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Gauging the role of personality in risk perception during a health crisis and its impact on tourist consumption behaviour

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Abstract: This study examines the influence of the tourist personality and the use of technology on the traveler behavior and the risk perception about travelling. The purpose of this study is to investigate the link between personality, risk perception, and travel behavior among French travelers. An online survey was conducted using a sample of 422 responses to examine individual variations in risk perception during a health crisis and their influence on travel behavior. The study was carried out using PLS-SEM, and a model was proposed that considered the substantial Average Variance Extracted (AVE) and Composite Reliability test findings. The findings demonstrated that personality has a considerable influence on risk perception, which has a major impact on all stages of travel decision-making. The originality of this study stems from the research model focused on the association between personality, risk perception, and travel behaviour categories.

Keywords: health crisis, risk perception, travel behaviour, personality, big five factors (BFF), PLS-SEM.

1. Introduction

The tourism industry is the most dynamic sector that benefits many other sectors like lodging, catering, transportation, retail and entertainment, contributing to economic growth and global recovery (Sanjita Jaipuria *et al.*, 2020). Tourist behavior is the combination of interactions between internal factors (motivation, attitudes, beliefs, between others) and external factors (economic environment, security, socio-cultural environment, etc.) (Sembeto and Hon, 2020). In this research, the internal factor, limited to the individual personality changes caused by a health crisis, such as the COVID-19 pandemic, is considered for newly transformed tourism behavior (Villacé-Molinero *et al.*, 2021).

The risk associated with a health crisis is expected to have a far-reaching influence on travel intentions. Several studies have discussed risk in tourism (Williams and Baláž, 2015; Holm *et al.*, 2017; Saint Akadiriet *al.*, 2020). Risk and tourism are interwoven as purchasing a leisure trip are inherently attached to risk (March and Woodside, 2005). Tourism is generally associated with pleasure and leisure activities. Risk is mainly seen as something to be avoided, or perhaps simply lurking beneath the surface, an ever-present potential threat. Indeed, the risk is essentially seen as the antipathy of pleasure, and mass pleasure-seeking tourism is constructed on the apparent absence of risk (Williams and Baláž, 2015). Recent research mainly focuses on the economic impacts and survival of a health crisis (Mohanty *et al.*, 2020; Ponting, 2021). However, less attention is paid to travel behaviors, intentions to inform businesses

when to resume operations, and what segments of the market to target (Çelik and Dedeoğlu, 2019; Gössling, 2020; Girlando *et al.*, 2021). Previous research highlights the interest in studying the traveler personality to determine their behavior (Leri and Theodoridis, 2020; Moghavvemi *et al.*, 2021).

This study aims to thoroughly analyze the Big Five Factors of personality and their influence on the decision-making process of travel considering a health crisis, such as COVID-19. Through our research model, we aim to develop relationships among different constructs of personality, risk perception, and travel behavior, satisfy our hypothesis, and further draw conclusions for the validity of these relationships. Hence, to examine travel risk perception and travel behavior during a health crisis, the following research questions were formulated:

RQ1. How do travelers perceive the travel risk linked to a health crisis?

RQ2. What is the influence of personality traits on risk perception of a health crisis and travel risk perception and travel behavior?

RQ3. What differences can be identified based on individual personality and perception of a health crisis, travel risk perception and travel behavior?

2. Literature review

2.1. Personality influence on travel behaviour

An essential aspect of studying is the personality of individuals that influence travel behavior. Psychological factors and personality in understanding and predicting tourist behavior has a long tradition in tourism literature (Kock *et al.*, 2018; Nawijn and Biran, 2019; Scott, 2020). Personality entails the stable enduring individuals' patterns of thoughts, emotions, and behavior (Arnould *et al.*, 2002).

Personality can affect people's shopping preferences, decision-making processes, self-control, interaction with others, emotions, and even handling stress (Carver and Scheier, 2008;

Gambetti and Giusberti, 2019). Seeing how individuals respond to a travel product can improve sales performance and marketing promotion in a travel industry. Individuals are a focal part of the travel industry and accommodation industry. The industry is host to countless situations in which consumers and service staff are required to think and interact with each other (Leung and Law, 2010)

There have been several studies on personality. Carver and Scheier (2008) point out that using the word 'personality' conveys a sense of consistency or continuity about a person and implies that it comes from within regardless of how that person behaves. The Five-Factor Model is a comprehensive and widely used personality model, also known as the 'Big Five personality traits' (Goldberg, 1990). The Big Five Factors (BFF) are believed to be universal (Mowen, 2000), and that could have been used to understand tourists further and predict their possible travel personality (Leri and Theodoridis, 2020; Moghavvemi *et al.*, 2021; Papathanassis, 2021).

The Big Five personality factors include as the main factors that drive most human behavior: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Zacher and Rudolph, 2021). Extraversion has two ends of its spectrum: extraversion and introversion. It refers to where a person gets their energy and how they connect with others. Extroverts are more sociable and connecting with people provides them with energy or re-energizes them. In contrast, introverts do not like to interact with others and replenish their energy with solitude. People who have a high level of extraversion are more likely to seek out possibilities for social engagement. They are comfortable with others, are gregarious, and are prone to action rather than contemplation (Paunonen and Ashton, 2001; Paunonen, 2003). Whereas people low in extraversion are more likely to be quiet, introspective, reserved, and thoughtful. Consequently, it is hypothesised that more significant extraversion influences low-risk perception.

H1: Higher Extraversion influences low-risk perception.

Extraversion is an individuals' tendency to seek stimulation, and agreeableness represents one's tendency to be cooperative with others (Jani *et al.*, 2014; Jani and Han, 2015). Extraversion and agreeableness are related to the need for stimulation and the capacity for joy (Leary and Hoyle, 2009; Black *et al.*, 2010). Extraversion pertains to the quantity and intensity of interpersonal interaction, likeableness relates to pleasant dispositions in relationships with others (Graziano and Tobin, 2009). Individuals high in agreeableness tend to be well-liked, respected, and sensitive to the needs of others. They likely have few enemies and are affectionate to their friends and loved ones, as well as sympathetic to the plights of strangers (Lebowitz, 2016). Those individuals low in agreeableness are usually sceptical and curious. They consider more information than highly agreeable individuals and, ultimately, take fewer risks and make more calculative decisions (Chitra and Ramya Sreedevi, 2011). Hence, it is possible to formulate the following hypothesis:

H2: Higher agreeableness is positively related to low-risk perception.

Conscientious individuals are determined, well-organised, reliable, persistent and punctual and take higher risks less impulsively (Mayfield *et al.*, 2008). This personality trait entails an individual's degree of organisation, persistence, and motivation in goal-directed behaviour (Black *et al.*, 2010), leading to its placement in the motivational disposition (Leary and Hoyle, 2009). People who score high on conscientiousness are more likely to be successful in their occupations, hold positions of leadership, and pursue their goals with determination. People low in conscientiousness are much more likely to procrastinate and to be impetuous and impulsive (John and Srivastava, 1999). Hence, this concept leads to the following hypothesis:

H3: Higher conscientiousness influences lower risk perception.

Neuroticism, the opposite of emotional stability, reflects anxiety, uptight, nervousness,

and easily agitated among its sub-dimensions (Jani, 2014). Neuroticism is linked to a lack of practical cognitive skills, as well as inadequate analytical ability, critical thinking, and conceptual comprehension. It has a tendency to paralyze higher-order cognitive functioning and makes people apprehensive and fearful of failure. Because risk-taking behaviour is related to neurological impairments, those with low neuroticism feel more significant anxiety when making risky decisions (Vigil-Colet, 2007; Young *et al.*, 2012). Hence:

H4: Higher neuroticism influences higher risk perception.

Openness to experience dimension includes adjectives like a creative, curious, artistic, intellectual, deep thinker, and insightful (Jani, 2014). It represents one's tendency to appreciate art, emotion, unusual ideas, and various experiences (Jani and Han, 2013, 2015). Openness to experience is a cognitive aspect of an individual, representing the proactive seeking and appreciation of experiences (Black *et al.*, 2010). Individuals high on openness to experience are creative, adaptive, more curious and non-traditional and, usually, tend to conduct new experiments and take higher risks (Mayfield *et al.*, 2008). Hence, it is hypothesised:

H5: Higher openness to experience is positively related to low-risk perception

Few empirical research in tourism and leisure shows a link between the five characteristics and travel personality. For example, (Scott and Mowen, 2007) discovered substantial connections between the BFF and the proclivity to be an adventurous traveler. According to (Schneider and Vogt, 2012), openness to experience to be a significant differentiating factor between hard and soft adventure travelers. BFF and motivation were related to visiting religious sites, indicating a variation in BFF ratings for various motivations (Abbate and Di Nuovo, 2013).

2.2. Risk perception and travel behaviour

The tourism industry needs to learn about tourist behavior to predict the sustainability of their businesses and the changes that need to be implemented for quick recovery, especially after a health crisis. According to various researches, visitor behavior in choosing tourist sites is impacted by a variety of factors. First, age, gender, married status, income; education, lifestyle, personal beliefs, and tourism motive are particular demographic elements of tourist choice making. Second, specific elements influencing the availability of alternative tourist destinations, such as tourist attractions, tourism resources, infrastructure, services, and accessibility. Furthermore, the third type of component is situational considerations, which include meteorological circumstances, cultural conditions of tourist destinations, and social conditions such as political situations in the selection of tourist destinations. These three factors are key in influencing consumer behavior and underline the choice of a travel destination (Wachyuni and Kusumaningrum, 2020).

The perception of tourist risk is a quantitative measure of tourism security. Destination risk perception of tourists directly affects tourists purchase intention. (Fangnan Cui *et al.*, 2016). Tourism risk is that tourists in their travel behavior perceive negative results (Miao *et al.*, 2021). When tourists choose a tourist destination, they must consider the security situation of their destination, but security cannot be quantified (Suddle, 2009). Therefore, it is necessary to link security and risk with each other (Lepp and Gibson, 2003). Risks associated with travel are often related to health concerns, terrorism, crime, or natural disasters at tourist destinations (Kovačić *et al.*, 2020).

Social norms influence human behavior, that is, what they perceive that other are doing or what they think others approve of (Van Bavel *et al.*, 2020). As such, researchers have suggested applying the principles of behavioral change to "nudge" people into desirable behaviors to help control a health crisis (West *et al.*, 2020). Stay-at-home requests require changing one's travel

patterns and practicing self-isolation for non-essential activities that fall into the realm of travel behavior analysis.

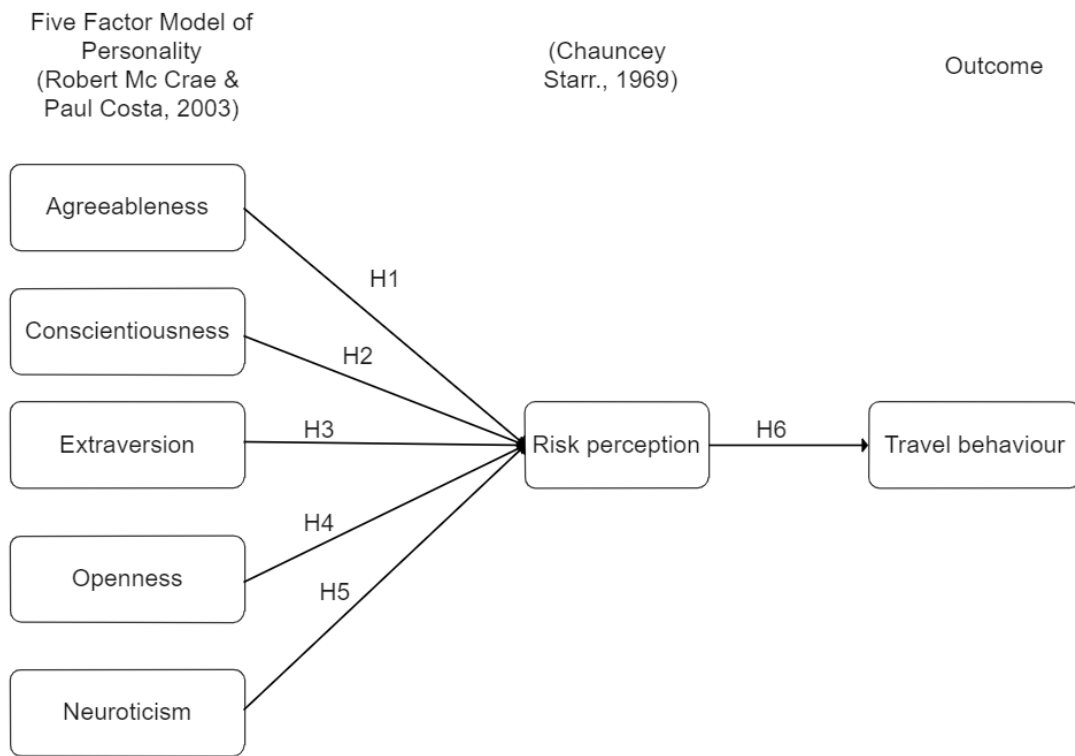
One crucial factor that might be relevant to behavioral change is the perception of the risk posed by a health crisis. According to the protection motivation theory, evaluating the severity of a threat is one of the cognitive processes behind the decision to engage in protective behavior (Maddux and Rogers, 1983). In addition, research on risk perception has shown a gap between actual risks and the perception of risks by individuals (Slovic, 1987). Slovic (1987) developed a simple scale of risk measurement to assess the perception of risk relative to other hazards and identified three key factors associated with risk perception: (i) dread, (ii) unknown (unfamiliarity) and (iii) number of people involved.

Previous research has shown that various categories of travelers have varying levels of risk perception. Furthermore, the authors hypothesize that, at various phases of a health crisis, separate identifiable groups might be grouped in terms of travel risk perception and travel behavior based on personality features. Due to this approach, the following hypothesis is propounded (Çelik and Dedeoğlu, 2019; Esfahani *et al.*, 2021).

H6: Risk perception influences travel behavior.

The conceptual framework depicted in Figure 1 shows the relationships between personality and risk perception and how they would influence travel behavior. Our research is based on the five factors of personality (agreeableness, conscientiousness, extraversion, openness, neuroticism) and the perception of risk theory (Costa and McCrae, 2003; Wise *et al.*, 2020). This fact influences the coping mechanism of individual travel behavior, which is hypothesised to result in two different individual-level outcomes: travel or not to travel amidst the health crisis.

Figure 1. Conceptual framework of risk perception and Five Factor Model of Personality influence on travel behavior.



Own source.

3. Methodology

3.1. Sample and instrument

The research instrument was a questionnaire containing 17 questions divided into four blocks (table 1). The first block includes two questions about the risk perception adopted by individuals based on their perception of health and travel risk after the lockdown (Kozak *et al.*, 2007). The second block presents five questions that assessed the personality details based on

the big five personality traits (Neuroticism, Openness, Conscientiousness, Agreeableness and Extraversion) of the respondents (Costa and McCrae, 2003). The third block includes three questions that captured their travel behavior during this period, their views about travelling, and their feelings of travel satisfaction regarding a health crisis. Finally, the fourth block contains the socio-demographic information about the sample (Jacobsen and Munar, 2012; Kim *et al.*, 2007). The Questionnaire was designed in English.

Table 1. Questionnaire design.

Items	References
<p>Block 1</p> <p>Risk perception (Fear of sickness) Health and travel risk perception after the lockdown</p>	<p>Roehl and Fesenmaier (1992); Fuchs and Reichel (2011); Dolnicar (2005); Liu and Gao (2008); Chen <i>et al.</i>(2009); Huang <i>et al.</i>(2020); Muñoz-Mazón <i>et al.</i>(2021)</p>
<p>Block 2</p> <p>Personality and risk perception</p> <p>Influence of the Big Five Factors of personality</p> <ol style="list-style-type: none"> 1. Agreeableness 2. Conscientiousness 3. Extraversion 4. Neuroticism 5. Openness 	<p>Deyoung <i>et al.</i>, 2007</p>
<p>Block 3</p> <p>Travel behaviour</p> <p>Lesser eating out/leisure: 52.28%</p> <p>Switch to online sources of shopping:</p> <p>ICT, laptop, Smartphone 48.48%</p> <p>Frequency of travel during a health crisis:</p> <p>Every month 22.99% Every 3 months 22.75%</p> <p>In a period of 6 months 28.20%</p> <p>Once a year 25.59%</p> <p>Not at all 0.47%</p>	<p>Parady <i>et al.</i>, 2020</p> <p>Irawan <i>et al.</i>, 2021</p>

Own source.

3.3. Distribution of the questionnaire and participants

The questionnaire was distributed using convenience sampling, collected from emails, professional and social networks, and online groups. A pre-test was done with a group of 20

respondents to detect possible mistakes. Data included was from questionnaires completed between 9th August 2021 to 10th October 2021. A total of 422 useable questionnaires were collected from French travelers. Table 2 includes the information derived from the questionnaires about the participants' profiles.

Table 2. Participants' profiles.

	Number of participants: 422
	Gender: 46.68% male and 53.32% female
	Age:
	Under 24: 32.94%
Participants	25-34: 37.20%
	35-44: 29.62%
	45-54: 0%
	55-64: 1%
	Over 60 years old: 0%

Own source.

3.3. Analysis

The exploratory analysis was conducted by using Qualtrics. Then, to analyse the research model, we used Partial Least Squares (PLS) analysis with SmartPLS 3.0 software. A partial least squares (PLS) based SEM was used for this study. The analysis was performed with the **partial least squares (PLS)** algorithm-based software SmartPLS. The PLS technique has become increasingly popular in marketing and management research more generally in the last decade because of its ability to latent constructs under conditions of non-normality and minor to medium sample sizes (Hair *et al.*, 2013; Ali *et al.*, 2018; Kumar and Purani, 2018; Sarstedt *et al.*, 2020; Küçükerginet *et al.*, 2021).

The measurement model's convergent validity was examined. This was determined through

factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). The next stage was to evaluate the discriminant validity, which refers to the degree to which the measurements are not a reflection of some other variable; this is demonstrated by low correlations between the measure of interest and the measures of other constructs. Finally, the relationship between personality traits and risk perception is analyzed by conducting a T-test.

4. Results

4.1. Average Variance Extracted and Composite Reliability

To test the appropriateness of our instrument, we conducted formal statistical tests of convergent validity, discriminant validity, and construct reliability. AVE reflects the average commonality for each latent variable in a reflective model (Garson, 2016). The AVE test may be used to assess both convergent and divergent validity. In a reflective model, AVE represents the average commonality for each latent component. When the AVE is less than 0.50, it signifies that the error variance exceeds the explained variance. The average variance extracted (AVE) > 0.5 indicates convergent reliability.

The most common measurement used for internal consistency is Cronbach alpha and composite reliability, in which it measures the reliability, based on the interrelationship of the observed items variables. In PLS-SEM, the values are organized according to their indicator's reliability (Hair *et al.*, 2013). A higher value indicates a higher reliability level. In exploratory research, composite reliability/Cronbach alpha values between 0.60 to 0.70 are acceptable (Hair *et al.*, 2013).

The composite reliability results are all above 0.7, indicating a high internal consistency among reflective constructs. Risk perception and travel behavior have composite reliability results above 0.9, indicating almost perfect estimated reliability, while conscientiousness with risk perception (0.862) is considered good for confirmatory research (Garson, 2016).

4.2. Convergent Validity Assessment

The cross-loading table given in Table 2 was used to test convergent validity. As a way of measuring discriminant validity for reflective models, cross-loadings are an alternative to AVE. When cross-loadings were analyzed, each indicator's outer loading on a construct was greater than its cross-loadings with other constructions.

Table 2. Cross Loading.

	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness	Risk perception	Travel behaviour
AG1	0.882	-0.072	0.574	-0.328	-0.285	0.705	0.658
AG2	0.893	-0.089	0.661	-0.324	-0.259	0.736	0.731
CO1	-0.093	0.959	-0.05	-0.01	0.609	-0.085	-0.08
CO2	-0.073	0.902	-0.047	-0.044	0.574	-0.056	-0.075
EX1	0.697	-0.052	1	-0.394	-0.258	0.769	0.726
NE1	-0.334	-0.037	-0.35	0.936	0.236	-0.357	-0.346
NE2	-0.353	-0.009	-0.387	0.933	0.26	-0.349	-0.35
OP1	-0.303	0.573	-0.247	0.238	0.908	-0.259	-0.271
OP2	-0.257	0.588	-0.226	0.247	0.918	-0.273	-0.289
RI1	0.655	-0.113	0.634	-0.315	-0.242	0.824	0.71
RI2	0.65	-0.047	0.577	-0.275	-0.213	0.796	0.697
RI3	0.648	-0.053	0.64	-0.279	-0.26	0.812	0.695
RI4	0.64	-0.025	0.633	-0.324	-0.193	0.799	0.689
RI5	0.685	-0.063	0.626	-0.337	-0.237	0.827	0.7
RI6	0.676	-0.079	0.634	-0.309	-0.272	0.809	0.689
TR1	0.649	-0.076	0.606	-0.297	-0.266	0.73	0.836
TR2	0.657	-0.068	0.601	-0.317	-0.247	0.713	0.851
TR3	0.668	-0.037	0.606	-0.349	-0.259	0.701	0.825
TR4	0.654	-0.097	0.621	-0.289	-0.256	0.736	0.843

Note: AG = Agreeableness, OP = Openness, NE = Neuroticism, CO = Conscientiousness, EX = Extraversion, RI = Risk perception, TR = Travel behaviour. The values in boldface represent items' association to their latent construct.

Own source.

Table 2 shows that all item loadings exceeded the recommended value of 0.5. Composite reliability values, which depict the degree to which the construct indicators indicate the latent construct, exceeded the recommended value of 0.7 while average variance extracted, which reflects the overall amount of variance in the indicators accounted for by the latent construct, exceeded the recommended value of 0.5 (Hair *et al.*, 2013). The results presented in Table 2 indicate the cross-loadings of all manifest variables. The results show that indicators have higher values on their relevant latent variable as compared with other constructs. These results verify that the manifest variables in each construct represent the assigned latent variable and confirm the discriminant validity of the model.

The amount to which a construct is empirically different from other constructs is referred to as discriminant validity. The discriminant validity of the Fornell-Larcker criteria and cross-loadings is tested. The square root of the AVE of each construct should be greater than the construct's greatest correlation with every other construct in the model, according to the Fornell-Larcker criterion. Table 3 suggests that all Average variance extracted (AVE) > 0.5 indicates convergent reliability (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). Since this condition was satisfied, we can conclude that our instrument has appropriate discriminant validity.

Table 3. Discriminant validity (Fornell and Larcker Criterion).

	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness	Risk perception	Travel behaviour
Agreeableness	0.887						
Conscientiousness	-0.091	0.93					
Extraversion	0.697	-0.052	1				
Neuroticism	-0.367	-0.025	-0.394	0.935			
Openness	-0.306	0.636	-0.258	0.265	0.913		
Risk perception	0.812	-0.078	0.769	-0.378	-0.291	0.811	
Travel behaviour	0.783	-0.084	0.726	-0.372	-0.307	0.859	0.839

Diagonals are the square root of the AVE of the Latent variable and indicate the highest in any column or row.

Own source.

Some criticism of the Fornell and Larcker (1981) criteria suggests they do not reliably detect a lack of discriminant validity in everyday research situations (Henseler *et al.*, 2015). Henseler *et al.* (2015) have suggested an alternative approach, based on the multitrait-multimethod matrix, to assess discriminant validity: the heterotrait-monotrait (HTMT) ratio of correlations (Henseler *et al.*, 2015). Considering it, we applied the HTMT criterion.

A lack of discriminant validity is shown by HTMT scores near to 1. The HTMT is used as a criteria by comparing it to a predetermined threshold. If the HTMT value exceeds this level, one might assume that discriminant validity is lacking. Authors suggest a threshold of 0.85. Since all the values in Table 4 are below 0.85 which proves discriminant validity.

Table 4. Discriminant Validity – (HTMT Criterion).

	Agreeableness	Conscientiousness	Extraversion	Neuroticism	Openness	Risk perception	Travel behavior
Agreeableness							
Conscientiousness	0.113						
Extraversion	0.814	0.057					
Neuroticism	0.465	0.037	0.426				
Openness	0.402	0.768	0.289	0.321			
Risk perception	1.004	0.088	0.812	0.431	0.344		
Travel behavior	0.488	0.097	0.783	0.435	0.369	0.378	

Note: All the values are below 0.85 which proves discriminant validity.

Own source.

4.3. Results about the influence of the Big Five Factors of personality and risk perception

The impact of BFF personality traits on risk perception and its influence on the overall consequences of travel behavior is analyzed to test the hypothesis. Although some of the hypotheses did not have significant results, there was a major support to prove that risk perception influences travel behavior. (Tan and Tang, 2013; Jani and Han, 2015) Indicate the presence of varying levels of BFF utilization of travel information by different travelers.

Table 5 shows a positive influence of extraversion on risk perception ($t = 13.122$, $p < 0.01$), validating H1. Since extraversion pertains to social disposition (Leary and Hoyle, 2009) or social energy, these groups can be termed high and low social energy travelers. The strong relationship between these factors is sufficient to prove that personality significantly influences risk perception leading to transformed travel behavior.

The agreeableness and risk perception results are significant ($t=19.227$, $p < 0.01$), confirming

H2. However, our results differ from previous studies considering personality influence on taking risks. The principal personality traits related to high-risk activities are agreeableness, openness, extraversion, and conscientiousness (Esfahani *et al.*, 2021). However, the results regarding conscientiousness, neuroticism and extraversion are not aligned with previous research. The results show no link between conscientiousness and risk perception ($t=0.808$, $p > 0.0$). The general tendency of neuroticism (feelings of distress, anxiousness, tension) does not seem to influence the risk perception ($t=0.377$, $p > 0.01$) during a health crisis, mainly due to a different scale of health/safety risk than usual. However, the results also depict that, unlike conscientiousness, extraversion leads to lower risk perception. However, the openness and risk perception influence results are not significant ($t= 0.377$, $p > 0.01$). Individuals presenting this type of personality are more likely to take risks for social or recreational activities (Kovačić *et al.*, 2020). However, in this case there is no link between these two concepts.

Table 5. Results.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Hypothesis validation
Agreeableness -> Risk perception	0.527	0.529	0.027	19.227	0.000*	Yes
Conscientiousness -> Risk perception	0.007	0.004	0.03	0.243	0.808	No
Extraversion -> Risk perception	0.385	0.383	0.029	13.122	0.000*	Yes
Neuroticism -> Risk perception	-0.025	-0.025	0.028	0.881	0.379	No
Openness -> Risk perception	-0.028	-0.027	0.032	0.883	0.377	No
Risk perception -> Travel behavior	0.859	0.859	0.009	94.242	0.000*	Yes

Note: * $t > 1.96$ and $p < 0.01$.

Own source.

Finally, risk perception influences travel behaviour ($t=0.000$, $p<0.01$). Previous studies found a relationship between individual demographic characteristics such as gender, age, lifestyle or cultural orientation, risk perception and travel behavior (Floyd and Pennington-Gray, 2004; Lepp and Gibson, 2003; Reisinger and Mavondo, 2005; Sönmez and Graefe, 1998). It is seen that travelers with high technological competency perceive less travel risk than travelers with less technological knowledge as they find it difficult to have updated knowledge of total cases, medical facilities, flight status/re-scheduling and other safety precautions at the host institution. Furthermore, this study found significant individual differences in age, occupation, and gender. While travel risk perception increased with age, it decreased with frequency of travel, which is consistent with earlier research. Also, the influence of gender and occupation resulting in higher risk perceptions for females and lower risk perception for students was consistent with results of previous research (Floyd and Pennington-Gray, 2004; Lepp and Gibson, 2003).

5. Conclusions

Previous literature showed that past travel experience greatly influences travel behavior (Pennington-Gray *et al.*, 2011). Furthermore, a higher perception of health risks during travel and higher risk perception of contracting a disease can lead to any kind of avoidance behavior and, thus, a higher likelihood to change and avoid travel (Cahyanto *et al.*, 2016; Pennington-Gray *et al.*, 2011).

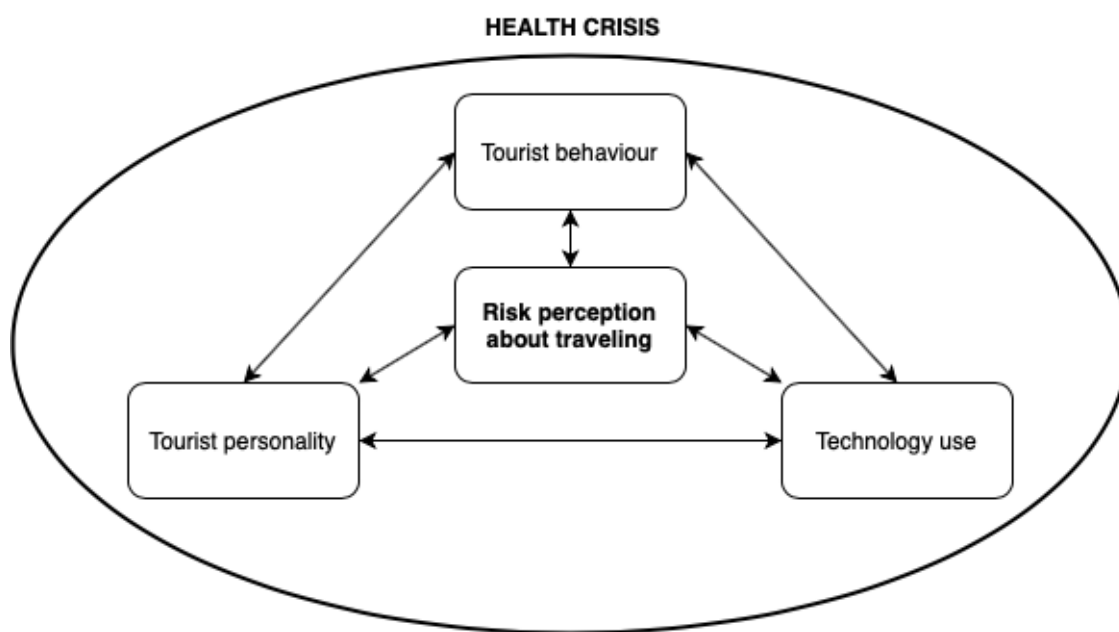
This study contributes to the literature by providing a new framework about the influence of the tourist personality and the use of technology on the traveler behavior and the risk perception about travelling (figure 2). The results indicate significant differences between travel behavior based on the BFF, thus making the latter useful in understanding and predicting travel behavior. The results are aligned with previous studies focused on examining the influence of personality on travel behavior during a health crisis (Abdelrahman, 2020; Sánchez-Cañizares *et al.*, 2021). The data analysis found remarkable and significant results of change in travel behavior during a

health crisis, which showed an increase in risk perception over time (RQ1).

The intention to avoid or cancel travel during a health crisis is highly related to risk perception to travel in general and especially to destinations with reported cases (Cahyanto *et al.*, 2016). It is linked to the perceived susceptibility to succumb to an illness while travelling (De Zwart *et al.*, 2007) and self-efficacy leading to actions to mitigate any risk and avoid travel (Liao *et al.*, 2007).

Abdelrahman (2020) highlights that personality traits and social distancing acceptance are linked. Considering this fact, we can confirm that extraversion and agreeableness influence tourists' risk perception about travelling during a health crisis (RQ2). Besides, considering the BFF, socio-demographic profile, and technology use, it is possible to identify differences between travel risk perception and travel behavior (RQ3). The use of technology influences risk perception, decreasing it and offering safety to travelers.

Figure 2. Conceptual framework: risk perception of tourists about travelling during a health crisis.



Own source.

5.1. Practical implications

From a practical point of view, this study offers destinations and tourist organizations with useful data and consumer insights. During a health crisis, it aids in the formulation of communication strategies for the tourist industry. Concerning communication strategies, tourism organizations mostly follow the objectives of government and international health organizations to reduce the containment of the virus primarily. However, it is also essential to focus on reducing individual tourists' travel risk perception to allow the industry to bounce back quickly once the threat of a health crisis decreases. Therefore, there is a need to understand the tourist personalities and promote efficient communication not

solely dedicated to providing information about health and safety measures to ensure that tourists feel safe and ensured once travel restrictions are lifted. Furthermore, the priority should be to understand tourist personality for tourism and travel agencies to adopt relevant recovery strategies during a health crisis.

5.2. Limitations and future lines

The principal limitation of this study involves the sample and the sampling technique used. We used convenience sampling, collected from emails, professional and social networks, and online groups. The sample results, therefore, must cautiously be generalized to the broader

population. Since the survey was administered on digital and social media platforms, all respondents certainly have a certain degree of digital literacy, which may have biased their responses.

The other limitation was that, there are constraints to an online questionnaire. While it is extremely cost-effective and time-efficient to conduct an online survey there are certain limitations of online questionnaire such as difference in interpretation by the respondents. To prevent this definition of key terms were provided to respondents at beginning of the questionnaire. There can also be a probability of skipped questions. To tackle this problem, all the questions were made 'mandatory' to answer. Therefore, for a holistic overview it was compulsory to answer all the questions even if it did not correspond to them. Another constraint was accessibility issues. While the delivery was online, it was ascertained to not miss out on users who could have connectivity impediments. Despite the fact that, personal messages and emails to prospective respondents, were made with a brief introduction of the purpose and the importance of their answers to this research, lack of personalization may risk the loss of potential respondents who may be uninterested to answer without a personal touch in the questionnaire.

Finally, this research is linked to the assessment of individual personality. It might hurt participants personal feelings as some people consider this a characteristic that should be private, and they may not feel comfortable sharing their sensitive feelings with others. Therefore, sufficient care was taken to avoid personal questions that may arouse feelings of disgust. This fact might impede our research which can be better handled in further research.

Future research may consider using a larger sample derived from several mediums in several different countries. Moreover, it should investigate a broader range of personality traits beyond the big-five personality traits used in this study. It may have a more significant analysis of varied individual characteristics on their coping strategies. Furthermore, a comparative study can be done between the adaption patterns of travelers under stressful situations which will provide additional insights into the subject.

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