

The effects of risk message frames on post-pandemic travel intentions: The moderation of empathy and perceived waiting time

Abstract

The moderation roles of empathy and perceived waiting time (PWT) on post-pandemic travel intentions have not as yet been investigated. This study of 684 Chinese resident respondents elicited how COVID-19 risk messages affected post-pandemic travel intentions. The results showed that people exposed to messages in the risk-amplifying frame had lower basic travel and destination travel intentions than those who were exposed to messages in the risk-attenuating frame. Empathy had a beneficial effect on basic travel intentions and had an inducing effect on destination travel intentions only in high-risk situations. High PWT tourists had more positive destination travel intentions in the risk-attenuating frame. The findings provide a theoretical basis for future research as well as practical implications for destination risk communications and market restoration during a public health crisis.

Keywords: Risk communications, post-pandemic travel intentions, frame analysis, categorisation theory, COVID-19 pandemic

Introduction

Tourists are highly sensitive to destination risk messages and such messages have a direct impact on perceived safety, tourism experiences, and travel decisions (Seabra, Dolnicar, Abrantes, & Kastenholz, 2013; Aliperti, Nagai, & Cruz, 2020; Kapuscinski & Richards, 2016). Effective communication and dissemination of risk messages by destinations can help tourists to perceive and cope with risks more appropriately, while inadequate communication may amplify perceived risk thereby inducing lasting negative impacts on destination images

and intentions to travel (Sano & Sano, 2019; Liu-Lastres, Schroeder, & Pennington-Gray, 2019). In the absence of direct in-situ experience of unfolding events, risk messages related to a crisis tend to become an important source of information affecting many tourists' perceptions of a destination's level of safety (Sano & Sano, 2019; Oliveira & Huertas-Roig, 2019). In fact, risk messages play an even more influential role in a crisis event, often transforming it into a market or tourism crisis (Luo & Zhai, 2017). Therefore, the agenda-setting and media communication of risk messages are of great importance in crisis responses and risk interventions, which are critical for destinations in preserving their images.

The success and competitiveness of destinations are directly related to their ability to offer tourists safe and pleasant leisure environments (Chauhan, 2007; Sönmez, Apostolopoulos, & Tarlow, 1999). In line with this, the goal of risk communication is to alleviate perceptions of (real or potential) threats through message agenda-setting and dissemination, as well as promoting the safety and stability of destination environments (Aliperti *et al.*, 2020; Liu-Lastres *et al.*, 2019). Importantly, safety messages increase perceived safety and visit intentions (Wang & Lopez, 2020), while risk messages decrease perceived safety and visit intentions (Kapuscinski & Richards, 2016; Sano & Sano, 2019; Rittichainuwat, 2013). Thus, the risk messages disseminated by destinations are a critical factor in determining travel-related decisions, as well as being a widely investigated topic for crisis and risk research in tourism. In addition, people's travel-related decisions vary in different crisis context. For example, health crises including the avian flu, Ebola, and SARS, had a more serious negative impact on travel intentions than natural disasters such as earthquakes (Biran, Liu, Li, & Eichhorn, 2014; Kuo, Chen, Tseng, Ju & Huang, 2008).

Viruses and pandemics can be spread around the world by travellers and can disrupt the growth and development of regional and global tourism (Kuo et al., 2008; McKercher & Chon, 2004; Haque & Haque, 2017; Novelli, Burgess, Jones, & Ritchie, 2018). Particularly, the COVID-19 pandemic is considered to be a highly impactful incident and a major health crisis in world history, and tourism is one of the industries most affected by it (Fong, Law, & Ye, 2020). People's intra-pandemic (during pandemic) perceptions, motivations, impressions, attitudes, subjective norms, perceived behavioral control (Li, Nguyen, & Coca-Stefaniak, 2020), destination health-risk images (Bhati, Mohammadi, Agarwal, Kamble, & Donough-Tan, 2020), travel fears, protection motivations, resilience (Zheng, Luo, & Ritchie, 2020), and perceived knowledge (Han, Al-Ansi, Chua, Tariq, Radic, & Park, 2020), have been identified as important factors determining likely post-pandemic travel behaviours. Accordingly, the effect of the COVID-19 crisis on post-pandemic travel intentions has received much attention.

Three key knowledge gaps can be identified. First, travel intentions in crisis situations continues to be a contested topic among scholars. Academics have widely believed that tourists avoid unsafe destinations, and crisis events and risk messages lessen confidence and intentions to visit (Sano and Sano, 2019; Pizam and Smith, 2000). Particularly in a major crisis context, such as the COVID-19 pandemic, triggered "travel fears" lead to the public's protective travel behaviours (e.g., travel avoidance, cautious travel)(Zheng et al., 2020). In contrast, the inherent risk of some destinations can also act as a key attractor for some tourists, who engage in adventure activities for a sense of excitement (George, 2010; Page, Bentley, & Walker, 2005; Wang, Liu-Lastres, Ritchie, & Pan, 2019). Paradoxically, some feel

that destinations become safer after terrorist attacks (Wolff and Larsen, 2014), and may purposely visit post-disaster destinations as a form of “dark tourism” (Biran et al., 2014). Apparently, previous studies have neglected the classification and structure of travel intentions, and travel intentions after the crisis require more theoretical research. Second, the effect of risk frames of pandemic messages on travel intentions lacks empirical investigation. News media framing is often employed to explore the effects of different ways of portraying news coverage on individuals, organisations, and industry (Liu & Pennington-Gray, 2015). Risk frame or framing is a sociological theoretical model to investigate the impacts of risk messages based on risk-amplifying and risk-attenuating frames (Kapuscinski & Richards, 2016). Although risk messages on health crises (e.g., Norovirus infections) have been shown to reduce travel intentions (Liu-Lastres *et al.*, 2019), few researchers have explored the effects of risk messages about pandemics on post-pandemic travel intentions within the context of the risk frame model, particularly in a major and global crisis situation. Third, there is an absence of research on the boundary conditions for risk message influences on post-pandemic travel intentions during a long-term risk situation. Tourist responses during a high-risk situation depend on their processing and evaluation of risk messages (Kapuscinski & Richards, 2016; Sano & Sano, 2019; Aliperti & Cruz, 2019), involving psychological cognition and affective involvement. The duration of waiting and empathy represent cognitive states and emotional experiences possessed by tourists in the long-term and for high-risk situations, which may impact perceptions and travel-related decisions (Wolff & Larsen, 2014; Schoofs, Claeys, Waele, & Cauberghe, 2019). However, their moderation roles between risk messages and post-pandemic travel intentions lack clear investigation.

Therefore, the effect of risk messages about a pandemic on post-pandemic travel intentions needs to be researched further and with differing theoretical perspectives.

To address the above-mentioned gaps, this investigation explored the effect of destination risk messages during COVID-19 on the post-pandemic travel intentions of Chinese residents. It attempted to make three major contributions. First, the effects of intra-pandemic risk messages on post-pandemic travel intentions were examined, providing empirical evidence from the early stages of the COVID-19 pandemic. Due to the political framework, media status, and overall health crisis responses, China was effectively the first nation in the world to impose a mandatory nationwide self-quarantine. Thus, it is valuable to explore the effects of intra-pandemic risk messages on post-pandemic travel intentions in the Chinese tourism context. Second, based on frame theory, the categorisation effect of risk messages on post-pandemic travel intentions was analysed, providing empirical evidence and a theoretical basis for the frame effect of risk message in a major global pandemic. Third, based on the conservation of resources theory and empathy altruism hypothesis, as well as introducing perceived waiting time and empathy, this research revealed the boundary conditions for risk message influences on post-pandemic travel intentions during a long-term risk situation, which extends these theories in a pandemic crisis context and risk communication field. New insights and strategic guidance are provided for destination agenda-setting and media communications, so as to mitigate the negative impact of risk messages and promote the rapid recovery of tourist markets.

Literature review

Theoretical framework

Frames or the framing effect are derived from prospect theory proposed initially by Kahneman and Tversky (1984). They reveal the influence of differences in presentation of issues on people's decision-making. According to the frame effect, decision-making in uncertain situations is largely determined by people's frames of reference and expectations. In other words, decision-makers are risk averse when frame decision choices are positioned as gains (above frame of reference), and are risk seeking when frame decision choices are presented as losses (below frame of reference). Frame analysis uncovers the irrational psychological factors that influence decision-making in uncertain and risk situations from the perspective of psychological traits and behavioural characteristics.

According to message content and the type of research, frame effects can be separated into two forms: equivalency and emphasis framing (Druckman, 2001). The equivalency framing effect investigates how the use of different, but logically equivalent words or sentences to highlight the positive or negative aspects of the issues causes different responses from people (e.g., 95% survived vs. 5% died). Equivalency highlights the wording effect on decision-making (Kahneman & Tversky, 1984). The emphasis framing effect focuses on the influence of presenting certain aspects or characteristics of complex topics without the assumption that the messages are logically identical (e.g., emphasis on the advantages of house-purchasing over its disadvantages) (Druckman, 2001). Because the emphasis framing effect is closer to the "real" news coverage and is easily applicable to complex communicative situations, framing studies in news coverage and risk communication fields mainly adopt that approach (Kapusinski & Richards, 2016; Nelson, Lecheler, Schuck, & de Vreese, 2012). Framing analysis has been widely used in many fields, such as news coverage,

risk decision-making, environmental protection, and political judgment (Kahneman & Tversky, 1984; Druckman, 2001; Geng, Chen, Ye, Zhou, & Chen, 2019). Similarly, tourism and hospitality studies have employed the frame effect model to investigate hotel customers' environmentally friendly activities (Kim & Kim, 2014), hotel booking intentions (Sparks & Browning, 2011), risk perception, destination crisis news coverage (Kapuscinski & Richards, 2016), and image formation (Zhang, Zhang, Gursoy, & Fu, 2018). A global pandemic is an extraordinary crisis event, albeit with major impacts on tourism. Therefore, this research used frame analysis with the COVID-19 pandemic as a backdrop to explore the effects of intra-pandemic risk messages on post-pandemic travel intentions.

Risk, risk messages and communication

Risk has been defined as “a possibility of danger, harm or losses; and a chance or hazard” (Reisinger & Mavondo, 2005). Risk messages are a general term and expressible set used to refer to various messages and information elements related to risk. People's subjective evaluation and comprehensive judgements of the risk messages and elements form perceived risk (Rimal & Real, 2003). For a crisis, risk messages include elements such as warnings, risk assessments, prevention, and consequences as well as general crisis news coverage, which may include crisis responsibility, emergency rescue and crisis response strategies (Liu-Lastres *et al.*, 2019). The essence of risk communication is the transmission and exchange of various risk messages, and Covello (1992) defined risk communication as “the exchange of information and messages among interested parties about the nature, magnitude, significance or control of a risk”. The goal of risk communication is to motivate behavioural responses that alleviate threat perceptions by disseminating risk messages (Reynolds & Seeger, 2005).

In the digital media era, the development of Internet technology and social media are impacting the discourse power between the media and public, which is significantly altering the spread scale and patterns of destination risk communication, as well as introducing new opportunities and challenges (Shah, Cho, Eveland, & Kwak, 2005; Castells, 2007)

Risk communication improves the effectiveness of risk message dissemination to encourage the public in adopting effective behavioural responses to emerging health issues (Freimuth, Linnan, & Potter, 2000). More specifically, risk communication can increase public awareness of a disease, educate the public, and alter public attitudes and behaviours, as well as policy-making, in a bid to control the spread (Freimuth *et al.*, 2000). According to Renn (2008) and Höppner, Buchecker, and Bründl (2010) suggest that risk communication can help to build confidence, reduce risk, and encourage cooperative decision making. In tourism and hospitality, scholarly research in this context has investigated how people tend to engage in greater information seeking as a way to protect themselves against risk, as well as reducing uncertainty in the midst of crises (Aliperti & Cruz, 2019; Law, Buhalis, Cobanoglu, 2014; Cahyanto, Wiblishauser, Pennington-Gray, & Schroeder, 2016). For instance, Liu-Lastres *et al.* (2019) tested the influence of risk communication messages on cruise line passenger information search behaviour, perceived safety, and cruise travel intentions with respect to health crises (norovirus infections) on cruise ships. Risk communication is an important topic for tourism risk and crisis research. Also, the effectiveness of risk message communication is a critical factor that determines tourists' perceived safety, market recovery, and the reduction of public harm.

The presentation frame of a risk message is the crucial component of destination risk

communication, as well as an important factor affecting people's risk assessment and decision-making. At a destination level, effective risk communication utilises four key elements of the communication process: audience, message, source, and channel (Freimuth *et al.*, 2000). According to Avraham and Ketter (2008), three media strategies should be considered in destination risk communication: source, audience, and message strategies. Message strategies emphasise the message itself and may include frames and tactics such as contradicting negative messages, perceptions, and stereotypes. Kapuscinski and Richards (2016) proposed risk-amplifying and risk-attenuating frames to investigate news media frame effects on tourists' perceived risk of portrayals of terrorism and political instability incidents. When a crisis happens, people actively construct a symbolic reality around it and convert risk messages communicated by destinations into diverse symbols and frames for processing (Lee, 2004), so as to reduce the cognitive burden and increase processing efficiency. Risk characteristics are the labels attached to risk messages, and individuals create risk-related "primacy effects" when exposed to risk messages, that is, they form first impressions or stereotypes of the perception of the risk messages (Kapuscinski & Richards, 2016; Ryu & Kim, 2015). Risk messages have been divided by scholars into two types: high-risk and low-risk perception messages (Sano & Sano, 2019; Liu-Lastres *et al.*, 2019). In line with this, it can be argued that there are two types of risk message frames – risk-amplifying and risk-attenuating frames. This research investigated the effects of risk messages on post-pandemic travel intentions in different risk frames.

Travel intentions

Travel intentions reflect the willingness and desires of tourists to visit destinations, which

reflect not only basic desires and general intentions to travel (basic travel intentions) (Larsen, Brun, øgaard, & Selstad, 2011), but also intentions to visit specific destinations (destination travel intentions) (Chen, Shang, & Li, 2014). Post-pandemic travel intentions reflect the willingness and desires to travel and visit destinations after the pandemic (Li et al., 2020). The government's restrictive measures (e.g., self-quarantining, social distancing) and the risk of infection suppressed individuals' travel-related decisions during the COVID-19 pandemic, but this will not necessarily diminish travel intentions and thoughts when it ends.

According to categorisation theory, people mentally organise entities that share common properties into groups and form consistent attitudes, highlighting that individuals' decision-making depends on how they categorise information especially when information is incomplete (Rosch, 1978). People tend to use categorisation to make decisions in risk situations (Rosch, 1978; Palich & Bagby, 1995), the same information may cause individuals to approach or avoid decision due to dissimilarities in categorisation, even triggering different types of decision-making (Dutton & Jackson, 1987). Safety evaluations of destinations where crises occur and their external environments diff, and the risk messages from destinations subject to crises can affect decision-making related to intentions, including basic travel and destination travel intentions (Wolff & Larsen, 2014; Yang and Xie, 2018; Larsen *et al.*, 2011). Thus, this research divided post-pandemic travel intention into two categories: basic travel and destination travel intentions.

Perceived safety plays a critical role in supporting travel intentions in a crisis (Sano & Sano, 2019; Wang & Lopez, 2020). People tend to search for more information in the pre-visit stage to ensure safety (Aliperti & Cruz, 2019; Law *et al.*, 2014). Crises and risk

messages from destinations may reduce perceived safety or increase perceived risk, thereby reducing travel intentions (Kapuscinski & Richards, 2016; Sano & Sano, 2019; Rittichainuwat, 2013). For example, Liu-Lastres et al. (2019) confirmed that epidemic risk messages (on the Norovirus) decreased safety perceptions and travel intentions; and Kapuscinski and Richards (2016) confirmed that the perceived risk from risk-amplifying frames was greater than risk-attenuating frames in cases of terrorism and political instability. Thus, perceived safety and travel intentions are higher with risk-attenuating frames, while they are lower with risk-amplifying frames. Combined with categorisation theory, travel intention responses to different portrayals of risk (risk frames) are diverse, and pandemic risk message frames may trigger varying categories of post-pandemic travel intentions. In addition, due to the social amplification effect of risk and risk frames (Renn *et al.*, 1992), safety assessments on general and macro tourism environments tend to be negative in crisis situations (Wolff & Larsen, 2014), which reduces intentions to visit incident sites, and suppresses basic willingness to travel (Mizrachi & Fuchs, 2016; Liu, Schroeder, Pennington-Gray, & Farajat, 2016). Thus, risk messages related to the pathogen and the severity of a pandemic may influence people's travel decisions (basic travel intentions) and destination travel intentions after the pandemic. Thus, it was proposed that:

H1a: Basic travel intention responses to risk messages in risk-attenuating frames are higher than in risk-amplifying frames.

H1b: Destination travel intention responses to risk messages in risk-attenuating frames are higher than that in risk-amplifying frames.

Empathy

Empathy is a psychological trait, which can be defined as the process of perception and imagination of the emotions of others, and even partly experiencing their emotions (Gladstein, 1983). According to the “Russian Doll Model” proposed by de Waal (2008), empathy is a multidimensional construct comprising cognitive regulation and emotional experiences. Once an individual develops empathy for others, both the cognitive and affective components of empathy are likely to be aroused. Cognitive empathy refers to a person taking others’ perspectives and understanding the thoughts, opinions, and viewpoints of these others (Baron-Cohen & Wheelwright, 2004). Affective empathy is empathising and resonating with the emotional states or situations of others, as well as responding and experiencing them in an appropriate manner (Blair, 2005). Thus, empathy is essential for the regulation of social interactions, coordinated activity, and cooperation toward a shared goal. Empathy studies are numerous in cyberspace, educational, medical, and crisis and risk situations (Fang *et al.*, 2020; Laghi *et al.*, 2019; Bourgault *et al.*, 2015), which consider empathy to be an important factor for predicting social responsibility, prosocial behaviour, intergroup relationships, and well-being (Kandaurova & Lee, 2019; Bourgault *et al.*, 2015). Importantly, Schoofs *et al.* (2019) confirmed that empathy plays a critical role in understanding the connection between crisis situations, crisis and risk communication, and crisis outcomes. This must be taken into consideration when investigating and explaining the impacts of crises and risk communication. Moreover, empathy has been confirmed to play a moderation role in individuals’ decision-making (Fang *et al.*, 2020; Laghi *et al.*, 2019).

Post-pandemic travel intentions involve cognitive judgements of risk messages, as well

as causing a certain level of emotional involvement in a pandemic. In this research, empathy refers to perceiving, imagining, and having compassion for the unfortunate conditions of vulnerable groups in tourism (e.g., employees, businesses) during the COVID-19 pandemic, and it is the psychological process in which individuals attach these cognitions and emotions to the entire tourism sector. According to the empathy altruism hypothesis, when individuals witness the misfortunes of others, they have emotional responses such as compassion and concern, and this activates helping and altruistic behaviours (Batson, 1987). Thus, highly empathetic individuals pay more attention to the needs and feelings of others and are willing to behave altruistically to help others recover from their misfortunes (Kandaurova & Lee, 2019). During a long-term pandemic and nationwide lockdowns, although risk messages tend to reduce travel intentions, empathy may alleviate the negative impacts. Moreover, due to the emotional continuity of empathy (Tucker, 2016; Miles, 2002), highly empathetic individuals may sympathise with the unfortunate conditions of tourism and this may have a beneficial effect on their post-pandemic intentions to help the tourism sector recover. In other words, it could be posited that empathy moderates the negative impacts of risk messages on post-pandemic travel intentions. Compared with less empathetic people, highly empathetic people will have stronger basic and destination travel intentions after the pandemic. Thus, it was proposed that:

H2a: Empathy moderates the relationship between risk messages and basic travel intentions.

H2b: Empathy moderates the relationship between risk messages and destination travel intentions.

Perceived waiting time (PWT)

PWT, as well as time perceptions, are subjective feelings and psychological experiences of elapsed time (Taylor, 1994; Buetti, Walsh, Frith, Rees, 2008; Voorhees, Baker, Bourdeau, Brocato & Cronin, 2009). PWT describes the length of time a person experiences when waiting for an event. Compared with real waiting time, PWT highlights people's subjective perception of waiting time and it is influenced by internal factors (e.g., emotions and personality) (Walsh, Shiu, Hassan, Michaelidou, & Beatty, 2011) and external factors (e.g., visual and auditory stimuli) (Cao, Zhuang, & Ma, 2019), as well as having a better explanation and prediction for individuals' waiting-induced responses. PWT studies in customer, service, transportation, and medical management are plentiful, and PWT is regarded as an important factor in predicting anger, regret, satisfaction, purchase decision-making, and loyalty (Voorhees *et al.*, 2009; Cao *et al.*, 2019; Lee, Groß, Pfaff, & Dresen, 2020; Rajamma, Paswan, & Hossain, 2009; Bielen & Demoulin, 2007).

Tourism is an experiential activity of persons travelling to places outside their usual environments (Govers, Van Hecke, & Cabus, 2008), for temporary escape and abandonment of usual environments and circumstances. People who have been isolated or stayed in their usual environments for long times may have strong motivations and intentions to travel outside, especially in the context of long-term shutdowns during the COVID-19 pandemic. According to the conservation of resources theory (COR), people endeavour to protect and retain resources they deem valuable from being compromised by real or potential threats in stressful situations (Hobfoll, 1989; Ng & Feldman, 2012). The COVID-19 pandemic and related risk messages represent a threat and potential damage to individuals' valuable

resources, including income reduction and disease infection. Thus, people may avoid adopting resource-depletion behaviours after COVID-19, such as cancelling and abandoning travel plans, or even triggering their “travel fears” (Zheng et al., 2020). In this research, PWT referred to subjective evaluations of elapsed time during COVID-19, as well as psychological experiences and perceptions of waiting for the pandemic to end. The longer the PWT of the pandemic, the stronger the “travel fears”, and the more likely it is for people to avoid travelling after the pandemic. In addition, time is a scarce and valuable resource, and long PWT is likely to trigger individuals’ negative emotions such as anxiety, stress, uncertainty, anger, and regret (Voorhees *et al.*, 2009). Thus, long PWT represents a threat and potential damage to personal time and psychological resources. To avoid falling into the spiral of resource loss, high PWT tourists have lower intentions to travel after the COVID-19 crisis. Especially in the risk-amplifying frame, crisis and risk messages appear to be more threatening and damaging to valuable resources, and high PWT tourists are less likely to have the motivation and desire to travel after the pandemic, as well as travel to destinations where the crisis was being experienced. Thus, it was proposed that:

H3a: PWT moderates the relationship between risk messages and basic travel intentions.

H3b: PWT moderates the relationship between risk messages and destination travel intentions.

The conceptual model is shown in Figure 1.

[Insert Figure 1 here]

Methodology

Research background

In December 2019, several COVID-19 cases were diagnosed in Wuhan, and then COVID-19 occurred in more than 200 countries and regions worldwide. As of December 2020, the cumulative number of confirmed cases exceeded 90,000 in China (50,300 in Wuhan) and more than 64,000,000 globally. As a response to the pandemic, the Chinese government reacted by implementing a lockdown and mandatory self-quarantine in Wuhan, and then across the whole country from 23rd January 2020. The measures imposed restricted travel and group activities to avoid cluster infections and prevent the large-scale transmission of the disease. Additionally, the COVID-19 outbreak coincided with the Chinese New Year celebrations, and many people with travel plans decided to cancel their itineraries and delayed their travel. During the investigation period of this research (March 2020), constant Chinese media coverage and social media postings on the risk messages of the pandemic, including the number of newly diagnosed cases and deaths, as well as the COVID-19 propagation path, developed a high-risk situation. Travel restrictions adopted significantly affected people's post-pandemic travel intentions. However, exactly how these risk messages influenced post-pandemic travel intentions and the roles played by empathy and perceived waiting time during the periods of "lockdowns" and "social distancing" are yet to be explored.

Research design

An experiment was designed to determine how people responded to the risk messages related to the COVID-19 pandemic using two risk frames (risk amplifying vs. risk attenuating) with

a between-subjects factorial design. To ensure that the experiment was realistic, controllable and convenient to manipulate, the pandemic announcement messages about the largest number of people diagnosed with COVID-19 in Wuhan was selected for the risk-amplifying frame, whilst the pandemic announcement messages for the remission of the Wuhan pandemic were selected for the risk-attenuating frame. In addition, the research aimed to compare the effects of different risk message frames in a way that they contained as similar elements as possible, such as newly diagnosed, deaths, and pandemic prevention measures, to avoid any influence and bias brought about by message structure and language. The risk messages were improved and optimised with the help of two tourism professors and five PhD students to ensure context validity.

The scales applied were adopted from previously validated research, with some items slightly revised according to the specific research context (Appendix A). Perceived safety was measured based on the research of Liu-Lastres *et al.* (2019). Post-pandemic travel intentions had the two dimensions of basic travel and destination travel intentions. The scale for basic travel intentions was adapted from Jalilvand, Samiei, Dini, and Manzari (2012), and assessed respondents basic desire to travel after the pandemic. The scale for destination travel intentions was from Wang and Lopez (2020) and assessed respondent intentions to travel to Wuhan after the pandemic. Four items based on Perry (1996) and Davis (1980) were used to measure empathy, and perceived waiting time was measured by using the instrument proposed by Voorhees *et al.* (2009). These items were measured with Likert scales ranging from 'strongly disagree' (1) to 'strongly agree' (7).

Research procedures

This research had two experiments - pilot and formal. The pilot experiment aimed to assess the validity of the experimental design and stimulus materials, as well as the reliability of the measurement scales. Based on that, the formal experiment was to verify the conceptual model and hypotheses proposed in this research.

In the pilot experiment, of the 62 participants, 31 received the risk-amplifying frame and 31 received the risk-attenuating frame and perceived safety and travel intentions were evaluated. The results (Table 1) indicated that participants who were exposed to messages in the risk-amplifying frame scored significantly lower on perceived safety (M Attenuating = 5.06, M Amplifying = 2.29, $t = 10.244$, $p < 0.001$), basic travel intentions (M Attenuating = 5.17, M Amplifying = 2.74, $t = 8.256$, $p < 0.001$), and destination travel intentions than those who were exposed to messages in the risk-attenuating frame (M Attenuating = 4.65, M Amplifying = 2.35, $t = 8.658$, $p < 0.001$). In addition, the Cronbach's alphas for basic travel intentions (0.950), destination travel intentions (0.952), PWT (0.733), and empathy (0.835) were over 0.7, indicating reasonably good internal consistency. Thus, the designed frames and measurement scale could be used in the formal experiment.

[Insert Table 1 here]

A quasi-experimental design was adopted in the formal experiment in China in early March 2020. Since the “inflection point” of the COVID-19 pandemic in China was emerging, and face-to-face surveys still risked the transmission of infection as well as being in violation of “social distancing” mandates, a nationwide web-based survey was conducted through a leading market research platform (www.wjx.cn). A hyperlink to the site was posted on a

major social media platform in China - WeChat - and participants were invited to complete the survey through convenience sampling. The intra-pandemic survey accurately reflected the various pandemic risk messages to which participants were exposed, and empathy and PWT experienced by them were real and direct, yielding a better predictive ability for their post-pandemic travel intentions. Participants were randomly assigned to one of the two groups (group 1 risk-attenuating frame; group 2 risk-amplifying frame). All participants were asked to read their assigned risk frames before completing the online survey, and then to answer a series of items related to perceived safety, basic travel intentions, destination travel intentions, empathy, and perceived waiting time. This was followed by demographic questions, including gender, marital status, age, education, occupation, monthly income, and frequency of travel. To ensure data quality, participants were informed about the research context and purpose. Anonymity was assured to all respondents. In total, 800 questionnaires were returned with 684 valid responses, yielding an 85.5% effective response rate. The participant profiles are outlined in Table 2.

[Insert Table 2 here]

Data analysis

The data analysis consisted of the following four steps. First, SPSS was employed to conduct descriptive and reliability analysis. Second, confirmatory factor analysis was performed using AMOS to examine model and construct validity. Third, a series of analyses of variance (ANOVA) and least significant difference (LSD) tests were done using SPSS to examine the direct effects. Fourth, SPSS produced a cluster analysis on the moderation variables, and multivariate analysis of variance (MANOVA) was conducted to test the moderation effects.

Results

Manipulation check

Independent samples t-tests were conducted for the manipulation check of perceived safety as a tourist destination after exposing the risk frame messages. As expected (Table 3), participants who were exposed to messages in the risk-amplifying frame ranked significantly lower on perceived safety than those who were exposed to messages in the risk-attenuating frame ($M_{Attenuating} = 4.38$, $M_{Amplifying} = 3.98$, $t = 3.290$, $p < 0.001$). Thus, the results indicated that the risk frames induced different levels of perceived safety among the participants.

Model validation

Confirmatory factor analysis (CFA) was conducted to examine the reliability and convergent validity of the multi-item constructs (basic travel intentions, destination travel intentions, empathy, and perceived waiting time) (Table 4). The CFA results were above the suggested levels (Hooper, Coughlan, & Mullen, 2008): $\chi^2/df = 2.610$ ($1 <, < 3$), RMSEA = 0.049 (< 0.05), SRMR = 0.0397 (< 0.05), AGFI = 0.949 (> 0.9), GFI = 0.967 (> 0.9), NFI = 0.969 (> 0.9), RFI = 0.959 (> 0.9), IFI = 0.981 (> 0.9), TLI = 0.974 (> 0.9), CFI = 0.981 (> 0.9), PGFI = 0.627 (> 0.5), suggesting that the measurement model showed a good fit. Moreover, the standard factor loadings and average variances extracted (AVEs) of each construct were above 0.5, and the composite reliabilities (CRs) were more than 0.8, indicating good convergent validity.

[Insert Table 4 here]

Main effect

To investigate potential significant differences between the risk frames in terms of the dependent variables, a series of ANOVA and LSD tests were employed for post hoc comparisons. There were significant differences between the risk-amplifying and -attenuating frames for basic travel and destination travel intentions (Table 3 and Figure 2). The post hoc results indicated that participants who were exposed to messages in the risk-amplifying frame scored significantly lower on basic travel intentions ($M_{Amplifying} = 4.31$, $M_{Attenuating} = 4.76$, $t = 3.886$, $p < 0.001$) and destination travel intentions ($M_{Amplifying} = 3.42$, $M_{Attenuating} = 3.67$, $t = 2.212$, $p < 0.05$) than those who were exposed to messages in the risk-attenuating frame. Thus, hypotheses 1a and 1b were supported.

[Insert Figure 2 here]

Moderation effect of empathy

Following Wang & Lopez's (2020) guidance for the moderation effect test, this research divided the moderation variables (empathy and PWT) into high and low groups with significant differences in means, and MANOVA was performed to examine their moderation effects between risk messages and post-pandemic travel intentions. Specifically, the K-means cluster method was used to determine the potential moderation effect of empathy, by classifying participants as high- and low-empathy. The mean composite scores for empathy differed significantly between the two groups ($M_{HEM} = 6.34$, $M_{LEM} = 4.53$, $t = 39.687$, $p < 0.001$). After including gender, marital status, age, education, occupation, monthly income, and travel frequency as covariates, the results showed that empathy had a significant moderation effect between risk frame and basic travel intentions ($F [1,683] = 3.923$, $p < 0.05$) as well as destination travel intentions ($F [1,683] = 5.238$, $p < 0.05$).

Low-empathy group participants who were exposed to messages in the risk-amplifying frame scored significantly lower on both basic travel and destination travel intentions than those who were exposed to messages in the risk-attenuating frame (Table 5 and Figure 3). For the high-empathy group, there were no significant differences between the risk-amplifying and -attenuating frames for basic travel and destination travel intentions. In addition, high-empathy participants scored higher for basic travel intentions than low-empathy participants. Also, high-empathy participants scored higher on destination travel intentions than low-empathy participants in the case of the risk-amplifying frame, while these two groups scored destination travel intentions basically the same in the case of the risk-attenuating frame. Thus, hypotheses 1a and 1b were further supported, and hypotheses 2a and 2b were supported.

[Insert Table 5 here]

[Insert Figure 3 here]

Moderation effect of perceived waiting time (PWT)

The K-means cluster method classified participants as high- and low-PWT. The mean composite scores for PWT differed significantly between these two groups ($M_{HPWT} = 4.37$, $M_{LPWT} = 2.44$, $t = 34.194$, $p < 0.001$). After including gender, marital status, age, education, occupation, monthly income, and frequency of travel as covariates, the results showed that PWT had no significant moderation effect between risk frame and basic travel intentions ($F [1,683] = 0.103$, $p > 0.1$), and had a marginally significant moderation effect between risk frame and destination travel intentions ($F [1,683] = 3.252$, $p < 0.1$).

For the high-PWT group, participants who were exposed to messages in the risk-amplifying frame scored significantly lower on basic travel and destination travel intentions

than those who were exposed to messages in the risk-attenuating frame (Table 6 and Figure 4). For the low-PWT group, participants who were exposed to messages in the risk-amplifying frame scored significantly lower on basic travel intentions than those who were exposed to messages in the risk-attenuating frame. In addition, low-PWT participants scored higher on destination travel intentions than high-PWT participants in the case of the risk-amplifying frame, while high-PWT participants scored higher on destination travel intentions than low-PWT participants in the case of the risk-attenuating frame. Thus, hypotheses 1a and 1b were further supported, and hypothesis 3b was supported.

[Insert Table 6 here]

[Insert Figure 4 here]

Conclusions and Implications

Conclusions

Based on frame and categorisation theories, with the context of the COVID-19 pandemic, this research investigated the effect of intra-pandemic risk messages on post-pandemic travel intentions, as well as the moderation effects of empathy and PWT. The hypothesis test results are presented in Table 7. The main conclusions are as follows.

[Insert Table 7 here]

First, intra-pandemic risk messages are an important factor determining people's post-pandemic travel intentions. Furthermore, basic and destination travel intention responses in the risk-attenuating frame were higher than that in the risk-amplifying frame. People's intra-pandemic perceptions and attitudes have been confirmed as important factors affecting their post-pandemic travel intentions (Li et al., 2020; Zheng et al., 2020). For example, risk

messages related to the Norovirus epidemic had a negative impact on tourists travel intentions (Liu-Lastres *et al.*, 2019). This research's findings were consistent with the results of Li *et al.* (2020), Zheng *et al.* (2020), and Liu-Lastres *et al.* (2019), while enriching and expanding these previous research studies by applying the risk frame model. In addition, basic travel intentions were higher than destination travel intentions, and the effect of risk messages on basic travel intentions was higher than for destination travel intentions. These results suggest that the effects of risk messages and risk frames on post-pandemic travel intentions have category and path differences, which is a significant conclusion not found in previous research.

Second, empathy had a significant moderation effect between intra-pandemic risk messages and post-pandemic travel intentions. High-empathy participants scored higher on basic travel intentions than low-empathy participants. High-empathy participants also scored higher on destination travel intentions than low-empathy participants in the case of the risk-amplifying frame, while these two groups had essentially the same scores for destination travel intentions within the risk-attenuating frame. In addition, the moderation effect of empathy was stronger in the relationship between risk messages and destination travel intentions. These results indicated that empathy had a beneficial effect on basic travel intentions in a crisis context and had an inducing effect on destination travel intentions only in high-risk situations. This empirical finding provides strategic guidance for the tourism industry to develop empathy marketing during the COVID-19 pandemic, and it is an important conclusion that has not been found in previous research.

Third, PWT had a marginally significant moderation effect between risk messages and

destination travel intentions. Low-PWT individuals scored higher on destination travel intentions than high-PWT in the case of the risk-amplifying frame, while high-PWT individuals scored higher for destination travel intentions than low-PWT within the risk-attenuating frame. These results suggested that the resources and destination travel intentions of people with long crisis PWT are reduced in high-risk situations. This conclusion was consistent with the results of Zheng et al. (2020), that is, the high-risk situation caused by the COVID-19 pandemic triggered “travel fears”, and they tended to adopt protective travel behaviour after the pandemic, including travel avoidance. In low-risk situations, relatively safe perceptions and environments encourage high-PWT individuals to travel after the pandemic to alleviate negative emotions such as anxiety, stress, anger, and fear caused by long crisis waits, as well as meeting the suppressed travel intentions experienced during the COVID-19 lockdown period. Thus, the moderation effect of PWT between risk messages and destination travel intentions presented a “scissors difference” path.

Theoretical implications

This research investigated the categorisation effect of intra-pandemic risk messages on post-pandemic travel intentions, which provides an original contribution to the existing literature related to the effectiveness of the frame effect, which hitherto had been explored mainly in normal conditions (Kim & Kim, 2014; Sparks & Browning, 2011; Zhang *et al.*, 2018) and never within the context of a major pandemic. Similarly, this study improves the current understanding of the relationship between risk messages, perceived safety, and post-pandemic travel intentions during a major global crisis. Based on the continuing “travel intention debate” as well as the expansion of and responses to Kapuscinski and Richards’ (2016) and

Liu and Pennington-Gray's (2015) studies, this research investigated the effect of risk messages about the COVID-19 pandemic on basic travel and destination travel intentions in the cases of risk-amplifying and risk-attenuating frames. A key theoretical contribution of this research is in the integration of the frame effect and categorisation theory in a crisis context, which not only yields new insights on the categorisation effect of risk messages on post-pandemic travel intentions, but also provides a theoretical basis for agenda-setting and intervention for risk messages during the COVID-19 pandemic.

Furthermore, the beneficial and inducing effects of empathy were examined on multi-category travel intentions after a major global crisis. This provides evidence and a theoretical basis for analysing the effect and boundary conditions of risk messages. Currently, empathy is attracting more attention in tourism studies, such as on hospitality service quality, dark and heritage tourism (Tucker, 2016; Miles, 2002). Empathy plays a second important role besides attributions of responsibility to analyse the relationships between crisis situations, crisis and risk communication, and outcomes (Schoofs *et al.*, 2019). However, the effect of empathy needs more empirical research during tourism crises. Therefore, this research validated the moderation of empathy in the effect of intra-pandemic risk messages on post-pandemic travel intentions, which revealed the cognitive and regulation mechanisms of individuals' empathy with risk messages about the pandemic. Moreover, the empathy altruism hypothesis proposes that high-empathetic individuals tend to have compassion and concern towards vulnerable groups and are willing to assume altruistic behaviours to help others recover from their unfortunate states (Batson, 1987). This research validated and extended this hypothesis in a tourism crisis context.

Finally, the moderation effect of PWT was investigated within the context of risk messages related to a major pandemic, which represents an extension of waiting time research, hitherto seldom pursued in tourism and even less so in the context of a major pandemic. The nationwide lockdown served as a unique context for crisis waiting research in tourism. Combined with COR theory, this research identified the “scissors difference” effect of PWT on the intra-pandemic risk message-post-pandemic destination travel intentions relationship. Specifically, the moderation effect of PWT had a risk-situation orientation, which demonstrated the varying effect of resource conservation demands on destination travel intentions in the different portrayals of risk (risk situations). The theoretical contribution of this research is to highlight the application of COR for risk communication in tourism and enrich the research on crisis PWT from the perspective of resource conservation as well as providing a valuable case for investigating future travel intentions in a long-term risk situation.

Practical implications

First, destination management organisations (DMOs) should enhance their preparedness for major crises especially with regards to their communication of risk by adopting risk-attenuating frames to communicate messages in a post-crisis context. Specifically, DMOs should provide and communicate positive but accurate messages in a timely manner to avoid and attenuate negative perceptions of risk messages during risk communication. In the context of major crises such as COVID-19, DMOs should demonstrate and communicate the risk messages related to crisis response strategies and safety outcomes achieved. In addition, DMOs should pay closer attention to professional public relations techniques and risk

message communication strategies to identify and predict the possible negative impacts of risk messages so that a mismanagement of the information available does not lead to a more damaging and longer-lasting market crisis.

Second, DMOs should be committed to developing empathy marketing, communicating messages that arouse empathy in major source markets, and pay more attention to high-empathy tourists. Based on the cognitive and emotional components of empathy, DMOs should not only communicate positive information about pandemic responses, but also arouse empathy by publicly sharing the challenges and difficulties faced and strengthening the crisis interactions with tourists in order to promote market recovery. In addition, DMOs need to identify tourist segments with different empathy categories and select targeted marketing tools to convert the travel intentions of high-empathy tourists into actual travel decisions.

Third, DMOs should emphasise the crisis waiting management of tourists, and design tailored management strategies based on the moderation effect of PWT in different risk situations. In high-risk situations, on the one hand, DMOs can adopt perception management measures, such as reducing the negative impact of crisis through appropriate strategies, enriching the crisis waiting process through virtual reality, thereby distracting attention away from the crisis and reducing PWT. On the other hand, DMOs can propose effective crisis response strategies and emergency response measures, thereby resolving crisis events and reducing the actual crisis waiting time. In a low-risk situation, DMOs should trigger tourists' restrained travel desires and intentions during the long-term crisis waiting duration using marketing tools such as offering free tickets and product discounts.

Limitations and future research directions

This research had several limitations. First, the focus was on the effect of intra-pandemic risk messages on post-pandemic travel intentions in the context of a major public health crisis. Future research should test and expand these conclusions to different crisis typologies, and the impact of the proposed moderation variables (i.e., empathy and PWT) on domestic and international travel intentions should be approached separately. Second, the experimental design and the conclusions confirmed of this research were based on the anti-pandemic context in China. Due to differences in China's political framework, media status, and the overall response measures to the pandemic from other countries, the risk messages to which Chinese residents were exposed during the pandemic, as well as their perceptions and emotional experiences, were different from those of people in other nations. Thus, future research should expand on the scope into other cultural milieus, and factors such as national political philosophies, media status, and health crisis responses, should be incorporated into the conceptual model of post-pandemic travel intentions. Third, this research did not investigate the risk information seeking and processing models of residents. Individuals risk information seeking, and processing is a necessary premise of the risk message, and affects attitudes and behaviour (Ryu and Kim, 2015). Future research should investigate the mediation effect of risk information seeking and processing between risk frames and post-pandemic travel intentions. Fourth, this research did not explore the impact of tourist risk-related personalities. Future research should investigate the effects of risk tolerance, risk-taking personalities, and personal experiences of earlier crises.

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