability), has consequences on adopting different risk reduction strategies [15]. Furthermore, Adam [16] evaluated the impacts of perceived risk on risk reduction strategies. Travelers who perceive functional risk are likely to travel with intermediaries, while travelers who perceive physical risk are likely to travel with others and consult with the local authorities. Travelers who perceive socio-psychological risk use travel intermediaries and use local guides. Even the risk-taking segments (e.g., backpackers) still adopt risk reduction strategies.

Risk reduction strategies are believed to have consequences on travel decisions. It is argued that the adoption of risk reduction strategies would give greater control and confidence in decision-making. Risk reduction strategies have the potential to reduce perceived risk and positively influence travel decisions. Nugraha et al. [17] tested the mediation effects of risk reduction strategies on risk perception and willingness to take the risk. They found the dominant effects of information seeking compared to behavior modification as effective strategies in influencing travel decisions. While these studies have pointed the importance of risk reduction strategies in influencing decision-making, it also shows the need to provide empirical supports. The perception of the effectiveness of recommended risk reduction strategies is associated with the likelihood of taking decision to travel to a risky destination.

4.2 Components of Risk Reduction Strategies

4.2.1 Prior Knowledge

A common factor influencing the adoption of risk reduction is prior knowledge which is associated with information or expertise in tourist memory obtained from direct or indirect experiences. Several authors have emphasized direct experiences. Hales and Shams [18] suggested that tourists use direct experiences to decide besides the use of information search. This direct experience is called an incremental consumption strategy. Findings from 328 Gulf Arab consumers showed that they visit a familiar destination rather than a completely novel one. They gradually switch to another destination that is less unfamiliar to them before exploring the new one.

Sonmez and Graefe [3] asserted that travel experience in general or at a destination is more influential than acquired information. Similarly, based on direct experience as a risk reducer, Fuchs and Reichel [19] compared perceived risk and adoption of risk reduction strategies between first-timers versus repeat visitors. These tourists behave differently in terms of risk perception and adoption of risk reduction strategies. Those who have visited the destination or repeat visitors are likely to perceive less risk and employ less risk reduction strategies than those who have not traveled to the destination. Repeat visitors rely on friends and relatives in making decisions. At the same time, first-time visitors search for information from various sources and consult with the people

who have previously visit the place. Indirect experiences to the destination are also considered one of the risk reduction strategies.

Previous studies have focused on subjective knowledge (what someone thinks they know about the destination) as a mediating variable between risk perception and travel decision. Familiarity or subjective knowledge towards a destination moderates the effects of risk perception on travel decisions [17]. Multiple sources of information and experiences can influence an increased level of familiarity, and geographical distance can provide a reward for security which may outweigh the potential cost or uncertainty [18]. As people are familiar with the destination, they are likely to know what to expect from the destination, including its limitations. They are expected to have less uncertainty, which can bring a sense of security. Familiarity towards the destination has the strongest influence on tourist risk perceptions (destination-specific risk, physical risk, and general risk) [19].

On the contrary, Nugraha et al. [17] emphasized that the influence of prior visitation on perceived risk can vary depending on the nature of the visit. A favorable prior visitation might reduce risk perception. On the contrary, unfavorable prior visitation might increase risk perception. However, it is not entirely true since tourists have different tolerance levels, and they may tolerate unfavorable experiences [20]. Consequently, past travel experience to the destination may increase or decrease the likelihood to revisit. The role of prior knowledge in influencing travel decisions is relative and contextual.

4.2.2 Information Search

Information search can be defined as the process of acquisition of information stored in the memory (internal search) or from the environment (external search) [21]. An external search is conducted when information obtained from an internal search is not sufficient. One of the reasons to search for information is to make an informed decision, while the information obtained may not be directly used in making decisions. Information search is considered one of the most common risk reduction strategies as it is associated with behavior outcome. The uncertainty involved in travel products makes information search an important element in purchase decisions as people want to maximize the outcomes of their decisions [22]. Information search increases the certainty in purchase decisions [22]. However, some considerations involved in adopting information search alone are not sufficient to reduce perceived risk, such as the credibility of the source of information and perceived benefits from information acquisition [23]. Fuchs and Reichel [19] argued that the use of information search also differs according to first-timers and repeat visitors. First-timers tend to have higher risk concerns, are more active, and use more information sources, particularly external sources (e.g., mass media, newspaper, etc.) than repeat visitors.

4.2.3 Social Strategies

Travel decisions are not only influenced by personal factors. Social influences also play an important role in decision-making. Family and relatives' may shape decisions regarding information, timing, and monetary [24]. Social factors are considered as an important risk reduction strategy. Proximity and interaction with other people help people navigate

difficult decisions. Socially reliant segments heavily rely on social risk reducers in making travel decisions, such as seeking advice from family and friends and travel agents. Social media as a reliable source of information might be useful to reduce perceived risks [25].

Previous studies have indicated that travel companions can reduce the anxiety faced by travelers when traveling to a foreign [16]. Those who perceive higher risks are likely to travel with other people rather than travel independently. Similarly, Gstaettner, Rodger, and Lee [26] observed that social factors positively affect risk-taking behavior (e.g., seeing others take the risk). In addition, travelers also seek protection from the local authorities, such as the police, to protect themselves from harassment and crimes. Trustworthiness of the local authorities is also important in the adoption of social risk reducers [16].

An element related to adopting social risk reduction strategies is the trust that reflects one's attitude towards others. Destinations are expected to perform their advertised functions as transparent, reliable, and risk-free. Trust is the manifestation of tourists' confidence, which can be observed at two different levels, the perception of trustworthiness and the behavior intention to rely on the suppliers' products and services Perceived trust is enhanced through tourist-destinations interactions that involve multiple parties, including local authorities, residences, and employees [28].

The concept of trust is an important variable associated with risk perception. Uncertainty and perceived risk are high when traveling to risky destinations. Perceived trust is a mental shortcut that people use to reduce uncertainty and risk perception in decision-making [23]. According to Boo & Gu [23] Trust reduces perceived risk and increases intention to travel. Trust can reduce perceived risk, and lower perceived risk will increase travel decisions. However, the impact of trust on perceived risk can differ across different markets, such as the domestic and international markets. The international markets have higher perceived risks than domestic markets.

4.2.4 Emotion Regulation

Besides cognitive evaluation, the tourism literature has emphasized not only the role of cognition but also the importance of emotion or feeling as part of risk evaluation and behavior. Emotions, such as worry, anxiety, and fear, have been considered components of risk evaluation that could have a dominant effect on behavior [29]. One of the factors of having anxiety is a low perception of coping efficacy, which can influence someone to feel stress or anxiety [30]. Lack of efficacy belief means that one has the tendency to magnify the severity of possible threats and therefore causes stress, which can impair the level of functioning. This stress or anxiety reaction can be handled by strengthening coping efficacy through mastery of experience. Stress or anxiety can also be influenced by control of disturbing thoughts. Thus, the ability to control such thoughts is important to overcome the uncertainty resulting from a decision.

Risk perception also needs the ability to regulate emotion when risk is perceived. Emotion regulation is conceptualized as a psychological process to manage emotion by initiating, inhibiting, or modifying a person's mental state in each situation [31]. Emotion regulation is considered an important factor in purchase decisions as both cognition and emotions are intertwined in the decision-making process. Brunel and Pichon [32] divide

consumer risk reduction into problem-focused strategies and emotion-focused strategies. Consumers regulate their emotions to overcome the stress they experience from risk perception related to purchasing decisions, such as believing that the cause of stress does not exist (denial), acceptance and focusing on positive thoughts, and confidence in the supplier.

Furthermore, people consistently seek to maintain positive feelings and regulate their negative states by reducing the negative tensions. Emotion regulation strategies may include cognitive change such as having a more positive perspective, distancing or accepting the situations or the problems. Emotion regulation is considered a cooperative mechanism behavior that can create valuable experiences in every situation. Prebensen and Foss [33] revealed the use of emotion-based strategies to cope with incidents during vacation experiences. Tourists might engage in emotion regulation strategies, such as making meaning of the negative experiences or considering bad experiences as part of learning.

4.2.5 Time Substitution

Another dimension associated with decision-making is a temporal factor that contributes to tourists' behavior dynamics. According to Tasci and Sonmez [12], the length of time that tourists spend at the destination might shape perceptions and behavior. Rittichainuwat, Nelson, and Rahmafitria [34] argued crisis and disaster events do not occur frequently. These can easily be forgotten from tourists' memory, although such events have catastrophic effects, such as tsunamis. Thus, the impacts of crisis events are not permanent in the memory, and tourists can still favor the destination. Because disturbances of external factors do not necessarily involve permanent losses, destinations can still be visited later within the same year. People could change or modify the time of their recreation to overcome constraints.

The economic perspective shows that consumers are likely to change the timing of service usage when short-term disruption happens. Temporal substitution has been cited as the strategy used to overcome travel constraints or conflicts related to climate and weather events McCreary et al. [35]. These events can be avoided by changing the time of visit. The more experiences on climate issues during travel, the more likely a person will engage in temporal substitution [35]. Therefore, tourists could postpone their visit or reduce their visitation time but not necessarily cancel it when short-term disturbances occur, such as weather events, terrorist attacks, etc. Fuchs and Reichel [19] recognized planning a short trip to a risky destination. Lu and Wei [36] examined the role of time substitution to overcome seasonal problems which might cause perceived crowding and dissatisfaction.

4.2.6 Financial Strategies

Price is an important consideration in purchase decisions considering that all products are associated with monetary values. The purchase decision is based on the calculation of potential loss and benefit. Purchase decisions happen when the perceived benefit is greater than the expected loss. In other words, that purchase should be worth value for money. The monetary amount which is sacrificed for a product is expected to compensate

for what is received. Under uncertainty or risky situation, the perception of loss is much greater. Crises and disasters reduce tourist destinations' image values and attractiveness, which furthers the potential for substitution. Okuyama (2018, p. 50) stated that 'tourism at disaster sites are inferior goods immediately after disasters, and changing to normal would require time' [37].

Tourist decisions are trade-off activities between monetary and non-monetary risks. They might constrain their purchase to minimize loss. Hajibaba, Gretzel, Leisch, and Dolnicar [38] suggest deals and guarantees for product or service failures to reduce financial risk perception. However, Rittichainuwat and Chakraborty [39] found that price discounts cannot reduce tourists' perceived risks, and low-cost tour packages did not motivate tourists to visit a disaster-hit destination. Slevitch and Sharma [40] used price premium as means to reduce perceived risk. Other financial risk reductions may include planning for an inexpensive trip and bringing extra cash for unexpected expenses [41]. Okuyama [37] stated that financial risk is a strategy that could reduce tourists' perceived risk (e.g., price discounting). Furthermore, economic and time dimensions are related. The implementation of financial risk reduction strategies (e.g., price discounting) following crisis events should be deployed at the appropriate timing for optimal outcomes.

4.2.7 Physical Strategies

The use of physical measures has been mentioned as a factor that could influence perceived risk. With the consequences that tourists might be exposed to personal injuries, illness, or harm, the tourism industry takes efforts to reduce the potential perceived risks by the provision of the physical attributes in the environment, such as having the presence of law enforcement or security personnel, regulations, and infrastructures. Guidance and information on risk exposure are keys for risky destinations since tourists lack the knowledge and are unprepared for the dangers that exist in destinations. The provision of safety measures has become more important for attracting tourists as it can reduce perceived risk, particularly to those impacted by crises and disasters [42]. However, tourists may not be aware of or ignore the provision of safety measures [43].

Changes in the environmental conditions in which tourism activities take place also shape tourist behaviors. The impacts of climate change have consequences on warmer temperatures. These also influence people to take physical protective measures, such as taking personal protective equipment or finding the available places that could protect oneself from harm [44]. Some researchers note several risk reduction strategies from the health perspective: taking vaccination before travel, consulting with the health professionals, taking personal medicine, and purchasing health insurance [43]. Purchasing insurance is seen as a trade-off between desired outcomes against potential risk. It increases certainty and benefits in terms of peace of mind and a sense of security. To conclude, tourism risk reduction strategies comprise cognitive, affective, and behavioral components.

4.3 Measuring Risk Reduction Strategies

Several authors have measured perceived risk in one component as a probability or likelihood of adverse outcomes. One component measurement is considered sufficient to measure perceived risk. Quintal et al. [45] used a Likert scale with six types of risks: financial, physical, psychological, performance, social, and convenience loss. The question asked was 'What is the probability of the purchase of vacation will lead to…loss?'. Fuchs and Reichel [46] use worry in measuring five types of risks: financial, physical, socio-psychological, performance/functional, and time. Similarly, Chew and Jahari [47] measured risk perception only three types of risks; physical, socio-psychological, and financial. Sharifpour et al. [11] used hypothetical travel experience to examine destination risk perception. Tasci and Sonmez [12] asked the respondents' likelihood of risk experience, including six risk factors (financial, performance, physical, social, psychological, and time). The statement includes "During the trip, experiencing….". A two-component examination consists of a perceived assessment that measures perceived likelihood and the magnitude of the seriousness of risk [43]. Wolff, Larsen, and Øgaard [48] argued that a two-component measurement allows the opportunity to capture the broader meaning of the definition.

A critique of the risk perception studies lies in using a quantitative approach to dominate risk perception studies. In contrast, such an approach has provided various statistical analyses (e.g., descriptive statistics, regression structural equation modeling) to examine the relationship between risk dimensions and their consequences on tourist behaviors [9].

Based on the literature above, identification of the main components of risk reduction strategies includes cognitive, affective, and behavioral dimensions. The previously applied measurement scales of risk reduction strategies in quantitative examinations use likelihood or adoption of risk reduction strategies in a hypothetical situation or based on personal experiences. Several investigations measured cognitive and behavioral modification strategies [16, 19, 41], and emotion regulation strategies [31]. The qualitative examinations used self-reported measures on the adoption of risk reduction strategies based on personal experiences. For instance, Mizrachi and Fuchs [25] focused on using social networks to reduce perceived risk. The self-report measures before and during vacation trips could reveal and compare tourist responses toward various risk factors. Gstaettner et al. [26] evaluated the role of social influence in influencing risk-taking behaviors. Seeing others to take risk influence risk-taking behaviors. Gao and Kerstetter [49] evaluated the use of emotion regulations during vacations. Wang, Liu-Lastres, Ritchie, and Mills [50] conducted a mixed-method analysis on adopting health-protective measures using interviews and surveys data collection methods. While there are different approaches in measuring perceived risk and risk reduction strategies, there is a commonly used method to use quantitative assessment with self-reported measures. Alternatively, objective measures should be developed and validated specifically to assess actual behaviors of risk reduction strategies' adoption.

5   Discussions and Conclusions

The concept of risk reduction strategies has existed in the tourism literature for many years in line with the broader coverage of consumer behavior science. Research has explored the evaluation of risk perception and adoption of risk reduction strategies from tourists' perspectives. Previous studies recognize the need to shift from complete aversion to a more positive outcome, that is, to set aside worries and manage risks to an acceptable level. Such behavior is supported by several identified components of risk reduction strategies.

Several components contribute to the motivation to take the risk. It appears that existing risk reduction studies have not explored components of risk reduction strategies in an integrated manner but examining them partially. Thus, this paper attempts to summarize different components of risk reduction strategies and methodologies. It can be summed up as follow:

1. The adoption of risk reduction strategies occurs at pre-trip and during the consumption stage of tourism products.
2. Different dimensions of risk reduction strategies identified from the literature involve modification of cognitive, affective or feelings, and behavior.
3. The parallel construction of risk-related constructs suggests the role of risk in influencing the adoption of protective behavior. When the perceived risk is high, tourists rely on risk reduction strategies.
4. Different approaches are used in measuring risk-related constructs, but quantitative and self-reported measures of probability and respondents' experiences are commonly used.

The basis of tourists' adoption on risk reduction behavior is typically defined as the expectation of losses. In addition, it is found that the subjective assumption of risk evaluation that differences in tourists' perception may exist. Under the rational paradigm that guides decision-making, the multidimensional approach in understanding perception and behavior should be considered, rather than concentrating on one dimension as different types of risk could influence decisions. The explanation of risk reduction strategies following risk reception is necessary and valuable. The theoretical and empirical investigations of integrated risk reduction strategies that combine different components of risk reduction strategies are lacking.

This paper extends understanding of risk reduction efforts from tourists' perspective and suggests there is still the need to examine the effects of risk-related constructs on travel decisions and travel behavior. The importance of multiple dimensions of risk reduction strategies in tourism, which remain underexplored in the literature. The literature review conducted in this study adds to the body of knowledge by introducing several components of risk reduction strategies to be tested in connection with tourists' risk perceptions and travel decisions. The paper provides important practical implications as well. It is undeniable that crises and disasters might happen. However, tourists could also absorb and manage risks. Therefore, perceived risk should not necessarily be avoided. Rather than ignoring that risks exist, destination management needs to support cognitive, affective, and behavioral strategies that are considered effective in reducing perceived risks and increasing the confidence to travel.

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