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Which travel risks are more salient for destination choice? An examination of the tourist's decision-making process

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Abstract:

The paper examines which travel risks are more salient for tourists' destination choice. We develop and test an integrated travel decision risk typology with survey data from 835 potential tourists. Specifically, we explore the interplay of risk types, tourist attributes and destination characteristics. We examine if travel risks linked to nature, health, terrorism, criminality, political instability are more salient for tourists' destination choice—and how risk perceptions influence tourist's in the key stages of the decision-making process. Results offer an important baseline for future studies in the post-COVID-19 phase. *First*, our integrated travel decision risk typology distinguishes between sociodemographic, psychological and travel-related factors. We show that past travel experience shapes risk perceptions and impacts tourists' future destination choice. *Second*, we reveal that natural disasters are not the key barrier in the early decision-making stage of the destination choice process. *Third*, we identify tourist segments that are resilient to certain risks. We conclude with implications for the tourism practice with recommendations on how to manage travel risk and decision-making behaviours in the (post-)COVID-19 phase.

Keywords: destination choice; risk perception; tourist typology; travel behaviour; travel decision-making

1 Introduction

The COVID-19 pandemic is likely to have severe implications for tourists' health risk perceptions and may change travel behaviour in the long term, as indicated by past studies on infectious diseases (Cahyanto et al., 2016; Novelli et al., 2018). Thus, for tourism marketing managers a better understanding of consumers' perceptions and responses to risk will be necessary for planning and forecasting the disaster recovery phase. It is clear that a number of risks types and consumer-related factors influence tourists' decision-making. The extant literature found that risk types include natural disasters (Park & Reisinger, 2010; Rittichainuwat et al., 2018), health risks (Chien et al., 2017), criminality (Giusti & Raya, 2019; Tasci & Sönmez, 2019), political instability (Balli et al., 2019), or terrorism (Fuchs et al., 2013; Walters et al., 2019). From the tourists' perspective, several factors have been identified to influence decision-making in relation to risk. These factors include personality traits (Lo et al., 2011), knowledge and visit experience (Sharifpour et al., 2014) in addition to sociodemographic factors such as age and gender (Park & Reisinger, 2010; Reisinger & Mavondo, 2006).

Integrated approaches including tourist attributes and destination characteristics to study destination choice recognise that people consider their needs (i.e. tourist attributes) as well as amenities offered by destinations (i.e. destination characteristics) when making travel decisions (Ankomah et al., 1996; Bekk et al., 2016). Several recent studies on destination choice in general (Bronner & de Hoog, 2020) and in regard to risk specifically (Karl, 2018; Perpiña et al., 2020) provide evidence that such integrated approaches can prevent fragmented results linked to a specific destination in case study approaches. This research argues that examining differences across risk categories and across destinations is necessary as it will help to understand how tourists' perceptions of the same risk type differ and how this influences their destination choice behaviour. Further, this research builds on Karl's (2018) integrated approach and examines whether certain risks are more salient for some tourists' destination choices and how differences in the perception of risk types are reflected at key stages of the destination choice process. The resulting travel-decision risk typology offers insights into the relationship between risk perceptions, past, present and future travel and the most important psychological factors for each distinct segment.

Contributions to knowledge in the tourist behaviour literature and risk perception in decision-making are threefold: *First*, this research examines the influence of a range of risk types and destinations. In doing so, it extends existing research that often focusses on single event case studies. *Second*, this research captures prospective and actual travel behaviour based on set theory approaches, recognizing the existing gap between travel intentions and actual behaviour. *Third*, the travel-decision risk typology incorporates factors related to all three dimensions that are relevant to assess tourists' travel risk: the decision-maker, the risk type and the destination. Therefore, this study offers a model that better addresses the complexity of travel decision-making and advances prior travel risk typologies that only focussed on one risk type.

2 Literature review

2.1 Risk perception and destination choice

From a consumer behavioural perspective, travel risk perception can be defined as the tourist's anticipated negative impact of the respective risk, and the likelihood for these negative consequences to occur (Mowen & Minor, 2001). The assessment of both elements is prone to errors and bias resulting, for example, in tourists' overestimation of probabilities for dreadful occurrences (e.g. terrorism) in comparison to more mundane events (Wolff et al., 2019). Nevertheless, tourists base their decisions on these (biased) risk perceptions (Roehl & Fesenmaier, 1992), which might not reflect the actual situation at a destination (Fuchs & Reichel, 2006). This paper neither focusses on directly measuring the perceived likelihood of a risk event occurring nor the severity of risks for the tourists' well-being. Instead this research focusses on changes in destination choices due to perceived risk, based on anticipated likelihood and severity of risk types.

Destination choices are made based on a negotiation process between tourist attributes and destination characteristics (Ankomah et al., 1996). For instance, Bekk et al. (2016) reveal how the perceived similarity between destination and tourist influences the choice of a certain destination. In the context of risk, tourists make destination choices based on their individual perceptions of travel risk (Mansfeld, 2006), tourists' socio-psychological attributes (Sharifpour et al., 2013) and destination attributes including risk-associated elements (Perpiña et al., 2020). However, the literature illustrates that the destination is secondary, despite context being considered important in understanding risk perceptions and travel choices (Roehl & Fesenmaier, 1992). Spatial dimensions of risk perception have been considered in a handful of studies on risk perception (e.g. Wolff & Larsen, 2016). These studies show that perceptions of destinations' risk levels change over time, depending on the home country (Wolff and Larsen, 2016), the destination's location in a broader geographic region (Kozak et al., 2007; Lepp & Gibson, 2008) or between international and domestic destinations (Lepp & Gibson, 2003).

Set theory is a theoretical approach that allows the researcher to investigate the destination perspective in more detail (Karl, 2018). Set theory suggests that destination choice is a funnel-like process that facilitates decision-making by allocating alternative destinations into groups (Decrop, 2010; Karl et al., 2015). These groups are structured hierarchically, based on the person's level of desirability to visit a destination and the feasibility of implementing a holiday in the destination. Risk perception is likely to be an important factor relating to both desirability (i.e. destination with a high level of risk may be perceived as unattractive) and feasibility (i.e. destination with a high level of risk may be perceived as impossible to visit).

2.2 Travel risk perception

The literature on travel risk in conjunction with tourists' decision-making has been growing over the last twenty years, more so after the terror attacks in New York, 2001 (Karl & Schmude, 2017). Earlier research integrated a variety of risk types into their methodologies, e.g. nature, health, terrorism, criminality, political instability (Adam, 2015; Floyd et al., 2004; Gray & Wilson 2009; Lepp & Gibson, 2008; Park & Reisinger, 2010; Reisinger & Mavondo 2005; Sharifpour et al., 2014; Tasci & Sönmez, 2019). Later studies often related their research to specific risk types that largely affect tourism demand, such as terrorism and political instability after the 9/11 terror attacks in New York (Floyd et al., 2004; Walters et al., 2019), health risk after Ebola outbreaks in travel destinations (Cahyanto et al., 2016; Novelli et al., 2018) and above all, the growing awareness for global environmental change (Jiang et al., 2017). At present, the COVID-19 pandemic with worldwide consequences for tourism is likely to initiate more research related to the perception of health risk.

Table 1 presents a synthesis of the extant literature on travel risk and relevant risk types. This study focusses on risk types that directly affect tourist's health and wellbeing and have the strongest relative impact on travel decision-making (Gray & Wilson, 2009). Risk factors that are not directly affecting tourist's health and wellbeing, such as travel equipment, social, and time (Roehl & Fesenmaier, 1992), are excluded as they rather influence tourist's satisfaction, and have been rated secondary to travel decision-making (Gray & Wilson, 2009).

The literature review reveals that studies increasingly focus on specific risk types which indicates that the field is maturing as studies delve more deeply into specialist topics. However, the problem with this consolidation on certain individual travel risks due to the deeper focus might also be problematic. In a comparative approach to extract the relative risk perception of travel hazards, Gray and Wilson (2009) show that terrorism risk may be dominant in destination choice. So far, however, it remains unclear which risk types may be most influential for different stages of the destination choice process – when comparing all risks with each other in a single study. Thus, it could be asked, if a broader range of risk factors for different destinations are not measured, then how can we tell which risk factors are most salient in destination choices and why?

The studies that do exist provide mixed evidence. On the one hand, some studies suggest health risks due to infectious diseases are more influential on travel decisions than terrorism risk (e.g. Rittichainuwat & Chakraborty, 2009). Other authors posit that health, terrorism and natural disasters are the most influential risk types (e.g. Kozak et al., 2007; Law, 2006). Further, macro-level studies claim political crises have a stronger influence on tourists than natural disasters and health risks (e.g. Jin et al., 2019); whilst others stress that terrorism is the key risk type when examining long-term travel behaviour (e.g. Lanouar & Goaid, 2019). Thus, there is some debate, but it remains open which risk type is perceived to be most influential and how differences in the perceived impact between tourists can be explained.

Further, the literature review points to several open methodological questions on sampling and timing of the data collection, construct definition and operationalisation in quantitative surveys. For example, two different sampling procedures are used. Studies either rely on samples from specific traveller groups such as backpackers (Adam, 2015) or international tourists within the country (Seabra et al., 2013). These studies focus on the later stages of decision-making (Gray & Wilson, 2009). Other studies use data from resident surveys, hence, prospective travellers (Sarman et al., 2016; Sharifpour et al., 2014). Yet, this can cause bias as they may not actually travel. Existing studies also mostly focus on the perception of specific destinations or travel in general rather than analyse a range of outbound locations (Fuchs, 2013; Fuchs & Reichel, 2011; Park & Reisinger, 2010; Perpiña et al., 2020). Ritchie and Jiang's (2019) systematic literature review on crisis and disaster literature demonstrates that multiple cases (risk types or destinations) are lacking. Recent studies advocate for integrated approaches that consider destination as well as tourist attributes in studies on risk perception (Karl, 2018; Perpiña et al., 2020).

Finally, inconsistencies remain in construct definitions and survey instruments which restrict the ability to compare research findings (Chien et al., 2017). Karl and Schmude (2017, p. 149), for example, point out that “some surveys concentrate on how strong respondents perceive risk to be an influencing factor in destination choice, while others assess the level of perceived risk or perception of the probability and severity of an outcome related to risk while travelling or at a destination. Another variation is the geographical reference regarding risk perception. Risk perception is attributed to destination(s) or region(s) as well as to (international) travelling generally.”

Table 1. Summary of risk types, spatial focus, sample and data collection in the extant literature (selected studies)

Risk types	Sample	Data collection	Authors
	258 residents	Household survey in a university town in USA	Roehl & Fesenmeier, 1992
Health, terrorism, political instability	240 persons with international travel experience or intentions to travel internationally	Household survey, telephone survey	Sönmez & Graefe, 1998
Nature, health, terrorism, criminality, political instability	348 persons who travelled in the past 12 months	Telephone survey with New York residents	Floyd et al., 2004
Health, terrorism	373 university students	Student survey	Dolnicar, 2005
Health, terrorism, criminality, political instability	National (246) und international (336) visitors of touristic sights	Onsite survey, touristic sights in Melbourne, Australia	Reisinger & Mavondo, 2005
Nature, health, terrorism	1304 international tourists	Survey in departures area of Hong Kong airport	Law, 2006
Health, terrorism, criminality, political instability	830 international tourists	Onsite survey, touristic sights in Melbourne, Australia	Reisinger & Mavondo, 2006
Nature, health, terrorism	1180 international tourists	Survey in departures area of Hong Kong airport	Kozak et al., 2007
Health, terrorism, criminality, political instability	290 visitors of a university (including students) between 17 and 30 years of age	Onsite survey, university in USA	Lepp & Gibson, 2008
Nature, health, terrorism, criminality, political instability	299 persons, including university students, divers and residents	Online survey and household survey in UK	Gray & Wilson, 2009
Health, terrorism	423 international tourists (first time and repeat)	Onsite survey, departures area of Bangkok airport, Thailand	Rittichainuwat & Chakraborty, 2009
Nature, health, terrorism, criminality, political instability	354 national and international tourists	Onsite survey, Miami, USA	Park & Reisinger, 2010
Nature, health, terrorism, criminality, political instability	776 international tourists (first time and repeat)	Onsite survey in Israel	Fuchs & Reichel, 2011
Health, terrorism, political instability	600 international tourists	Onsite survey, departures area of airports in Madrid, Spain, Lisbon, Portugal and Milano, Italy	Seabra et al., 2013
Nature, health,	255 tourists from Malaysia with travel experience in Japan	Onsite survey at travel fair and online survey via tour operator	Chew & Jahari, 2014
Health, terrorism, criminality, political instability	186 residents	Online survey	Sharifpour, et al., 2014
Nature, health, terrorism, criminality, political instability	603 backpacking tourists	Onsite survey, departures area of Accra airport, Ghana	Adam, 2015
Nature, terrorism	1465 residents	Online survey in English-speaking source markets (Australia, UK, USA)	Hajibaba et al., 2015

Terrorism	10,097 national and international tourists	Onsite survey at touristic sights in Norway, repeated survey in 2004, 2010, 2011, 2012 and 2015	Wolf & Larsen, 2016
Criminality	106 students	Laboratory priming experiment	Guisti & Raya, 2019
Nature, health, terrorism, criminality, political instability	1692 residents	Online survey through panel (USA)	Tasci & Sönmez, 2019
Terrorism	424 residents	Choice experiment (USA)	Walters et al., 2019
Criminality	466 members of a Spanish university	Online survey	Perpiña et al., 2020

2.3 Tourist Attributes

The literature review shows that the key decisive tourist attributes influencing tourists' risk perceptions are 1) sociodemographic profile, 2) increased travel experience, and 3) personality and psychographic factors. Therefore all three elements are included in this study.

1. Each tourist's *sociodemographic profile* influences how travel risk perceptions shape travel decision-making. Key sociodemographic variables that have been identified include gender, age, social and cultural background (Floyd et al., 2004; Kozak et al., 2007; Park & Reisinger, 2010; Reisinger & Mavondo, 2005; 2006). Studies also conclude that travel behaviour changes along with lifespans; for instance, the phase of travelling with young children influences risk perception and indirectly, travel decision-making (Karl et al., 2015; Ritchie et al., 2017; Roehl & Fesenmaier, 1992).
2. *Increased travel experience* influences tourists' risk perceptions, too. With increased travel experience, tourists are more confronted with difficult situations and are required to develop coping strategies. Subsequently, a better coping mechanism increases their confidence levels and cognitive skills, which leads to reduced levels of perceived risk (Kozak et al., 2007; Lepp & Gibson, 2003; Sharifpour et al., 2014; Sönmez & Graefe, 1998). Whether experiencing a potentially dangerous situation while travelling further reduces perceived risk has not been clarified (Seabra et al., 2013). Repeat visitation is thus an important factor as it may provide additional knowledge leading to more accurate assessments of potential risks at a destination (Larsen et al., 2011; Sarman et al., 2016). This impacts future destination choices and increases willingness to travel (Sharifpour et al., 2014). To date, past studies have not distinguished between risk categories (e.g. health, terrorism, natural) although experience with a specific destination may only influence the perception of certain risk (Rittichainuwat & Chakraborty, 2009).
3. *Personality and psychographic factors* also shape risk perceptions and travel decision-making. Factors such as novelty-seeking and sensation-seeking or risk propensity have been discovered in previous research (Lepp & Gibson, 2003; 2008; Morakabati & Kapuściński, 2016; Pizam et al., 2004; Sharifpour et al., 2013). High levels of novelty-seeking can either pull novelty seekers or repel familiarity seekers from certain destinations due to risk and uncertainty (Lepp & Gibson, 2003). Sensation-seekers may be attracted to certain destinations with potential risks, although they may be more aware of the consequences (Pizam et al., 2004). Tourists with high risk propensity may even be drawn towards a destination because of the higher risk levels (Adam, 2015). Most studies examine one or two psychological factors in isolation. Chien et al. (2017) were among the first to examine a number of psychological factors in a single study.

3 Methodology

This research explores whether certain risk types are more salient for travel decision-making and how the perception of risk types reflects in the destination choice process. For the tourist-individual level, primary data is used; collected in an explorative study with standardised questionnaires. For the destination level, an existing destination index is applied; based on different indicators from secondary data (Karl et al., 2015). To capture the complexity of the variety of factors, a segmentation approach (Dolnicar, 2005; Ritchie et al., 2017) is adopted to differentiate respondents based on their perceived impact of risk on destination choices and to explain differences in risk perception and destination choice from a tourist and destination perspective.

3.1 Survey instrument

A standardised questionnaire with fixed-choice and open-ended questions was developed, based on past literature, as summarized in Table 2. The questionnaire (19 questions including secondary questions, and 10-15 minutes of completion time) covered the impact of risk perception on destination choices as a basis for the tourist segmentation and factors to explain the tourist types (e.g. sociodemographic profile, travel behaviour, psychological factors). Before conducting the survey, technical and comprehension-related pilot tests were undertaken with smaller samples to improve the reliability and validity of the questionnaire.

Table 2. Research framework to examine risk perception in tourist's decision-making process

Variable	Description	Authors
Segmentation variable		
Risk type	Influence of risk perceptions on travel intentions 'Imagine that the [risk category] occurs in one of your dream destinations with a low level of probability. Would you still decide to travel there?' (5-point scale from 'likely' to 'unlikely') [risk category]: nature (e.g. natural risks, natural disasters), health (e.g. disease, poor medicine or hygiene standards), political instability (e.g. violent demonstrations), criminality, terrorism	Kozak et al., 2007; Law, 2006
Explanation variables		
Tourist attributes		
Sociodemographic	Gender, age, educational level, household income	
Travel experience		
Experience with risk	'Have you ever experienced a risky situation while travelling?'	Seabra et al., 2013
Repeat visit tendency	Calculation from repeat visit of the past travel destinations: 1. low = no repeat visits of past travel destinations 2. medium = one or two repeat visits of past travel destinations 3. high = three or more repeat visits of past travel destinations	Lepp & Gibson, 2003
Travel regularity	Calculation from number of past travel destinations: 1. low = no more than one main holiday in the past three years 2. medium = two main holidays in the past three years 3. high = three or more main holidays in the past three years	Fuchs & Reichel, 2011; Sönmez & Graefe, 1998
Psychological factors		
Novelty-seeking	Calculation of mean value from three items ¹ : 1. 'I like to revisit the same destinations because I know what to expect.' 2. 'I visit new destinations for each holiday.' 3. 'I visit rather exotic and unknown destinations.' (5-point scale from 1 = agree to 5 = disagree)	Lepp & Gibson, 2003

Risk propensity

1. Risk avoidance: 'I try to avoid possible risks which might occur at a destination through a thorough travel planning process.'
2. Risk affinity: 'Risk is a stimulus or asset of travelling. I therefore do not exclude destinations due to high levels of risk.'
3. Risk relevance for destination choice: 'Risk is no relevant factor for my destination choice.'

Adam, 2015; Hajibaba et al., 2015; Pizam et al., 2004; Williams & Baláz, 2013

(5-point scale from 1 = agree to 5 = disagree)

Destination characteristics

Past travel decision

- 'Please name the destinations where you have spent your main holiday in the past three years.'
- 'Have you visited the holiday destination of this year before?'

Decrop, 2010; Karl et al., 2015

Present travel plan

- 'Which destinations do you consider as alternatives for your next main holiday within the next 12 months?'

Decrop, 2010; Karl et al., 2015

Future travel intention

- 'Please name up to six other destinations that you would like to visit in the future but have not visited in the past.'

Decrop, 2010; Karl et al., 2015

Notes: Destinations named in the survey were aggregated to national level and categorised using a destination index.; ¹ Scale of items was reversed during data processing to create a ranking from low to high novelty-seeking.; main holiday—at least four overnight stays; most important holiday of the year if more than one holiday is planned

The key variable for the travel-decision risk typology measured the likelihood of changing travel intentions of visiting destinations where different risk types occur (Kozak et al., 2007; Law, 2006). The chosen risk types represented those perceived as high threats and important deterrents of travel decision-making: natural hazards (e.g. natural risks, natural disasters), health-related hazards (e.g. disease, poor medicine or hygiene standards), political instability (e.g. violent demonstrations), and criminality and terrorism (Gray & Wilson, 2009; Karl & Schmude, 2017; Yang & Nair, 2014). The measurement was connected to specific destinations in order to analyse destination attributes and their relation to risk perceptions, rather than relying on broad geographic regions.

The destination-focused section in the questionnaire represented elements of past, current and future destination choices following set theory (Decrop, 2010; Karl et al., 2015). The variable *past travel* covered the last stage of the destination choice process when potential travel barriers, such as too high-risk levels had been overcome and the final choice was made. *Travel plans* are one step before where alternative destinations are considered and inhibitors of travelling to these destinations are actively balanced against facilitators. In contrast to active travel planning, *travel intentions* were not attached to a time frame and covered an early stage of the destination choice process where potential future destinations, including those which might never be visited due to high risk levels, enter the repertoire of potential choices. Free elicitation (Ribeiro, 2012) was used instead of predefined destinations to capture the destination choice process. Respondents were also asked if they had visited any of the destinations in their past travel section before. This information was used to calculate a general *repeat visitation* tendency as an indicator of a need for familiarity, which can explain risk perception and travel decision-making (Karl et al., 2015; Karl, 2018). Based on the number of trips in the past three years, *travel regularity* as an indicator of travel experience was calculated.

The tourist-focused section in the questionnaire included sociodemographic information as well as psychological factors that influence risk perception and travel behaviour (Table 2). A novelty-seeking scale (Cronbach's $\alpha = 0.65$, composite reliability $>.7$, inter-item correlation between 0.2 and 0.4) was calculated ranging from the need for familiarity to reduce risk levels to novelty-seeking desires with a stronger preference for unknown destinations. The psychological factor *risk propensity* was measured using three items from concepts discussed in past tourism literature (Adam, 2015; Hajibaba et al., 2015; Pizam et al., 2004; Williams & Baláž, 2015). The addition of the three items to form a risk personality scale was not possible due to a low value of Cronbach's Alpha, which indicated that the scale might not be unidimensional and internal consistency may be an issue. Therefore, in the following analyses all three items were tested individually.

3.2 Data collection and sampling

Respondents were approached (random sampling strategy) by trained interviewers in 18 public spaces in the inner city of Munich. Interviewer training included general information about the purpose of the study and the questionnaire as well as mock interviews to ensure that interviewers conduct the interviews as intended. The target population were potential tourists (i.e. planning at least one holiday within the next 12 months) who are actively involved in the destination choice (14 years and older). Data were collected prior to the coronavirus pandemic in 2020. After elimination of invalid questionnaires (i.e. discontinued interview), the final sample size was 835 face-to-face interviews. The sociodemographic profile of respondents is displayed in Table 3.

Table 3. Sociodemographic profile of respondents (n = 835).

	<i>n</i>	Percent
Gender		
female	418	51.2
male	399	48.8
Age		
14 – 19 years	64	7.7
20 – 29 years	242	29.0
30 – 39 years	123	14.7
40 – 49 years	100	12.0
50 – 59 years	132	15.8
60 – 69 years	92	11.0
> 69 years	72	8.6
Highest level of education achieved		
Apprenticeship	28	3.4
Junior high school	57	6.9
Secondary school	123	14.9
High school	267	32.4
University or college	320	38.8
Other	30	3.6
Occupation		
Retired	109	15.5
Housewife/husband	18	2.6
Student	223	31.8
Workman	24	3.4
Employee	243	34.6
Civil servant	60	8.5
Unemployed	7	1.0
Other	18	2.6
Household income per month		
< 750 €	131	15.7
750 – 1,499 €	79	9.5
1,500 – 1,999 €	71	8.5
2,000 – 2,499 €	53	6.3
2,500 – 2,999 €	73	8.7
3,000 – 3,499 €	61	7.3
3,500 – 3,999 €	42	5.0
4,000 – 4,499 €	41	4.9
4,500 – 4,999 €	45	5.4
5,000 – 7,499 €	57	6.8
> 7,499 €	49	5.9
n/s	133	15.9
Household size		
1	227	27.6
2	306	37.2
3	131	15.9
4	108	13.1
> 4	51	6.2

A comparatively large proportion of the age group 20 to 29 years and students can be explained by Munich being a university town with two major full universities, partly located in the inner city. A comparison of destination choice tendencies of the sample with the German travel population shows high similarities regarding past travel destinations and travel regularity. Nevertheless, the study's focus is explorative and aims at opening a discussion about inclusion of spatial context in tourism research rather than providing a representative illustration of German tourists' travel behaviours.

3.3 Data processing and data analysis

To analyse destinations mentioned in the survey, a destination index (Karl et al., 2015) was applied that measures perceived risk and uncertainty caused by low levels of familiarity from the perspective of the German tourist. The destination index was based on secondary data to categorise destinations according to indicators for tourism intensity (i.e. tourist arrivals per 1,000 inhabitants), awareness of the destination in the source market (i.e. relative share of tourist flow from source market to destination), infrastructure development (i.e. human development index), accessibility (i.e. distance from source market) and safety (derived from the peace index). Details on data sources and cluster methods to develop the index can be found in the original destination choice study (Karl et al., 2015). Since data for the indicators and the resulting destination index were only available at the national level, all destinations needed to be aggregated to the national level. To describe the key destination attributes of respondents' past, planned and future travel by using the destination index, destinations were categorised into five groups with varying levels of objective risk, popularity and distance (Figure 1):

- 1) Easy travel: very safe destinations and major destinations for German tourists
- 2) Out-of-the-ordinary: safe destinations but uncommon destinations for German tourists
- 3) Safe adventure: very safe long-distance destinations
- 4) Tricky discovery: rather unsafe long-distance destinations
- 5) No go: very unsafe destinations

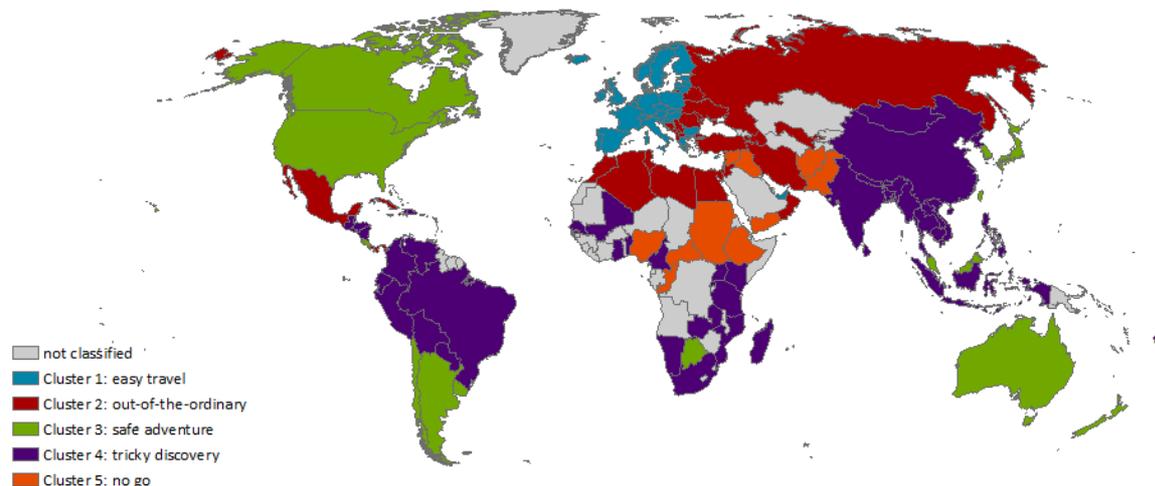


Figure 1. Spatial distribution of destination index classification, based on Karl et al. 2015

To develop the travel-decision risk typology, cluster analysis was calculated with key variables that measure the likelihood to change travel intentions of visiting specific destinations in the future because of perceived risk types (Table 2). The sample size was deemed adequate for the number of variables used to segment tourists (Dolnicar et al., 2014). Ward's (1963) hierarchical cluster analysis with squared Euclidean distance was used to minimise within-cluster variance.

Euclidean distance was chosen for variables with ordinal scales and predefined equal distances between the answer categories. Since cluster analysis is an ‘explorative toolbox’ (Dolnicar, 2002) where researchers make decisions based on the data and the study context, cluster solutions with different numbers of clusters were computed and the validity of the tourist segmentation was tested using multiple discriminant analysis. Similar to Seabra et al. (2013) and Lo et al. (2011) a series of chi-squared tests, Kruskal-Wallis one-way analysis and analysis of variance (ANOVA) was conducted to explain the tourist segmentation based on sociodemographic information, travel behaviours and psychological factors.

4 Results

The aim of this research was to examine which travel risks were more influential for tourists’ destination choices. To do this, an integrated travel-risk typology was developed linking risk types, tourist attributes, and destination characteristics. Next, results are presented that show how travel risk perceptions linked to risks of nature, health, terrorism, criminality, and political instability influence tourists in the key stages of the decision-making process.

4.1 Perceived impact of risk perception on destination choice

The results show that respondents evaluate the likelihood of changing travel intentions to their dream destinations differently depending on the risk type (Figure 2). About 50% of respondents would still travel to the destination, even if natural risks were present, while in the case of terrorism risk only 16% of respondents would still consider travelling to the destination in the future.

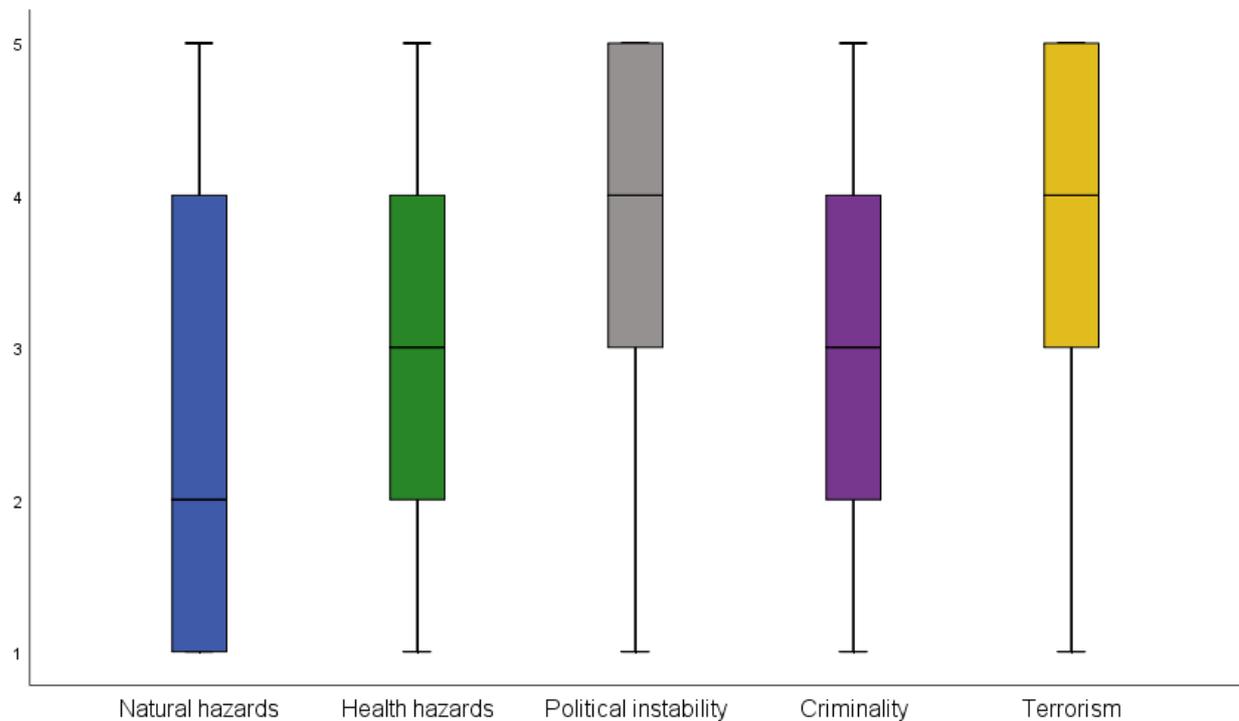


Figure 2. Likelihood of change in future destination choice due to risk types (1 = low likelihood of change, 5 = high likelihood of change)

Next, the results from a final cluster solution, extracting four distinct tourist types, are presented. The discriminant analysis of this cluster solution resulted in a high percentage of

correctly classified cases (89%, Appendix 1). The results show that four different tourist groups can be identified. These segments can be distinguished in risk adverse (i.e. high likelihood to change intentions of visiting a destination due to risk) and risk resilient tourists (i.e. low likelihood to change travel plans). In addition to these tourist segments, two other segments emerged from the cluster analysis. These segments include tourists who react differently to natural risks (i.e. natural risk resilient; natural risk adverse) (Figure 3, Appendix 2).

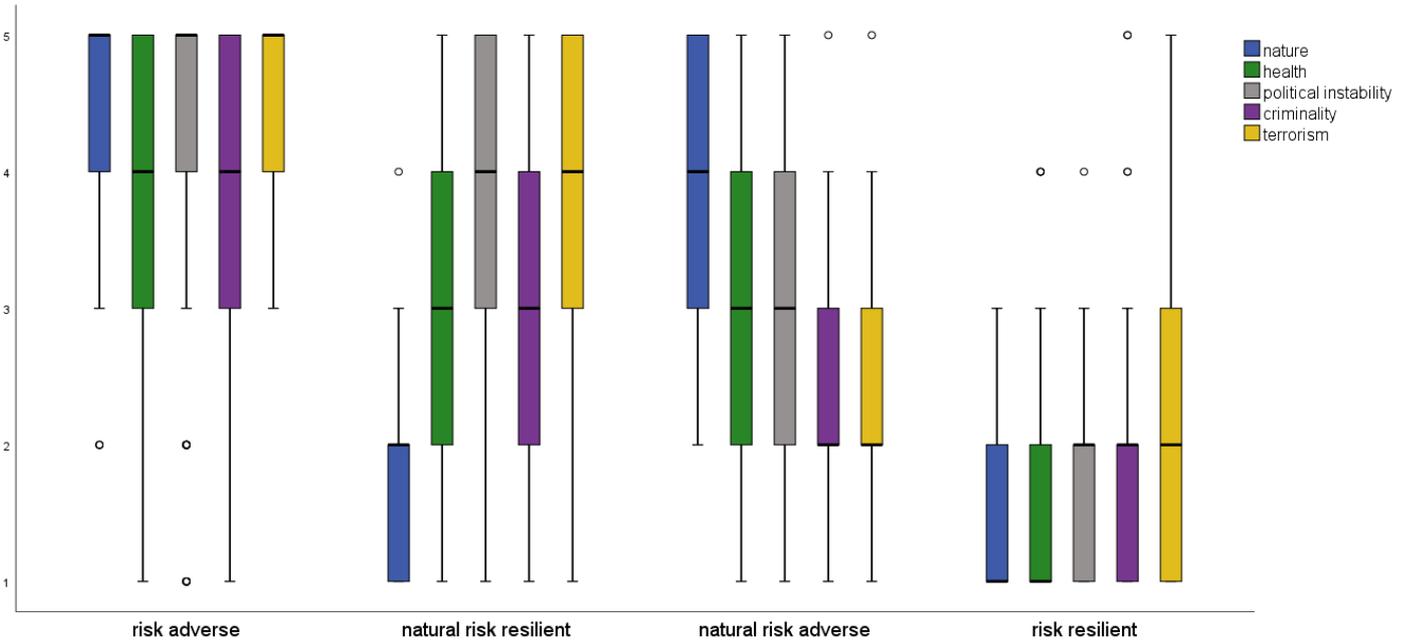


Figure 3. Description of travel-decision risk typology results (1 = low likelihood of change, 5 = high likelihood of change)

The examination of similarities and differences between the segments reveal several factors that explain why risk categories are perceived to influence travel intentions differently (Table 4).

Table 4. Results of the analysis of influencing factors of the travel-decision risk typology

	χ^2	F	df	Cramer-V	Sig.
Tourist attributes					
Gender ^a	10.198		3	0.113	0.017*
Age ^b		10.605	3		0.000***
Educational level ^a	8.157		6		0.227
Household income ^a	9.834		6		0.132
Experience with risk ^a	15.780		3	0.139	0.001**
Repeat visit tendency ^a	12.562		6		0.051
Travel regularity ^c	1.127		3		0.771
Novelty-seeking ^b		7.007	3		0.000***
Risk propensity ^c					
1. Risk avoidance	37.990		3		0.000***
2. Risk affinity	35.605		3		0.000***
3. Risk relevance for destination choice	36.559		3		0.000***
Destination characteristics (measured by destination index)					
Future travel intention ^a	30.887		12	0.072	0.002**
Present travel plan ^a	47.526		12	0.109	0.000***
Past travel decisions ^a	57.740		12	0.089	0.000***

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; ^a Pearson's chi-squared test; ^b ANOVA; ^c Kruskal-Wallis one-way analysis

The results further show significant differences exist for the sociodemographic variables gender ($p = 0.017$) and age ($F(3, 809) = 10.61, p < 0.001$). Tourists who are more likely to change their travel plans due to risk are more likely to be female and generally older than those who would still travel to a destination affected by different risk types. Post-hoc comparisons (Tukey HSD) indicate that the mean age of the natural risk resilient segment does not significantly differ from the less likely influenced segments and that no significant differences exist between the more risk resilient segments ($p < 0.05$). No significant differences are found for the sociodemographic variables educational level and household income.

In addition, results highlight that past exposure to risk while travelling is a highly significant factor distinguishing the tourist segments ($p = 0.001$). Respondents who have experienced more risk in previous travels, tend to be more risk adverse. Although tourist groups do not differ significantly according to their repeat visitor tendency ($p = 0.051$), a certain trend is certainly visible. This trend is confirmed with Mood's median test ($p = 0.012$), showing that repeat visit tendencies that exceed the median (i.e. 1-2 repeat visits in the past three years) were more common for the natural risk resilient segment than the other segments. Due to the weaknesses of Mood's median test in comparison to other statistical tests, repeat visitor tendency is only considered as a potential influencing factor. Tourist segments do not differ in their travel regularity ($p = 0.882$). Similar to past research (Karl, 2018), using travel frequency (i.e. number of trips in the past years) instead of travel regularity (i.e. travelling each year), may lead to other results but frequencies could not be calculated based on this dataset.

Results also reveal significant differences between the tourist segments regarding the psychological factor novelty-seeking tendency ($F(3, 811) = 7.007, p < 0.001$). Kruskal-Wallis tests show that significant differences between tourist types exist for each risk propensity item

($H(3) = 37.990/35.605/36.559, p < 0.001$). Post-hoc comparisons using Tukey HSD reveal significant differences exist between all segments (95% confidence interval) except for the natural risk adverse segment for novelty-seeking tendencies. Using Dunn's pairwise test as post-hoc comparison for the risk propensity items reveals significant differences between most segments. An exception is the natural risk adverse and natural risk salient segment, characterised by similar risk avoidance, risk affinity and risk relevance tendencies. Furthermore, risk as an asset for travel and an important factor for destination choices is evaluated similarly by the natural risk adverse and risk resilient segments. Risk adverse and natural risk resilient tourists also do not differ in the way they perceived risk as relevant for their destination choice.

In summary, tourists who are less likely to change their destination choice, despite high perceived risk tend to seek novel experiences. This travel group does not avoid risks while travelling and understands risk as an asset of travelling; thus, risk is not perceived as an influence factor of destination choices. In contrast, those tourists who are likely to change their future travel plans and adapt their intended destination choice have opposite novelty-seeking and risk propensity tendencies. Finally, tourist types differ regarding the destination type (measured by the destination index) that they previously visited, plan to visit and possibly intend to visit sometime in the future. All three destination choice elements are significantly related to the travel-decision risk typology ($p < 0.05$).

4.2 Characteristics of the travel-decision risk typology

Characteristics of the travel-decision risk typology and segments using the significant explanation variables (Table 5), are described in the following section.

Table 5. Characteristics of the travel-decision risk typology

	Risk adverse	Natural risk resilient	Natural risk adverse	Risk resilient
Tourist perspective				
Gender (female/male %)	56.7 / 43.3	49.4 / 50.6	56.7 / 43.3	39.4 / 60.6
Age (mean (SD))	45.59 (18.80)	38.02 (17.13)	39.10 (17.04)	38.69 (17.80)
Experience with risk (%)	34.4	31.3	25.8	51.0
Repeat visit tendency ¹ (strong, %)	36.7	33.8	55.7	39.8
Travel regularity ¹ (regular traveller, %)	66.9	67.3	58.1	66.0
Novelty-seeking ² (mean (SD))	2.69 (1.09)	2.91 (0.99)	2.94 (1.06)	3.21 (1.01)
Risk personality ³ (mean (SD))				
1. Risk avoidance	3.82 (1.36)	3.61 (1.27)	3.35 (1.39)	2.85 (1.50)
2. Risk affinity	1.99 (1.29)	2.28 (1.19)	2.48 (1.21)	2.74 (1.37)
3. Risk relevance for destination choice	3.58 (1.52)	3.41 (1.36)	3.08 (1.41)	2.62 (1.38)
Destination perspective				
Present travel plan	+: easy travel -: out-of-the-ordinary, safe adventure, no go	+: safe adventure, tricky discovery -: no go	+: tricky discovery -: safe adventure, no go	+: out-of-the-ordinary, safe adventure, tricky discovery, no go -: easy travel
Future travel intention	+: easy travel	+: no go	+: out-of-the-ordinary, no go -: easy travel	+: out-of-the-ordinary, tricky discovery -: easy travel
Past travel	-: out-of-the-ordinary, safe adventure, tricky discovery, no go	+: safe adventure -: no go	+: out-of-the-ordinary, tricky discovery -: safe adventure, no go	+: out-of-the-ordinary, safe adventure, tricky discovery, no go -: easy travel

Note: ¹ Not significant influencing factor of tourist segmentation; ² scale from low (1) to high (5) novelty-seeking; ³ scale from low (1) to high (5) risk avoidance / risk affinity / risk relevance for destination choice; +/-: more or less than statistically expected with 10% confidence

Risk adverse tourists are likely to change their travel intentions of visiting a destination affected by any risk type. They are more likely to be female (57%) and of older age ($M = 45.59$, $SD = 18.80$). Sixty-seven per cent of this segment travel at least once per year and during their travels one third has experienced risky situations. Risk adverse tourists are drawn towards familiarity and safety which they can find in well-known holiday destinations (weakest novelty-seeking ($M = 2.69$, $SD = 1.09$)). They are the strongest risk avoiders ($M = 3.82$, $SD = 1.36$), do not perceive risk as an asset of travel ($M = 1.99$, $SD = 1.29$), and consider potential risk when they make destination choices more than the other segments ($M = 3.58$, $SD = 1.52$). These psychological factors are reflected in their destination choices, indicated by the large proportion of easy travel destinations. They eliminate destinations with a high-risk level in the early stages of the destination choice process and dismiss all destinations associated with a higher risk level before the actual destination choice process is started.

Natural risk resilient tourists are not likely to change their travel intentions in the case of natural risk, and to some degree, health risk in their destination, but do so for all other risk types. They are the youngest ($M = 38.02$, $SD = 17.13$) and most regular (67%) travellers with medium risk experience (31%). They have a less coherent destination choice structure than the first segment. Their actual travel plans, and past travels are mainly safe long-distance destinations, but they intend to travel riskier in the future with more ‘no-go’ destinations than statistically expected. They show stronger novelty-seeking tendencies ($M = 2.91$, $SD = 0.99$) than the first segment but not as strong as the more risk resilient segments. Tourists in this segment avoid risk while travelling slightly less than the first segment ($M = 3.61$, $SD = 1.27$). For them, risks are a slightly less relevant factor ($M = 3.41$, $SD = 1.36$), but still a negative factor (risk affinity: $M = 2.28$, $SD = 1.19$) in the destination choice process. They may still be at the beginning of their travel career and have not yet visited different kinds of destinations, particularly less safe destinations. Their destination choice behaviour and the impact of risk perception on this behaviour may be changing with growing travel experience.

Natural risk adverse tourists are likely to change their travel intentions if the destination was affected by natural risk, but they will consider travelling to destinations affected by other risk types. These tourists are more likely female and middle aged ($M = 39.10$, $SD = 17.04$). Their very low risk experience (26%) and low travel regularity (58%) distinguishes them from others. Although the novelty-seeking tendency ($M = 2.94$, $SD = 1.06$) is identical to the second segment and their risk propensity shows a weaker risk avoidance ($M = 3.35$, $SD = 1.39$) and stronger risk affinity ($M = 2.48$, $SD = 1.21$), their actual destination choices show a different picture: 56% of this segment are repeat visitors when travelling, in contrast to only 33% in the other segments. Their destination choice structure is coherent with rather risky long-distance destinations for past, current and future travel. In comparison to the risk resilient segment, they consider risk as a somewhat relevant factor for their destination choices ($M = 3.08$, $SD = 1.41$). They tend to travel further away to fulfil their risk affinity but at the same time travel to a destination more than once to reduce uncertainty, which distinguishes them from the risk resilient segment.

Risk resilient tourists have low likelihood to change their travel intentions to destinations, independent of the risk type. This segment is dominated by male (61%) tourists of younger age ($M = 38.69$, $SD = 17.80$). Half of the respondents in this segment have experienced a risky situation while travelling in the past (51%), in contrast to only 26–34% of the other tourist types. This can be explained by the riskier destination choice behaviour: a consistent choice with a small amount of safe easy travel destinations in current travel plans, intentions and past travels. Riskier ‘no-go’ destinations are over-represented for current travel planning and past visitation. These tourists actually do travel to rather risky destinations, resulting in experiences

of risky situations while travelling. Tourists in this segment have the strongest novelty-seeking tendencies ($M = 3.21$, $SD = 1.01$), lowest risk avoidance ($M = 2.85$, $SD = 1.50$) and strongest risk affinity ($M = 2.74$, $SD = 1.37$). From all segments, risk resilient tourists do not perceive risk to be a relevant factor of their destination choices ($M = 2.62$, $SD = 1.38$). In contrast to others, risk resilient tourists consider destinations with a higher risk level at a later stage of the destination choice process, actually travel there and incorporate risk considerations into their destination choices; however, they are unlikely to change their travel plans due to risk.

5 Discussion and conclusion

5.1 Theoretical implications

Studies focusing on travel decision-making in the context of risk often address the question of whether someone intends or plans to travel (internationally) (Floyd et al., 2004; Reisinger & Mavondo, 2005) rather than where someone plans to travel. Building on Kozak et al. (2007) who focus on the impact of risk perception on travel planning, this study investigates the destination choice process in terms of travel intentions and travel planning simultaneously to capture the existing discrepancy between actual and desired destination choice behaviour. Using an integrated research approach, the impact of risk categories on different stages of the destination choice can be tracked.

This study's results show that certain risks are more salient for certain tourists and this is reflected in the destination types that are relevant across key stages of the decision-making process. For example, risk-resilient respondents who are not likely to change their travel plans and travel despite the occurrence of risk with low probability, consider high risk destinations as potential destinations, while risk-adverse respondents mainly consider safe destinations for present and future travels. Further, at a later stage of the destination choice process, when the final choice is made, travel-decision risk types can still be distinguished by their preference for different kinds of destinations. Hence, this study's results also show that where someone has travelled to and which destinations someone considers for future holidays are related to the way they deal with risk during the travel decision-making process. By measuring the type of destination that has been visited and is considered for future travel, this study provides additional insight into this relationship on a more detailed level of spatial abstraction. The results underline the relevance for tourism research to concentrate on risk perception during travel decision-making and on the reaction to it—the rejection of destinations with specific characteristics at key stages of the destination choice process.

Focusing on the tourist perspective, this study confirms the influence of the sociodemographic factors, age and gender, on risk perception and travel behaviour (Hajibaba et al., 2015; Kozak et al., 2007; Reisinger & Mavondo, 2006). Male and younger tourists are able to endure perceived risk (Kozak et al., 2007), are more crisis resistant and therefore are travelling to destinations with higher risk levels (Hajibaba et al., 2015). This study shows that these tourists are not likely to change their travel plans if the risk is only occurring with a low probability. Consistent with existing literature, this study shows that travel experience reduces perceived risk regarding certain aspects (Lepp & Gibson, 2003) and reduces the impact that risk has on travel decision-making (Kozak et al., 2007; Sharifpour et al., 2014).

This study also extends past research on psychological factors showing that novelty-seeking not only increases risk affinity (Lepp & Gibson, 2003) or lowers risk perception (Morakabati & Kapuściński, 2016), it also influences how perception of different risk types influences travel decision-making. In order to experience novel things while travelling and to

satisfy novelty-seeking needs, tourists accept different risk types as part of the travel process and are still willing to visit destinations associated with risk. Their risk-taking tendency not only increases preference for risky activities (Pizam et al., 2004) but also for risky places. Risk might even be a travel motive (Adam, 2015) or at least, not a travel barrier (Hajibaba et al., 2015).

5.2 Practical implications, limitations and future research

In terms of practical implication, this research offers an integrated approach that can guide tourism marketers to develop targeted marketing strategies. The travel-decision risk typology integrates sociodemographic, psychological and travel-related factors, alongside destination attributes of prospective. Destination marketers can utilise this study's results to identify potential risk adverse or risk-seeking tourists, and address them in their multifaceted marketing. Destination marketers could also develop more targeted communication plans when struggling with recovery after a crisis or disaster. For instance, one tourist group was identified that is less susceptible and influenced by natural disasters.

Although it is not new that safety has always been a fundamental human need (Maslow, 1943), the urgency to better understand and implement marketing strategies that address travel risk is particularly strong in light of the COVID-19 pandemic. This study offers insights into how destination marketers can better use knowledge of tourists' travel risk perception in their marketing plans. This study confirms that different risk categories can influence travel decisions particularly for destinations affected by high levels of perceived risk. By focusing on a range of risk categories instead of a single risk type in a single case study, it is possible to identify tourist segments that are resilient to certain risks. Moreover, the pandemic of COVID-19 may have changed the relative position of health risk, compared to other risk types, as an influence factor of destination choices. Future research with repeated cross-sectional designs could track the position of health risk to determine whether COVID-19 led to long-lasting changes in the evaluation of different risk types or if the current crisis had only short-term impacts on risk perceptions. The current study offers an important baseline for future research.

This study contributes to better understanding tourist risk behaviours along the key stages of travel decision-making; yet some limitations that can guide future research need to be acknowledged. *First*, the transferability of this study's results to other source markets is limited to similar cultural contexts as Germany's. Although there is an argument that some aspects of travel behaviour might be culturally convergent, e.g. activities undertaken during holidays (Muskat et al., 2014), it is likely that cultural values might shape risk perceptions. For example, Germans' high level of uncertainty avoidance (Hofstede et al., 2010) might influence perceptions of risk categories as studies have shown that they depend on uncertainty avoidance tendencies (Kozak et al., 2007). In comparison to tourists from low uncertainty avoidance countries (e.g. Sweden, Denmark, USA), German tourists are generally more threatened by ambiguous or unknown situations and will compensate for this by applying adequate risk reduction strategies (e.g. travel insurance, vaccinations).

Second, a further limitation might exist in the measurement of the psychological factors. To reduce the length of the interview in the face-to-face interviews and avoid respondent fatigue, novelty-seeking and risk propensity were measured with only a few key items capturing a broadly defined conceptualisation derived from past studies. This approach might have reduced the internal consistency of a scale, evident in lower Cronbach's Alpha values. Integrating a larger number of items to measure novelty-seeking and risk propensity in the tourism context may result in a higher reliability of the psychological factor scores. Future

research, therefore might consider adopting the Risk Propensity Scale (Meertens & Lion, 2008) which measures general risk-taking tendencies with high reliability and discriminant validity.

Third, perceived risk is an assessment of the probability of an event happening and the severity of the negative outcomes (Mowen & Minor, 1998). Tourists often overestimate probabilities for dreadful events, for example terrorism (Wolff et al., 2019). This so-called probability neglect may affect the measurement of the perceived influence of risk on future travel choices in this study. Respondents may have associated varying probabilities of occurrence depending on the risk type, which consequently increased or decreased the relative impact of each risk type on travel intentions. Future studies should therefore incorporate measurements of probability of occurrence and severity of the consequences (e.g. tourist's wellbeing, holiday experience) alongside the willingness to change travel plans. Stated choice experiments representing the different stages of the destination choice process may provide further insight into the temporal impact of risk perception, in addition to the current focus on future travel.

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Appendices

Appendix 1. Classification results of the multiple discriminant analysis

Actual group	Predicted group membership				N
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	
Cluster 1	267 90.2 %	19 6.4 %	10 3.4 %	0 0.0 %	296
Cluster 2	10 2.8 %	307 85.8 %	3 0.8 %	38 10.6 %	358
Cluster 3	4 6.5 %	1 1.6 %	56 90.3 %	1 1.6 %	62
Cluster 4	0 0.0 %	2 2.0 %	2 2.0 %	96 96.0 %	100

Note: Percent of grouped cases correctly classified: 89.0 %.

Appendix 2. Description of tourist segmentation results (mean (SD))

	Total	Risk adverse	Natural risk resilient	Natural risk adverse	Risk resilient
Nature	2.82 (1.5)	4.38 (0.72)	1.75 (0.7)	4.03 (0.83)	1.31 (0.51)
Health	3.18 (1.36)	4.05 (1.07)	2.92 (1.23)	2.84 (1.2)	1.75 (0.88)
Political instability	3.74 (1.3)	4.45 (0.93)	3.88 (1.01)	2.79 (1.23)	1.71 (0.69)
Criminality	3.13 (1.31)	3.93 (1.13)	3.02 (1.14)	2.29 (0.91)	1.72 (0.82)
Terrorism	3.92 (1.26)	4.68 (0.57)	4.04 (1.04)	2.21 (0.91)	2.28 (1.16)

Note: Influence of risk categories on travel intention is based on a 5-point scale: 1 = low likelihood of change in travel intention, 5 = high likelihood of change in travel intention