

## Research Article

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# Are Serbian tourists worried? The effect of psychological factors on tourists' behavior based on the perceived risk

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**Abstract:** Recent natural hazards (floods and wildfires) which hit some of the most visited Greek tourist destinations during the summer season 2018 are threatening to decrease the number of tourist visits in the affected regions. As these regions, being namely Chalkidiki, Olympic Riviera and regions surrounding Athens and Thessaloniki, are the most popular summer destinations for Serbian tourists, it is interesting to examine how natural hazards that occurred there influence tourist behavior based on the perceived risk. The study aims to explore the role of psychological factors such as different personality traits and tourism worries on the tourist behavior based on the perceived risk of affected destinations. Moreover, the assumption was that tourism worries will mediate the relationship between analyzed personality traits and tourist behavior based on the perceived risk. Although previous studies investigated the effect of different psychological factors on tourist behavior based on the perceived risk, this is the first study to explore the interaction of different psychological factors including tourism worries, which previously were not analyzed in this context. Besides theoretical contribution, practical implications are also further discussed in the paper within the realm of their use for destination managers.

**Keywords:** Natural hazards, risk perception, psychological factors, SEM (Structural equation modeling), Greek tourism, Serbian tourists

## 1 Introduction

With the advance of technology and science, it is still very difficult to predict and prevent natural and/or human-induced disasters and crises, which have an immense effect on global society. This affects economy, ecology, transport and safety, and may cause a negative effect on tourism as well. Even if the tourism businesses are completely prepared, the effects of these disasters are still present and vulnerability is unavoidable [1]. Considering the mass media coverage nowadays, it is possible to follow hazards all around the globe and in real time. This creates greater public awareness and therefore greater anxiety when traveling to the desired destination. Consequently, the tourists' perceived risk of traveling is influencing their intention to visit and is consequently of great importance for the tourism industry management.

The case study of this research is the Greek seaside (*i.e.* Chalkidiki, Olympic Riviera, Attica region and Thessaloniki with surrounding regions) which is the most visited summer destination by Serbian tourists [2]. In 2018, there was a high frequency of natural hazards – floods (due to heavy rain) and wildfires all over Greece. There were tremendous losses, mostly material but unfortunately, human lives were also lost and jeopardized. This was all well documented and discussed in Serbian media and thus, the authors believe the image of Greece was degraded – the public's perception of it as a risky destination was enforced.

Many studies on tourist behavior have examined the tendency toward risky behavior and the perception of risk. Traveling individually is somewhat risky, being that we are often visiting the previously unknown and unseen destinations, coming into contact with foreign cultures. As a result, researchers in the tourism industry have explored sociodemographic and personality characteristics that could determine risk perception and tendency towards risky behavior [3–5]. Personality traits that were examined in relation to the perception of the risk of traveling are for exam-

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ple novelty seeking, sensation seeking, extraversion, etc. Interestingly, there are no available studies that have explored the effect of all Big Five traits [6] - Extraversion, Neuroticism, Agreeableness, Conscientiousness, Openness to experience on tourist behavior based on the risk perception. Being anxious and worrying about different aspects of traveling (before and during) also affects tourist behavior especially when a destination is at high risk of natural hazards. Therefore, it is important to make a distinction between risk perception and tourism worries. The risk is a probability that something bad could happen and perception of risk is based on a person's intuition of this probability. On the other hand, tourism worries are related to people's inability to control their thoughts about travel-related future events, which cause a negative effect [7]. So, the goal of the study is to explore the influence of both tourist personality and tourism worries on tourist behavior based on the perceived risk. Although previous studies investigated the effect of different psychological factors on perceived risk and tendency towards risky behavior, none of those studies explored different psychological factors, tourism worries, and tourist behavior based on the perceived risk in one model. Specifically, authors aim to explore mediating role of tourism worries in the effect of personality traits on tourist behavior based on risk perception (*i.e.* Cautious, Conscious and Courageous behavior [see 8]), but also direct effects of certain personality traits.

## 2 Literature review

### 2.1 Natural hazards risk perception and travel intention

The research studies in tourism have recognized the lack of safety and security as one of the most dominant inhibitors of travel intentions [9, 10]. Thus, the tourism industry is facing a challenge to offer tourists a safe and pleasant visit and minimize different kinds of risks and unsafe situations. The concept of "tourism risk" can be understood as the possibility of experiencing various unfavorable situations or events at a tourist destination [11] without the ability to perceive the exact consequences or negative results after making travel decisions [12]. This causes the state of anxiety, fear and discomfort, which can result in destination avoidance [13–15]. Consequently, one of the most important streams of general tourism risk related literature is tourists' risk perception and its influence on their intention to visit or avoid certain travel destination [16]. As noted by Sönmez, Apostolopoulos and

Tarlow [13], it is evident that tourism demand decreases as the perception of risks at certain destination increases, which is why research on risk perception and the factors affecting it is so important for the tourism industry. Beside health-related risks, war, terrorism, and political instability as disasters with a greatest negative effect on travel intentions [14, 17, 18], the risk of natural hazards has been also recognized as an important safety treat affecting the choice of travel destination even in a longer period after such event [19–23]. These hazards that are caused by nature range from eruptions, avalanches and earthquakes to landslides, floods, wildfires, hurricanes and typhoons. Jonas *et al.* [24] suggest that such risks associated with natural hazards are connected with tourists' physical risk that influences their decision to visit affected destinations or destinations with a high risk of natural hazards.

In the context of natural hazards, several authors focused on the effects of natural catastrophes on visitors' risk perception and visit intentions. For instance, Lehto *et al.* [21] explored the impact of a tsunami on travel intentions and found that such a natural hazard negatively influenced the intention to travel to seaside destinations. Park and Reisinger [25] conducted an analysis based on different types of natural disasters and revealed the negative influence of these on international travel. Interestingly, Walters *et al.* [26] noticed that a personal connection with the affected area (flood-stricken destination) and repeat visiting, positively influence the intention to visit, while the main factors affecting destination avoidance were the perception of bad weather and insecurity of the place. Based on previously stated, it can be assumed that risk perception is largely related to travel decisions and intentions to travel. However, the perceptions of travel risk and safety, as well as related behavioral intentions can largely differ between different types of tourists. Reisinger and Mavondo [27] claim that marketers need to target tourists with higher risk tolerance and risk acceptance level, which is why the relationship of personality and risk perception is an important topic to study. Thus, in order to fully understand the effect of risk perception and behavioral intention in risky periods, exploring the personal factors affecting travel risk perception and behavioral intentions are especially important. Practically, such information could be applied in making responsive destination management and marketing strategies in the time of crisis. Finally, Thapa *et al.* [8] analyzed wildfires in the context of Florida (USA) and tourists' risk perception and reactionary behaviors. They indicate three types of tourists - the most dominant, middle-risk (Conscious Travelers), higher risk (Cautious Travelers) and lower risk (Courageous Travelers) segments. This study has inspired the current research, as the au-

thors used the scale of tourists' risk perception and reactionary behaviors [8]. This scale, in its essence, is measuring intention to visit based on tourist perception of risk on that particular destination, although Thapa and colleagues [8] mention it only as "travel risk perception scale". In order to avoid any possible misunderstandings, the authors of this study renamed the scale to "tourist behavior based on the perceived risk".

## 2.2 The role of psychological factors in natural hazards risk perception and intention to visit

Many authors acknowledged that tourists perceive and respond to risks differently based on their sociodemographic characteristics [8, 28–31] and personality traits [3, 27, 32–36]. Such a notion even influenced one of the earliest tourist typologies connecting psychological traits with risk seeking and risk perception [3, 5]. One of the most well known is typology by Cohen [3]. He differentiates four types of tourists based on personality traits and risk perception and their preferences for either novelty seeking or staying in a safe environment. His study suggests that novelty seeking as a personality trait is tightly related to risk perception, indicating that novelty-seekers will avoid "risky" destinations less. The psychographic typology of Plog [4] (allocentric, psychocentric and midcentric) could be also used to explain the relationship between psychological traits, travel worries and perceived risk in tourism. According to Plog [4], psychocentrics are more anxious and worried; they avoid risk and prefer to travel to familiar and safe destinations. On contrary, allocentrics prefer to travel to unusual places; they are more confident, less worried and anxious, motivated by novelty [37]. Thus, tourists who have "allocentric" traits are expected to perceive less risk and intend more to visit risky destinations.

Correia, Pimpao, and Crouch [38] showed that the risk perception is affected by the age, familiarity with the destination and travel experience but also by novelty seeking. They found that novelty seeking moderates the relationship between mentioned variables and risk perception – novelty seekers are less sensitive to risk. In connection to this, Lepp and Gibson [32] showed that the perception of risk is directly related to preferences for familiarity versus novelty by exploring how attitudes to specific tourism risks varied across Cohen's typology [3]. Their study implies that tourism risk factors were perceived to be less risky by novelty-seekers, explaining "what may be a source of fear for the organized mass tourist may be a source of excitement for the drifter" [32, pp. 617]. Reisinger and Mavondo [27,

p. 214-215] also claim "tourist seeking familiarity is likely to perceive an alien environment as riskier than a tourist seeking novelty". They also show that risk perception produces higher travel anxiety, which negatively affects the intention to travel. In connection to this, an interesting approach was adopted by Larsen *et al.* [7], who developed a scale to measure tourist worries and related them to the risk perception, risk acceptance and desire to travel. The authors have found that tourist worry negatively correlates with the desire to travel, and positively with risk perception.

Sensation seeking and its relationship with risk perception have also attracted research attention [32–35]. Most of these studies show that sensation-seekers, similarly to novelty-seekers, perceive destinations as less risky and show greater intention to visit them. However, a study by Lepp and Gibson [32] showed that sensation seeking does not influence tourist perception of risk but their travel intentions to visit risky destinations. Similarly, Lepp and Gibson [32] have shown that sensation seekers are more likely to choose explorer and drifter roles (with a tendency to travel internationally and choose risky destinations), but found that this was not related to risk perceptions. Pizam *et al.* [33] also suggested that risky behavior and sensation seeking positively correlate. It is also important to mention that Zuckerman's [39] concept of sensation seeking consists of four factors (*i.e.* Thrill and Adventure Seeking, Experience Seeking, Disinhibition, Boredom Susceptibility) while only experience seeking explicitly refers to traveling. Thus, Kapuściński and Richards [36] claim that it is not clear how and to what extent sensation seeking and risk perception are related in terms of tourism, indicating the need for further research of these concepts.

Based on these findings, two hypotheses can be drawn:

Hypothesis 1: *Novelty-seeking will positively influence Courageous behavior, but negatively Cautious and Conscientious behavior.*

Hypothesis 2: *Sensation-seeking will positively influence Courageous behavior, but negatively Cautious and Conscientious behavior.*

In the rather obscure literature focusing on the relationship between personality traits, risk perception and related behavior, the relationship of other psychological traits (such as Big Five Inventory or similar) with risk perception and intention to visit risky destinations was not explored till now. This is why this study intended to analyze how 6 personality traits (Extraversion, Conscientious-

ness, Openness, Agreeableness, Neuroticism, Honesty-Humility) of Mini-IPIP6 [40] (The International Personality Item Pool) scale, in addition to Novelty seeking and Sensation seeking, are related to risk perception and intention to visit. The aim was to identify the profile of people who would avoid such risky destination and those who would still visit it.

Apart from novelty-seeking and sensation-seeking, other personality traits explored in connection to perceived travel risk were self-confidence [41] and traits such as extroversion, activity, confidence, helpfulness, and venturesomeness [27]. Both studies revealed that personality is associated with the perception of risk and travel anxiety (individuals who are confident, extroverted, and venturesome tolerate high risk and engage more frequently in risky activities). Outside tourism field, it is relevant to mention the study by Cooper, Agocha and Sheldon [42] focusing on personality traits and risky behavior and revealing that neurotic individuals are more ready to engage in risky behaviors as a way to cope with aversive mood states, while extraverts were more likely to engage in risky behaviors as a way to enhance positive affective experience [42]. However, this study investigated risky behavioral intentions, rather than the pure perception of risk. Finally, the study by Weller and Tikir [43] explored domain specific (health, recreation, social and ethical) risk-taking and HEXACO personality structure (HEXACO is an acronym for its factors: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness and Openness to Experience). The results of this study are particularly interesting in social (*e.g.*, joining new groups, asserting one's opinions in a group, etc.), and recreational (*e.g.* skydiving, whitewater rafting, etc.) domains of risk-taking because of their connection with tourism field. Moreover, health/safety domain (*e.g.* smoking, binge drinking, failing to wear seatbelt, etc.) is also important in the context of the current study, as natural hazards occurring at certain destination represent a real threat for tourist health and safety. It is reasonable to assume that those who are careless with their health would be less worried by the possibility of natural hazards occurring at the destination. The main finding of their study suggests that in case of all risk domains, the emotionality dimension is associated with higher risk perceptions and risk-taking. Moreover, openness is positively associated with risk-taking for social and recreational risks, whereas lower honesty/humility was associated with greater health/safety and ethical risk-taking but lower risk perceptions. However, honesty/humility did not show significant influence in the recreational and social domain. The authors explained this by the fact that these domains include activities, which are more socially

acceptable, while high honesty humility individuals may perceive fewer benefits associated with such activities. This may result in their avoidance of such behaviors. Conscientiousness also showed a significant negative effect on risk perception in all domains. Although extraversion was not found to influence risk-taking in the study by Weller and Tikir [43], some previous studies revealed that there is a positive effect of this personality trait on risk-taking (*e.g.* [44, 45]). Except for extraversion, agreeableness has not shown significant effects on risk-taking but was positively correlated with risk perception.

Based on these findings, six more hypotheses can be drawn:

Hypothesis 3: *Extraversion will positively influence Courageous and Conscientious behavior.*

Hypothesis 4: *Neuroticism will negatively influence Courageous, but positively Cautious behavior.*

Hypothesis 5: *Conscientiousness will negatively influence Courageous, but positively Cautious behavior.*

Hypothesis 6: *Agreeableness will positively influence Conscientious behavior.*

Hypothesis 7: *Openness to experience will positively influence Courageous, but negatively Cautious behavior.*

Hypothesis 8: *Higher Honesty/humility will positively influence Cautious behavior.*

As previous studies found that anxiety related to traveling has a negative effect on intention to visit risky destinations [27, 41], the authors assume that tourism worries may mediate the relationship between analyzed personality traits and tourist behavior based on the perceived risk. Thus, the final hypothesis can be proposed:

Hypothesis 9: *Tourism worries mediate the relationship between personality traits and tourist behavior based on the perceived risk.*

The formulated hypotheses were tested using structural equation modeling (SEM) done in EQS 6.1.

## 3 Methodology

### 3.1 Study area

The danger of potential natural disasters can greatly affect the development of the country's tourism. The current research was conducted for the case study of the Mediterranean country, Greece. As one of the major tourism countries in Europe, Greece is the 8<sup>th</sup> country in the EU with the highest number of bed-places and overnight stays in tourist accommodation establishments in 2017, according to Eurostat report for 2017 [46], with the total of 21,304,135 tourists in hotels and similar establishments in 2017 [47] (ELSTAT, 2018). However, this country has a very dynamic history of floods and wildfires, which have hit some of the most visited Greek tourism destinations in 2018 – Chalkidiki, Olympic Riviera, Thessaloniki and Athens. Due to the fact that this country is officially the most popular tourist destination for Serbia tourists (Serbian tourists have spent most of the money, 392 million Euros, in Greek summer resorts at the Aegean Sea) (Research conducted by Belgrade Tourism Fair, 2018) and having in mind that Serbia is among the top ten countries that visit Greece [48], it was interesting to determine how disasters, which hit this country in 2018, influence tourist behavior based on the perceived risk at those destinations.

According to the EM-DAT (The international disasters database) [49], since the beginning of the 21<sup>st</sup> century, the top natural disasters in Greece are wildfires, extreme temperatures and floods. Primarily, the reason lies in the geographical position of Greece, its geological composition and the influence of the complex relief [50]. It is situated in the south part of the Balkan Peninsula, specifically, in the southeastern part of Europe.

It is widely known that natural disasters leave the greatest consequences in urban and high-density areas. In Greece, the population is mostly concentrated in coastal regions (Athens, Thessaloniki, Patras) and on the islands (Heraklion), where during the summertime number of inhabitants and tourists increases. Reciprocally to it, disaster risk is also increased.

Mountain ranges, which extend along the central part of the country, and other mountains, affect the air coming from the moisture source in the central Mediterranean Sea [50]. Although Greece is a country with typically Mediterranean climate (mild, wet winters and hot, dry summers) the high altitudes of Pindus mountain range as well as local and seasonal wind have a strong influence on its the pluviometric regime [50]. Namely, in climatic and hydrological terms, Greece can be divided into the western

–wet part and the eastern – arid part. The annual rainfall on the western part (side) of Greece is between 1.000 mm and 1.500 mm, and on the eastern part, it is less than 500 mm of precipitation [51]. If we compare the amount of precipitation with the geological composition and structure, the results are unfavorable for Greece. In the geological structure and composition of East Greece dominate rocks and sediments from Paleozoic age [52], mostly not waterproof, but without enough precipitation. This type of terrain explains the fact that the eastern part of Greece is more susceptible to flooding due to extreme precipitation in a short time [53, 54] (Figure 1).

In West Greece, the Pindus mountain range is built of waterproof, Mesozoic limestone [52], and despite the sufficient amount of precipitation in this part of the country, the floods are rare phenomena.

The results of Diakakis *et al.* [54] showed that November is the month with the richest flood record. Thus, according to EM-DAT [49], areas of Central and Northern Greece suffered the flood in November 2017, where 23 people died and almost 1.000 buildings were damaged. Moreover, the flash floods hit these areas, respectively Attica, Thessaly and Central Macedonia regions in June 2018. According to Copernicus, the European system for Earth monitoring, Avlonas in Attica recorded 156.2 mm of precipitation in 24 hours to 27 June and NeaMoudania in Chalkidiki, Central Macedonia region recorded 110.1 mm [57]. Many settlements with Greek populations, including Serbian tourists, suffered damage (numerous residential buildings and vehicles were flooded, roads and beaches destroyed, vegetation devastated etc.).

In terms of wildfire in Greece, the extremely high temperatures with extended dry period cause these extreme events with destructive consequences in its modern history [58, 59]. Climatic and weather conditions have a strong effect on wildfire occurrence, especially in the southern and eastern part of Greece, but also socioeconomic, LULC (land use–land cover), anthropogenic and human factors [59].

In July 2018, Attica region (near Athens) was struck by a destructive wildfire caused by very hot and dry weather conditions and strong winds (Figure 1). Fifteen fires began on 23 July, and the worst affected area were villages of Mati, Kokkino Limanaki and Neos Voutzas [60, 61]. According to EM-DAT, 126 people have died in the fast-moving fire, which places it in the deadliest fires since 1900. More than 1.500 homes and vehicles have been damaged or destroyed [60].

This study was inspired by the two mentioned major natural hazard events (floods and wildfires in 2018) and

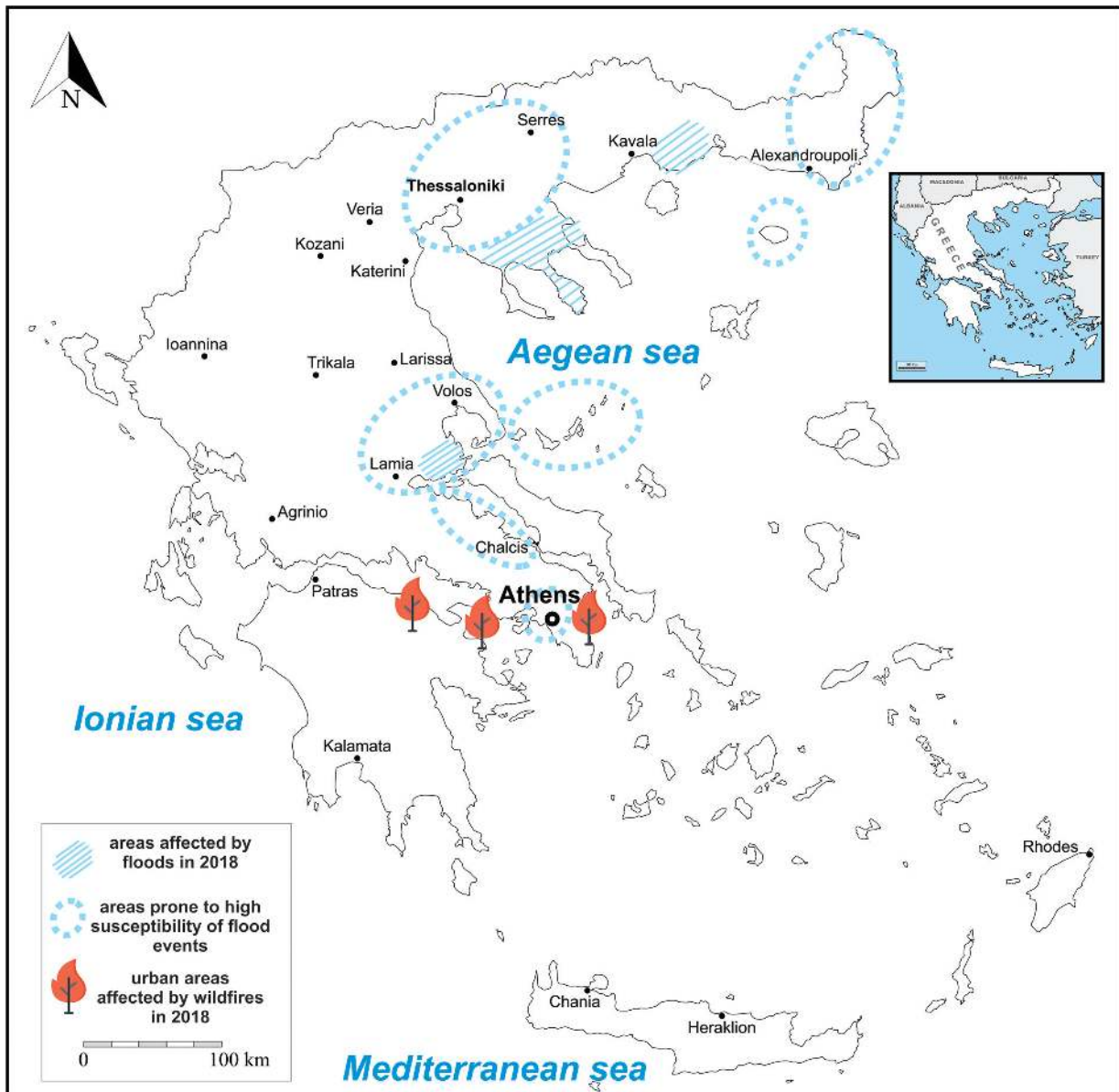


Figure 1: Map of the study area affected by natural hazards (Map created based on [54–57])

their possible effect on Serbian tourists' behavior based on the perceived risk on those destinations.

### 3.2 Study sample

The study sample consists of 224 respondents residing in Serbia. There are more female (70.1%) than male (29.9%) respondents in the sample, while the average age of the sample is 29.96 (interval of 18–60 years, Std=8.341). Majority of respondents are highly educated (68.3%). In terms of their travel habits, they travel mainly once or several times a year, mostly individually (67.9%), while the most

frequent travel companions are friends and partner. The main sociodemographic characteristics and travel habits of respondents can be seen in Table 1.

It is also important to mention that 58% of the respondents have spent their holiday in Greece in the last few years. Results also show that majority of respondents (94.2%) are familiar with the floods and fires that affected Greece in the summer of 2018. Respondents who are familiar with the fact that Greece was affected by natural hazards were asked to state if these events would affect their future choice of Greece as a tourist destination. The majority of them (64.9%) claim that it will not influence their future choice of destination, 30.8% said they would choose

**Table 1:** Socio-demographic characteristics and travel habits of respondents in% (N=224)

<b>Gender</b>		<b>Frequency of traveling</b>	
Male	29.9	I have never been abroad	1.3
Female	70.1	I have traveled abroad several times	16.5
		I travel abroad once a year	30.4
		I travel abroad several times a year	49.6
		I travel abroad once a month	2.2
<b>Education</b>		<b>Trip organization</b>	
Secondary school	26.3	Individual travel	67.9
Higher school/college	5.4	Via travel agency	32.1
Faculty/master/PhD	68.3		
<b>Who do you travel with:</b>			
Family with children	18.3		
Family (family members without children)	10.3		
Friends	34.4		
Partner	31.3		
Business partner	1.3		
Alone	4.5		

places that have not been affected while only 2.3% said they would not go to Greece because it was affected by natural hazards.

### 3.3 Research instruments and data collection

The questionnaire consisted of five parts. The first part included sociodemographic characteristics of respondents (gender, age, education) and their travel habits (frequency of traveling abroad, travel companions and organization of their travel).

In the second part, respondents were asked if they have spent their vacation in Greece in the last few years and if they are familiar with the natural hazards that happened in Greece this summer. In connection to this, respondents were asked to state if these events will affect their future choice of Greece as tourist destination (1 - *It will not influence their future choice of destination*, 2 - *I would choose places that haven't been affected*, 3 - *I will not go to Greece because it was affected by natural hazards*).

The third part of the questionnaire measured personality traits of respondents. The personality of respondents was measured by MINI IPIP-6 (Extraversion, Neuroticism, Agreeableness, Conscientiousness, Openness to Experience, Honesty-Humility), a 24-item scale developed by Međedović and Bulut [40], plus two additional personality traits - Sensation seeking (8-item scale by Hoyle *et al.* [62]) and Novelty seeking (9 item scale based on

McIntosh *et al.* [63]). In this part of the questionnaire, respondents were asked to express their level of agreement/disagreement (1-I totally disagree, 5 - I totally agree) with the offered statements.

The fourth part of the survey measured respondents' tourism worries on 8-item scale developed by Larsen *et al.* [7]). Finally, the last part of the questionnaire measured the tourist behavior based on the perceived risk on a 13-item scale developed by Thapa *et al.* [8]. These statements were also measured using a 5-point Likert scale (1-I totally disagree, 5 - I totally agree).

The respondents were gathered online by using Google Forms. The survey was conducted from July till September 2018. The survey was distributed via Facebook profiles of researchers and their colleagues, with snowball convenience sample technique. Moreover, the survey has been sent via email to more than 1200 customers of travel agencies (two travel agencies have sent emails to their customers with kind request to fill in the survey). The respondents were informed that the survey is anonymous and that their participation is voluntary.

The method applied for data analysis was the structural equation modeling (SEM), specifically, the path model done in EQS 6.1. Pre-testing of the relationships between variables has been done in SPSS 20. in order to assist the authors in creating some initial relations in the path model.

## 4 Results

### 4.1 Descriptive statistics

Research variables (with their mean values and standard deviations) are presented in Table 2. Cronbach's alpha coefficient for all variables/dimensions is above recommended .7, except Conscientiousness ( $\alpha = .678$ ), which is still considered acceptable [64, 65]. This means that the instruments used in the study are reliable.

### 4.2 Exploratory factor analysis (EFA) of tourist behavior based on the perceived risk scale

In their paper about wildfires and tourist behaviors in Florida, Thapa *et al.* [8] used cluster analysis to extract three types of tourists based on their tendency towards risky behavior. They have isolated three clusters: Cautious, Courageous and Conscious travelers. The current study firstly explored the dimensions of tourist behavior based on the perceived risk, assuming that they will coincide with typology of travelers created by Thapa and colleagues [8]. The principal component exploratory factor analysis was performed. Representativeness was good ( $KMO = .775$ ) and Bartlett's sphericity test was significant ( $\chi^2(66) = 671.66, p < .001$ ), which confirmed that the data is suitable for the analysis. Three dimensions were extracted with 55.12% of variance explained. Varimax rotation was applied since the extracted components were not correlated.

The EFA (Table 3) confirmed the typology from the original research, as three factors whose item structure coincides with the Thapa *et al.* [8] study were extracted: Cautious behavior, Courageous behavior and Conscious behavior. *Cautious behavior* characterizes tourists who avoid destinations affected by natural hazards and put safety and security first when choosing where to travel. *Courageous behavior* describes tourists who travel to a certain destination even in case it was affected by natural hazards or in case there is a high risk of it. *Conscious behavior* characterizes tourists who would travel to a certain destination that has been affected by natural hazards only if they feel safe traveling there.

### 4.3 Results of the path model

In order to check the hypothesized relationships, the path model was conducted in EQS 6.1 software. To determine the fit of the model, the following indicators were used: Sattora–Bentler  $\chi^2$  (S-B $\chi^2$ ), which should not be statistically significant and ratio  $\chi^2/df$ , which should be less than 2 [66], or less than 3 [67]; the square root of the mean squared errors of approximation (RMSEA) and standardized square root of the average of the square residuals (SRMR) which should be less than .08; Bentler Comparative Fit Index (CFI), which should be higher than .90 for adequate model fit [68].

The first model (Model 1, see Table 4), which included all hypothesized effects (see Hypothesis 1 to 9), did not show satisfactory fit indices, so it was necessary to make the appropriate changes. Firstly, the Wald test indicated that Sensation-seeking should be excluded from the model, as well as the following relations: direct effect of Novelty-seeking on Cautious and Conscious behavior, direct effects of Extraversion, Neuroticism, Conscientiousness and Openness on Courageous behavior and direct effects of Neuroticism, Honesty-Humility and Openness on Cautious behavior. After running the model, the fit indexes were still not satisfactory (Model 2, see Table 4). In addition, the Wald test suggested that the effects of Novelty-seeking, Agreeableness, Extraversion and Conscientiousness on Tourism worries, as well as the effect of Tourism worries on Conscious and Courageous behavior, should be excluded from the model. The Lagrange Multiplier Index (LM) suggested including correlations between different personality traits (see Figure 2). This model resulted in satisfactory model fit indexes (Model 3, see Table 4 and Figure 2).

Figure 2 represents the final model with satisfactory model fit. On the left hand side, the personality traits as independent variables are presented. The two-direction arrows connecting different personality traits are indicating significant correlation between them. On the right hand side, three dimensions of the tourist behavior based on the perceived risk are shown as dependents variables. In the middle of the graph, Tourism worries are shown as a mediator between personality traits and three dimensions of the tourist behavior based on the perceived risk. The one-direction arrows are showing regression/influence, with regression coefficients written at the arrow.

The model shows that Tourism worries variable mediates the relationship between certain personality traits such as Honesty-Humility, Neuroticism and Openness to experience on one side and Cautious behavior on another. On the other hand, there is a direct effect of Novelty-



**Table 2:** Descriptive statistics and scale reliability for all analyzed variables

Dimension	Mean	Std.	$\alpha$
Cautious behavior (6 items)	2.74	.849	.750
Courageous behavior (4 items)	3.36	.511	.699
Conscious behavior (2 items)	2.79	.606	.768
Tourism worries (8 items)	1.96	.765	.857
Sensation seeking (8 items)	3.05	.801	.789
Novelty seeking (9 items)	3.88	.769	.886
Conscientiousness (4 items)	3.88	.809	.678
Extraversion (4 items)	3.33	.875	.760
Openness to experience (4 items)	3.96	.797	.701
Agreeableness (4 items)	3.99	.747	.703
Neuroticism (4 items)	2.76	.826	.738
Honesty–Humility (4 items)	2.41	.818	.743

**Table 3:** Excerpt of the rotated component matrix of the proposed model (N=224)

Statements	Cautious behavior	Courageous behavior	Conscious behavior
Safety is the most important attribute that destinations in Greece can offer (R3)	.596		
If a particular destination in Greece has experienced natural hazards in the past, I will not travel there (R7)	.638		
Security is the most important factor when deciding where to travel (R1)	.729		
When I am trying to decide between destinations in Greece, I would choose the one which does not have active natural hazards (R6)	.709		
I'd like to travel to Greece but negative news about natural hazards discourages me (R8)	.758		
Natural hazards in Greece have never influenced my decision to travel there (R9)		-.725	
Other people's negative experiences with natural hazards in Greece do not influence my decision to travel (R10)	.303		
Safety is not an important consideration when I'm evaluating different destinations in Greece to travel to (R11)		.606	
When I'm evaluating destinations to travel, the risk of natural disasters is not a factor (R2)		.630	
I would not let natural hazards keep me from traveling to my final destination in Greece (R12)		.733	
I will only travel to Greece if I believe it is safe from natural hazards (R4)			.792
The possibility of natural hazards in Greece discourages me from traveling there (R5)			-.771

seeking on Courageous behavior, Extraversion and Agreeableness on Conscious behavior and Conscientiousness on Cautious behavior.

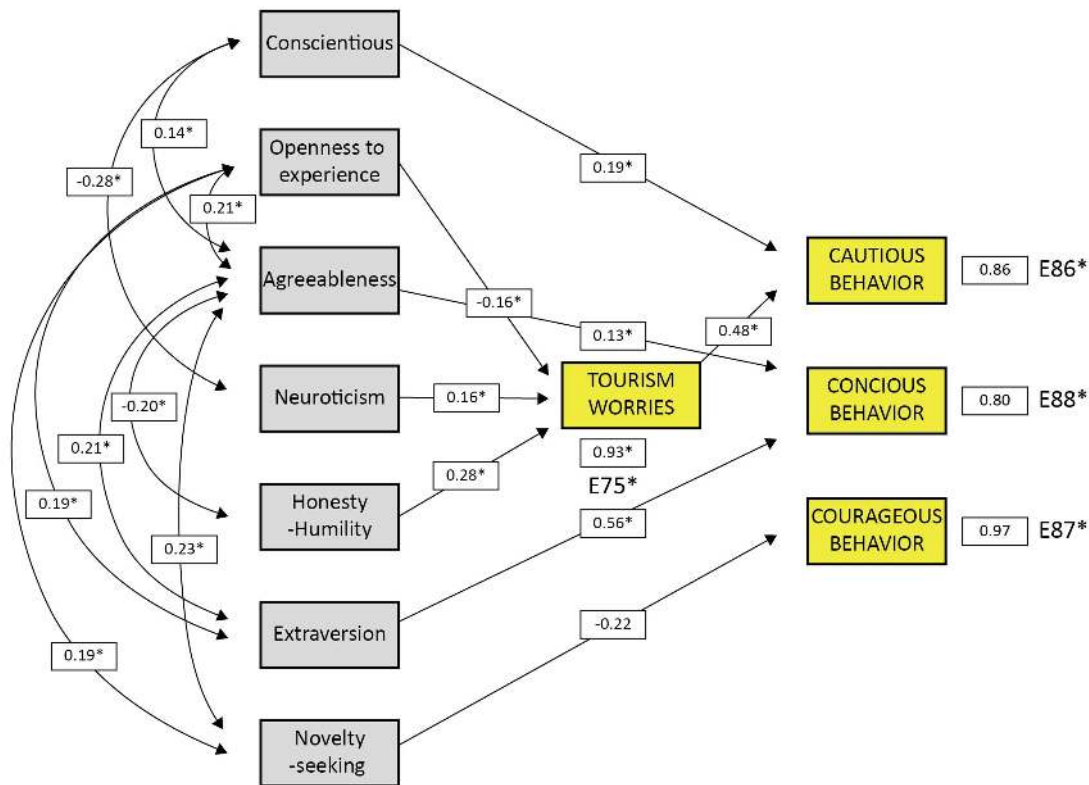
## 5 Discussion

The principal aim of the study was to explore the effect of tourist personality and tourism worries on tourist behavior (Cautious, Conscious and Courageous behavior) based

**Table 4:** Model fit indices of the proposed model ( $N = 224$ )

Model	$S-B\chi^2$	$df$	$\chi^2/df$	RMSEA (90% CI)	SRMR	CFI
1	98.20	20	4.91	.146 (.121 – .172)	.094	.616
2	101.41	21	4.82	.144 (.119 – .169)	.095	.620
3	52.45	39	1.34	.044 (.009 – .068)	.063	.943

Note: Values of  $S-B\chi^2$  in the Model 3 are not significant at  $p > .001$ .



**Figure 2:** Standardized factor loadings for the proposed model

on the perceived risk of traveling to a destination affected by natural hazards. Based on the available research, this is the first study to connect those constructs in one model. The model intended to examine the direct influence of personality traits (Mini IPIP-6 plus Sensation-seeking and Novelty-seeking) on tourist behavior based on the perceived risk, but also the possible mediating role of tourism worries in this relationship.

Firstly, exploratory factor analysis (EFA) was conducted in order to extract the dimensions of tourist behavior based on the perceived risk. The results revealed three factors (Cautious, Conscious and Courageous behavior), which coincide with the typology of tourists based on the risk perception and reactionary behaviors created by Thapa *et al.* [8]. Cautious behavior is characteristic for tourists whose choice of destination is largely dependent on their perception of personal safety and security at

that destination. This means that they are more likely to avoid destinations that were affected by natural hazards or if there is a possibility for future unfavorable events. In our sample, those are the people who would not travel to Greece because it was affected by natural hazards. On contrary, courageous behavior is related to tourists whose destination choice is not influenced by the possibility of natural hazards; they would still travel to Greece and take a risk. Finally, tourists who show conscious behavior are somewhere in the middle - they are not as prone to risk-taking as courageous, but will not avoid risky destinations as much as those with cautious behavior. They are aware of the possibility that some natural hazards could happen, but they would still go there if they perceive it as a safe destination for them. This segment of tourists could be particularly important for destination marketers, as their perception of safety at destination could be shaped by intensive market-

ing campaigns, which could encourage them to visit those destinations. Interestingly, these three categories of tourist behavior do not correlate significantly, even though Courageous and Cautious items describe behaviors that are basically opposite to one another and should correlate negatively. Authors believe that tourists who behave courageously are those who are aware of hazards, but they don't really care about them. Their holiday might be something that they were planning for a long time, saving money over some period, and nothing could deter their traveling. We believe that in the context of Serbian tourists, this factor might not describe courageous behavior per se but more a mindless behavior of tourists that superficially think about possible risky situations that might occur during their holiday. Greek destinations that were affected by natural hazards represent the most affordable summer vacation for Serbian tourists so courageous tourists might be those that can only pay for these destinations and would, therefore, choose them no matter what. Additional analyses show that those who travel the least (traveled only a couple of times out of the country or once a year) are more courageous which further substantiates the previous claim.

The path model conducted to test relations of tourist personality, tourism worries and Cautious, Conscious and Courageous behavior, revealed some interesting findings. Firstly, although Sensation-seeking and Novelty-seeking were expected to have a positive influence on Courageous behavior and negative on Cautious and Conscious behavior, the model showed no effect of Sensation-seeking in any aspect of tourist behavior based on the perceived risk (Hypothesis 2 is rejected) and no effect of Novelty-seeking on Conscious and Cautious behavior and unexpectedly, negative effect on Courageous behavior (Hypothesis 1 is rejected). This was a surprising finding, as previous studies [27, 32–35, 38, 39] suggested that sensation-seekers, similarly to novelty-seekers, show a greater tendency of traveling to risky destinations. This could possibly be explained by the fact that previous studies did not empirically explore the effect of novelty-seeking on tourist behavior based on the perceived risk, but rather risk perception. Novelty-seeking is tightly related to tourists' readiness to explore different destination aspects and activities (such as food, culture, different ethnicities), which is not directly related to risk-taking or to their perception of safety when engaging in those activities. Moreover, as previously mentioned, out of four dimensions of sensation seeking, defined by Zuckerman's [39], only experience seeking explicitly refers to traveling. This is why Kapuściński and Richards [36] called for further research of the relationship of these concepts in tourism, indicating that it is not clear to what extent they are connected. Further

analysis of our study showed that Sensation-seeking is not correlated with any type of tourist behavior based on the perceived risk. On the other hand, Novelty-seeking is negatively correlated with Courageous behavior, meaning that those with courageous behavioral tendencies are not seeking novel experiences or activities but perhaps an overdue respite in a familiar surrounding they can afford.

None of the six personality traits measured by mini IPIP 6 showed a significant effect on Courageous behavior. Therefore, hypotheses 3 and 5 are partially rejected (*i.e.* the parts concerning Courageous behavior factor). There were no direct effects of Neuroticism, Openness to experience and Honesty-Humility on tourist behavior based on the perceived risk, which leads to the complete rejection of hypotheses 4, 7 and 8. The model also revealed direct positive effects of Extraversion and Agreeableness on Conscious behavior, as well as direct positive effects of Conscientiousness on Cautious behavior.

Therefore, part of hypothesis 3 suggesting that Extraversion is positively related to Conscious behavior has been confirmed. Our study found that extraverts are prone to Conscious behavior when deciding whether to visit risky destinations - they will visit risky destinations, but they will make sure they are safe. The study of Weller and Tikir [43] found that extraversion does not influence risk-taking, which coincides with our findings (Extraversion is not connected with Courageous behavior). Although some previous studies suggest a positive influence of this trait on risk-taking (*i.e.* [41, 44, 45]), none of these studies were related to life-threatening risks such as the risk of natural hazards, which may suggest that extraverts are not that "extreme" in their risk-taking. In addition, Cooper, Agocha and Sheldon [42] explain that extraverts are likely to engage in risky behaviors as a way to enhance the positive affective experience while this kind of "reward" may not result from their visit of the destinations affected by natural hazards.

The part of hypothesis 5 suggesting that Conscientiousness is positively influencing Cautious behavior was confirmed. Weller and Tikir [43] also indicate that conscientiousness has negative correlations with risk-taking for all risk domains. They claim that individuals who score high in this dimension are generally more careful, more likely to consider the risks and benefits of certain activities, and may less engage in unnecessarily risky situations. On the other hand, individuals who are more reckless (*i.e.*, low conscientiousness) are more prone to engage in risky behaviors [69] such as smoking [70], and substance abuse [71].

Further on, the study confirmed the hypothesis 6 suggesting that Agreeableness is positively related to Conscious behavior. According to the study of Weller and

Tikir [43], agreeableness does not influence risk-taking (agreeable persons would not take recreational risks) but is correlated with risk perception, which makes much sense in explaining its positive effect on Conscious behavior. People who are agreeable will be aware of the existing risk (risk perception), but will act considerately – they will decide to visit destination if they perceive it safe. Moreover, some previous studies in the field of psychology showed that low agreeableness, as measured by Big Five models, positively affects risk-taking in a variety of domains, such as marijuana use [71], health risks [72], delinquency [72], and sexual risk-taking [74, 75].

Finally, hypothesis 9 can be accepted as tourism worries were found to mediate the relationship between low Honesty-Humility, Neuroticism and low Openness to experience on one side and Cautious behavior on another. This means that people who are low in honesty-humility, high in neuroticism and low in openness will show Cautious behavior in case they are anxious and worried about traveling. Larsen *et al.* [7] revealed that tourist worry negatively correlates with the desire to travel, and positively with risk perception, which coincides with our findings. The study by Weller and Tikir [43], suggests that in the case of all risk domains, the emotionality dimension is associated with higher risk perceptions and lower risk-taking. Cooper, Agocha and Sheldon [42] also revealed that neurotic individuals are more ready to engage in risky behaviors as a way of coping with aversive mood states. However, the results of our study could suggest that neurotic individuals, as a way of coping with travel-related worries and anxiety, avoid risky destinations and manifest Cautious behavior. Moreover, Weller and Tikir [43], revealed that Openness is positively associated with risk-taking for social and recreational risks, while low Openness may result in risk avoidance or, as our study suggests, it may result in Cautious behavior if they are worried and anxious about traveling. Lower honesty/humility was associated with greater health/safety and ethical risk-taking and lower risk perceptions Weller and Tikir [43]. However, Honesty/humility did not show significant influence on the recreational and social domain. The authors explained this by the fact that these domains include activities, which are more socially acceptable, while low honesty humility individuals may perceive fewer benefits associated with such activities, which may result in their avoidance of such behaviors. Our study showed that low Honesty-Humility individuals *i.e.* those in the belief they deserve more than other people (supposedly in traveling as well), will avoid risky destinations if they score high in tourism worries. Specifically, if these boastful and greedy individuals feel anxious about their destination they will strive to avoid it proba-

bly because it will not serve in their tendency towards self-promotion and due to their belief that these destinations are substandard to what they deserve.

Finally, there are several limitations of this study that should be addressed. Firstly, even though the questionnaire was distributed through e-mails to over 1200 tourists and shared online, the response rate was lower than expected. This could be overcome by distributing questionnaires in person since online surveys tend to be overlooked as some kind of spam email. Also, the study was conducted only among Serbian tourists, so cross-cultural validation of the findings would be desirable. Finally, the scale of behavior based on the perceived risk [8], used in our research, measures tendencies towards certain behaviors, not the behaviors themselves, meaning that respondents state what they would do but we do not know for sure whether they really behave that way in reality.

The current study also represents a good basis for some future research. Firstly, the future research should also include tourists coming to Greece from the other countries. This is important in order to test the obtained findings and check if people from different cultures perceive the risk of natural hazards in Greece in the same way and if they differ in their reactionary behaviours. This findings would provide marketing managers with information how to shape marketing campaigns for different cultures during the risk of natural hazards. Secondly, besides personality traits, it would be interesting to test the influence of sociodemographic (especially monthly income, education and age) on the tourist behavior based on the perceived risk. Finally, the current study could be expended by applying the same research framework on people who have experienced natural hazards in Greece during the summer 2018. Thus, research could reveal their future reactionary behaviours related to this risk. Moreover, the study could include people who have heard for natural hazards in Greece, but still visited those places afterwards. In this way, we could get more precise information about Courageous behaviour travellers based on their real instead of reported behaviour.

## 6 Conclusion

The goal of this study was to explore the impact of personality traits on tourist behavior based on the perceived risk with the examination of the mediating effect of tourism worries. In the focus were respondents who would or would not visit Greek seaside after the natural hazards that occurred during the summer of 2018. Results indicate that

Tourism worries mediate the impact of Honesty-Humility, Neuroticism and Openness to experience on Cautious behavior while there are direct effects of Novelty-seeking on Courageous behavior, Extraversion and Agreeableness on Conscious behavior and Conscientiousness on Cautious behavior. Based on these findings, the authors could conclude that there are three separate types of tourist behavior based on the perceived risk. Different personality traits, directly or mediated by tourist worries about traveling, lead to different tourist behaviors. Also, there are several managerial implications of this study. Firstly, during the times of high risk of natural hazards, marketing managers should develop different marketing strategies for people with different tourist behavior based on the perceived risk. For Cautious tourists, it is important to alleviate their worries about traveling in general as well provide a lot of information that would lessen their perception of the risk of natural hazards. The marketing campaigns for this segment should put emphasis on safety and measures that the country applies in order to decrease the risk (i.e. early warning systems, safety regulations in hotels etc.). These campaigns should promote travel destination as conscious, providing adequate conditions for the safe vacation, as this will attract Caution tourists. Also, this segment of tourists should be informed about which places are still safe and without risk of natural hazards, as they are more likely to visit such places. For Conscious tourist personal communication and positive experiences of their friends and family about the current level of destination safety could alleviate their perception of the risk of natural hazards. For this segment, promotional tools such as blogs or other social media for sharing information about current situation at destination would be most influential. The electronic word-of-mouth on the Internet, such as stories of tourists on Tripadvisor, could eliminate they fear and perception of risk. Thus, marketing managers should start such discussions in order to motivate people to share their positive experiences. Finally, Courageous tourists will not avoid given destinations because of possible risk and therefore they are of no particular interest to marketing managers. However, this segment of tourists could be included in promotional campaigns by telling their personal experiences to other people and in that way they could alleviate the fear and perception of risk of other people.

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