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Should I Stay or Should I Go? Tourists' COVID-19 Risk Perception and Vacation Behavior Shift

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Abstract: Without a doubt, the COVID-19 pandemic has had a tremendous impact on global tourism for at least two reasons: (1) imposed systematic travel restrictions that discourage people from traveling even though they would like to; and (2) increased travel anxiety due to the perceived risk of the COVID-19 virus, causing people to change their typical travel behavior. This study aims to explore the role of Covid-19 in shaping future travel behavior. More specifically, following the general model of vacation behavior and the role of risk in travel behavior, we investigate how COVID-19 influences travelers' perceptions of risk and how this affects planned vacation behavior. The results show that COVID-19 risk perception per se influences typical forms of vacation behavior, but this risk also leads to the development of travel anxiety, which additionally influences only some forms of vacation behavior. Empirical findings show that general anxiety, which is not associated with Covid-19 risk perception, also predicts some forms of planned changes in vacation behaviour. The study concludes with recommendations on how to reduce traveler uncertainty in order to recover international leisure travel.

Keywords: COVID-19; tourist behavior; vacation plans; risk; anxiety



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1. Introduction

The COVID-19 pandemic is one of the greatest challenges facing the world in the 21st century, with clear substantial negative impacts on the global economy [1], mortality rates [2], politics [3], and tourism [4]. The pandemic of COVID-19 officially began in Wuhan, China, on 19 December 2019, and had spread throughout the world by mid-March 2020 [5]. Tourism, as a global spreader of viruses [6,7], was one of the first industries directly affected by the global pandemic measures [8]. Global travel restrictions, as a key measure to control the Corona pandemic [9], caused unprecedented negative disruption to the global tourism economy [10].

Since 2000, tourism has faced a variety of infectious diseases (e.g., SARS, swine flu, avian flu, and others) whose negative economic impact was limited to specific countries or regions [11–15], but COVID-19 has affected the entire world. The United Nations World Tourism Organization (UNWTO) states that COVID-19 caused over 70% decrease in tourist traffic in 2020 compared to 2019 [16] and the World Travel and Tourism Council (WTTC) predicts that COVID-19 will cause \$22 billion in economic damage to the global tourism market [17]. Consequently, there is a global need for rapid adjustment of the tourism industry, including structural (e.g., adjustment of tourism infrastructure) and functional

(e.g., changes in service offerings) measures [18]. Tourism providers will need to change their 'business as usual' mode and provide information to help tourists plan and take trips in 2021 and beyond, including specific information on COVID-19 holiday planning measures [19] and the provision of up-to-date information on destination behavior [20].

One of the key factors influencing tourists' holiday planning and implementation is increased travel anxiety due to the COVID-19 pandemic risk. The pandemic has already led to a significant increase in travel anxiety in India [21], the United States [19], Italy [22,23], and Spain [24]. Travel anxiety increases when travel-related risks are present [25]. In high-risk situations, tourists adjust their vacation plans and destination behaviors [26]. Health-related risks, such as the risk of viral infection, play a major role in the choice of destination and tourism provider [27].

The pandemic COVID-19 led to an exponential growth in scientific publications on tourism-related impacts. However, most of the existing work on COVID-19 examines the impact of the pandemic on the tourism industry and tourism sustainability. This study adds to the body of knowledge in this area by explaining tourists' behavioral change and COVID-19 related reasons for planned behavioral change. The study provides empirical evidence about the influence of COVID-19 travelers' perceptions and fears on their vacation plans. The main objective of the study is to analyze the relationship between COVID-19 beliefs and a set of typical vacation plans. The theoretical contribution lies in providing insights into the relationship between perceived risks and different forms of tourists' vacation plans. Practically, this study helps tourism destinations and providers in developing strategies to prevent undesirable shifts in tourist behavior as well as to support desired tourist behavior during pandemic and post-pandemic periods.

2. Literature Review

The COVID-19 pandemic has affected many aspects of global society, including how and where people spend their holidays. Tourism is very sensitive to safety and health changes [12,28–30]. Infectious diseases in particular have a direct impact on people's travel decisions and their choice of destination [31,32]. The presence of risks, whether real or perceived, influences tourism travel plans and travel behavior [33,34]. The occurrence of the COVID-19 pandemic has led to general fear [35], mainly due to its easy and rapid spread across the globe. Travelers developed this fear due to the ease of person-to-person transmission and the long incubation period of the virus [36,37]. Nonetheless, viruses are not new to travelers worldwide; however, the magnitude and risks associated with COVID-19 are the greatest in human history [38]. In 2004, the fear of travel was also evident during the outbreak of the SARS virus (Severe Acute Respiratory Syndrome) in South and Southeast Asia, resulting in a sharp decline (–65%) in tourist arrivals to the region, particularly air travel [12]. In 2003, tourist arrivals in China fell by 694 million tourists, while hotel occupancy rates in China fell by 10% [39] and in Thailand by 8.8% [40]. Greater China has also been repeatedly affected by viruses, notably avian influenza (N5H1), which affected Hong Kong between 1996–97 and China, Japan, Laos, Thailand, Cambodia, Vietnam, and Indonesia between 2004–2007. A decrease in tourist arrivals was observed in Vietnam, where tourist arrivals decreased by 5% [41]. The 2009 swine flu outbreak reduced hotel occupancy also in Cancun and Riviera Maya (Mexico) by up to 55% [42].

People have the need and desire to travel [43], resulting in over 1.4 billion domestic travelers in the pre-pandemic period COVID-19 [4]. The motivation to travel is an internal force that drives people toward the satisfaction of physical and psychological needs [44], typically operationalized as travel intentions [45,46]. The motivation and its subsequent intentions are driven by one's needs [47,48] and desires for escape, recreation, relaxation, prestige, novelty, adventure, and social interaction [49,50]. To satisfy wants and needs, tourists consider ways to satisfy these travel needs and wants, typically looking at the attributes of destinations and tourism providers [51]. Attributes act as pull factors and materialize as physical resources of destinations (e.g., beaches, recreational facilities, cul-

tural attractions, mountains, beautiful landscapes [52,53], and general living conditions, including health risks [27].

Epidemics and pandemics are a periodic phenomenon leading to massive public response and increased stress levels. Such disasters lead to increased levels of anxiety, a common response to any stressful situation [21]. Anxiety is a transient emotional state characterized by tense thoughts and feelings of apprehension [54] and associated with fear of negative consequences [55]. Anxiety arises in response to a situation or stimulus that is perceived as dangerous or threatening. Elevated levels of anxiety have a negative impact on the perception of safety and ultimately on tourists' holiday plans and behavior [56,57]. When making a risky purchase, fear of unfamiliar consequences and feelings of anxiety emerge [58].

Perceived risk plays an important role in consumer behavior in everyday life [59] and in tourism context [60]. Risk perception refers to subjective beliefs regarding uncertain situations resulting from a particular risk [59]. Risk perception is influenced by personal characteristics [26,61], previous travel experiences [62,63], gender [64], education level [62], nationality [64], and cultural differences [58,65]. Tourism risk perception is considered as a tourist's subjective assessment of risk associated with travelling, which may eventually lead to postponement or even cancellation of travel; both having negative outcomes for tourism [60,66]. It is found that tourists from the United States, Hong Kong and Australia take travel risk very seriously, but for tourists from Greece, Canada and the United Kingdom, risk plays a minor role in travel behavior [30,65]. Perić et al. [67] reported that risk perception among Serbian tourists negatively influenced their travel intentions during the COVID-19 pandemic. Their results also show that travel risk negatively influences foreign travel, while health risk was found to be a predictor of foreign travel during the COVID-19 pandemic.

COVID-19 is a disruptive factor that affects the way tourists perceive the safety of their vacation. Risk interferes with routine decision making [34,68]; therefore, tourists who perceive risk prior to travel may need further information to adjust their vacation plans or cancel their vacation plans altogether. Existing research shows that risks influence tourists' overall travel intentions [69,70], both in relation to domestic and international travel [71]. In addition, safety and security are the main reasons for choosing a destination [72–74].

Several studies investigated the influence of COVID-19 on travel behaviour. Research from Indonesia [57] shows that Indonesians maintained positive attitudes toward international travel, but their travel intentions changed due to the fear of COVID-19. In a similar vein, Nazneen et al. [75] reported that tourists' risk perception due to COVID-19 negatively affected Chinese travel decisions, especially the number of vacations and visits to major cities. Another study [17] reported that Chinese people are unwilling to participate in rural tourism due to COVID-19. Hong et al. [36] reported that Chinese place a high priority on health safety when staying in a B&B. The COVID-19 pandemic significantly influences travel risk perception and willingness to change or cancel travel plans in Germany, Austria, and Switzerland [76]. Bae & Chang [38] show that COVID-19 risk perception increases South Koreans' travel intentions for non-contact vacation experiences in terms of health-protective vacation behaviour.

It can be concluded that COVID-19 is a widely accepted risk factor and thus influences tourists' vacation behaviour. The impact of COVID-19 on tourists' general holiday behaviour is empirically validated; however, there is a lack of research on the role of Covid-19 in developing anxiety as well on the role of the two concepts on different forms of vacation behavior. The present study aims to fill this recognized gap.

3. Materials and Methods

This paper examines the effects of risk perception due to COVID-19 and associated anxiety on the future vacation behavior. The COVID-19 has resulted in travel becoming a source of stress rather than a stress reliever. Sonmez & Graefe [61,62] reported that covid-19 makes tourists substituting their foreign vacations for safer domestic trips. Therefore, the

evidence suggests high probability that the impact of COVID-19 will significantly influence future vacation behavior plans. Several articles have examined risk perceptions and their impact on travel decisions during the COVID-19 pandemic. In their study conducted in China, Nazneen et al. [75] show that tourists' risk perception has a significant negative impact on their travel plans. Travelers believe that COVID-19 makes travel unsafe and that the pandemic reduces their travel options, especially to large crowded cities. We question the association of Covid-19 beliefs and travel anxiety and whether the effect of the two psychological factors will be homogeneous across a range of different vacation decisions. The following research hypotheses were posited:

Hypothesis 1 (H1). *Covid-19 perception will lead to travel anxiety.*

Hypothesis 2 (H2). *Travel anxiety due to COVID-19 pandemic influences travel plans.*

The present study was conducted in Serbia, during the last week of April and the first week of May 2020; two weeks before the end of the state of emergency in the Republic of Serbia, when travel was still unrestricted. An online survey was sent to a total of 1445 Serbian citizens using the research tool Survey monkey. The survey was distributed through social networks (Facebook and Instagram) and email addresses from the database of the Serbian tour operator Euroturs. Such convenient, non-probability sampling, ensured we reached travelers with different travel styles; with participants from the Eurotours database being experienced organized travelers and other study participants likely being non-organized travelers. The total sample for the current study includes 557 respondents, of which 31% are male and the rest are female. The survey was anonymous and participation was voluntary. The questionnaire was written in Serbian and consisted of four sets of questions. The first section elicited socio-demographic characteristics (age, gender, monthly income, travel style, marital status, education level, previous holiday behavior). The second section elicited perceptions using a series of belief statements via COVID-19. Belief statements, measured on a scale of 1–5 (1-strongly disagree to 5-strongly agree), were elicited from a group of five tourism experts and two psychology experts. For example: the coronavirus pandemic is one of the most severe situations in recent human history; the coronavirus pandemic will not end anytime soon. The third section assessed respondents' vacation plans using a set of 11 statements about typical vacation choices. The set of vacation behavior related statements was adopted from previous studies [77,78] but adapted to the context of the current study (COVID-19 situation, Serbian population). For example, This year I will change my travel plans; When evaluating destinations, the risk of coronavirus is an important factor; Due to coronavirus, I will only travel with my own car; Due to coronavirus, my travel activities will be mainly outdoors. In the last section, anxiety was measured by making 20 statements about the psychological state of the respondents. On a scale of 1–4 (1-never; 4-ever) respondents were asked how often they experienced each of the listed psychological states in the past month. Spielberg's [79] anxiety scale was used as a template, but adapted to the current COVID-19 situation and Serbian cultural context. For example: I do not feel anxious; I am less happy than other people; I feel like a loser.

IBM SPSS 26.0 statistical software was used for data analysis. After calculating the initial descriptive statistics and testing the data distribution and reliability of the instrument, factor analysis (Principal Axis Factoring) was used to construct COVID-19 perceptions and Travel Anxiety concepts. Regression analysis was used to test the influence of anxiety and COVID-19 perceptions on respondents' holiday plans.

4. Results

First, the COVID-19 risk perception was measured.

The results (Table 1) show that respondents perceive COVID-19 as a difficult and persistent situation risk to human health. More specifically, on average, study participants believe that the COVID-19 pandemic is the most severe situation in recent human history

($M = 3.74$, $SD = 1.223$). They are concerned about their own health and that of their relatives and friends ($M = 3.70$; $SD = 1.272$). On average, study participants also agree that COVID-19 is enduring phenomenon; thus, it will exist even when the pandemic is over ($M = 3.67$, $SD = 1.189$), and it will not end quickly ($M = 3.63$, $SD = 1.089$). Skewness and kurtosis (in the interval $[-0.72; -0.295]$) show a distribution close to the normal curve for all included indicators of COVID-19 perception; therefore, all mentioned indicators were retained for further analysis.

Table 1. Descriptive statistics for the COVID-19 risk perception.

Beliefs Statements	Mean	Std. Error of Mean	Std. Deviation	Skewness	Kurtosis
The corona virus pandemic is one of the most severe situations in a recent human history.	3.74	0.052	1.223	−0.720	−0.385
The coronavirus pandemic will not end anytime soon.	3.63	0.046	1.089	−0.501	−0.295
The coronavirus will exist even after the pandemic will officially ended.	3.67	0.046	1.089	−0.520	−0.312
Corona virus makes we worried about my health and the health of people close to me.	3.70	0.054	1.272	−0.695	−0.598

Pearson's correlation coefficients (see Table A1 in Appendix A) support internal validity ($0.238 < r < 0.567$, sig 0.01). Cronbach's Alpha Coefficient ($\alpha = 0.722$) indicates high reliability of the measurement instrument.

Next, a factor analysis was conducted (see Tables A2 and A3), using the principal axis factoring method, to construct the factor(s) of COVID-19 risk perception. The algorithm suggested one factor with an initial eigenvalue greater than 1 (the first factor with an eigenvalue of 2.203), which explained 55.072% of the total variance. Since there was just one factor extracted, no rotations were made. The initial factor loadings show high values (0.55) on all four items. The factor obtained was saved for further statistical analysis and named as perception of COVID-19 risk.

In the following, anxiety was measured (see Table 2).

The results (Table 2) indicate a presence of anxiety among study participants. More specifically, study participants report a lack of calmness and satisfaction with self, as well as feeling concerned and unhappy. Overall, the descriptive statistics demonstrates an acceptable level of normal distribution (skewness and kurtosis are in the interval $[-1.3; 1.3]$), except for the indicator of feeling like a loser (skewness is 2.335 and kurtosis is 5.513)—this indicator was excluded from further statistical analysis.

Pearson's correlational coefficients were calculated to test for internal validity of the anxiety scale (see Table A4 in Appendix B). The results are statistically significant (at the 0.05 level) with correlations among the majority of the pairs of the anxiety statements, supporting the internal validity of the measurement scale. The highest correlation was 0.639, showing there is no multicollinearity among the statements of the anxiety. Cronbach's Alpha Coefficient ($\alpha = 0.747$) also confirms strong reliability of the measurement instrument.

Factor analysis (using principal axis factoring) was used to construct the Anxiety factor. The algorithm suggested 3 factors, with initial eigenvalues higher than 1 (the first factor having the eigenvalue of 5.538, the second one 3.381, the third one 1.02), explaining 29.148%, 17.795% and 5.371% of the total variance, respectively. However, the initial factor loadings showed just one statement having a high factor loading on the third factor and the screen plot suggested a 2-factor solution; thus, a 2-factor solution was performed in the following. The two-factor solution proposes two dimensions of anxiety (see Tables A5 and A6), with the first factor having an eigenvalue of 4.365, explaining 22.974% of the total variance, the second factor having an eigenvalue of 3.466, explaining 18.242% of the total variance. In

order to obtain a clear solution, the Varimax rotation was performed, using the Kaiser normalization. The factor loadings on the first factor suggest a tension related to more recent events, whereas the factor loadings on the second factor suggest some long-term causes of tension. Both factors were retained for further statistical analysis.

Table 2. Descriptive statistics for Anxiety.

Anxiety Statements	Mean	Std. Error of Mean	Std. Deviation	Skewness	Kurtosis
I do not feel frightened	2.30	0.038	0.887	0.800	1.474
I am nervous	2.11	0.036	0.840	0.608	−0.020
I am not satisfied with myself	2.37	0.033	0.775	0.364	1.254
I feel less happy than other people	2.27	0.048	1.132	0.311	−1.306
I feel like a loser	1.31	0.027	0.645	2.335	5.513
I do not feel rested	2.14	0.045	1.072	1.160	1.226
I am not calm and composed	2.36	0.037	0.884	0.670	1.283
I feel under a lot of pressure	1.81	0.037	0.880	0.877	−0.040
Unimportant things bother me	2.29	0.042	0.998	0.250	−0.997
I'm not happy	2.43	0.032	0.764	0.246	1.246
I have disturbing thoughts	2.03	0.039	0.931	0.635	−0.430
I lack self-confidence	1.83	0.039	0.919	0.878	−0.165
I do not feel safe	2.34	0.036	0.846	0.494	1.131
I do not make decisions easily	2.28	0.043	1.026	1.061	1.231
I feel inadequate	1.61	0.034	0.802	1.249	0.986
I am not satisfied	2.41	0.035	0.823	0.509	1.376
I think a lot about unimportant things and that upset me	2.14	0.040	0.952	0.491	−0.664
When something bad happens I cannot stop thinking about it	1.97	0.041	0.966	0.723	−0.465
I am not calm, stable	2.39	0.034	0.793	0.411	1.297
Thinking about my recent problems make me very upset	2.17	0.041	0.978	0.467	−0.763

A correlation analysis between COVID-19 risk perception and the two Anxiety factors was performed to determine the drivers of the Anxiety (see Table 3).

Table 3. Correlations between Covid-19 risk perception and Anxiety factors.

	Perception of the COVID-19 Pandemic (Factor)	COVID-19 Anxiety (Factor 1)	General Anxiety (Factor 2)
Perception of the COVID-19 pandemic (factor)	1	0.202 **	−0.063
COVID-19 anxiety (factor 1)	0.202 **	1	−0.031
General anxiety (factor 2)	−0.063	−0.031	1

** Correlation is significant at the 0.01 level (2-tailed).

Pearsons' correlation shows statistically significant correlation between COVID-19 risk perception and Anxiety factor 1 ($r = 0.202$, $\text{sig} = 0.001$), but no statistically significant correlation exists between COVID-19 risk perception and Anxiety factor 2 ($r = -0.063$, $\text{sig} = 0.135$). This finding leads to a conclusion that Anxiety factor one originates in COVID-

19 beliefs; thus it was named Covid-19 Anxiety. Anxiety factor 2 shows no association to COVID-19 risk perception, thus it was named General anxiety.

Planned vacation behavior was measured using 14 statements, covering a diverse range of vacation behaviors (see Table 4).

Table 4. Descriptive statistics for travel plans in times of COVID-19 pandemic.

Travel Plans Statements	Mean	Std. Error of Mean	Std. Deviation	Skewness	Kurtosis
This year, I will change my travel plans.	3.95	0.053	1.257	−1.001	−0.056
Safety is the deciding factor when I think about where to travel.	4.19	0.048	1.134	−1.381	0.993
When evaluating travel destinations, the risk of corona virus is an important factor.	3.98	0.051	1.212	−1.088	0.240
I would not travel to a country where even a small percentage of people is infected with corona virus.	3.16	0.062	1.471	−0.135	−1.333
Due to corona virus, I will only travel with my own car	3.39	0.067	1.577	−0.378	−1.408
Due to corona virus, I will choose independent and isolated accommodation units for accommodation	3.39	0.059	1.389	−0.380	−1.059
I will avoid traveling to big cities, due to corona virus.	3.27	0.062	1.455	−0.262	−1.260
I will reduce the length of the trip, due to the corona virus.	2.74	0.060	1.423	0.266	−1.187
My travel activities will be with respect for social distance, due to corona virus.	4.10	0.047	1.098	−1.147	0.573
My travel activities will be mostly outdoors, due to corona virus.	3.89	0.051	1.195	−0.928	0.000
I will spend less money on travel than in previous years, due to corona virus.	3.41	0.054	1.285	−0.360	−0.784
The vacation I planned abroad will be spent in part on a tourist tour of Serbia, due to corona virus.	3.25	0.060	1.415	−0.312	−1.154
Although I am financially able, for safety reasons I will travel only in Serbia.	2.85	0.062	1.469	0.126	−1.317
I will not travel anywhere as a tourist, due to corona virus.	2.44	0.059	1.391	0.518	−0.910

Respondents agree that safety is an important factor when deciding where they will travel ($M = 4.19$, $SD = 1.134$), that their travel activities will respect social distancing ($M = 4.1$, $SD = 1.098$), that when deciding for the travel destination they will consider the impacts of the corona virus at the destination ($M = 3.98$, $SD = 1.212$), that they will change their travel plans ($M = 3.95$, $SD = 1.257$) and that their travel activities will be mostly outdoor ($M = 3.89$, $SD = 1.195$). Respondents do not agree that they will not travel this year ($M = 2.44$, $SD = 1.391$). In all other cases respondents on average did not agree neither disagree ($2.74 < M < 3.41$). In all 14 cases, skewness and kurtosis show a distribution close to the normal distribution—all items were kept for further statistical analysis. Descriptive analysis indicates a high level of variation in reported travel plans. Most affected are the general vacation plans, travel style (social distancing) and location (outdoor); the role of safety in making travel decisions also seems to be important. On the other hand, vacation

plans pertaining to the length of trip and complete avoidance of travelling appear to be less affected than general vacation plans, travel style and activities location.

In order to test the research hypotheses, linear regression was used. In the regression model, each indicator of the planned travel behavior was used as dependent variable, while the factor of the perception of the COVID-19 risk and the two factors of anxiety were used as independent variables. Results are shown in Table 5. Significant influences (at the 0.05 level) of predictors on travel plans are marked in bold.

Table 5. Regression analysis: the influence of the perception of the COVID-19 risk and anxiety on travel plans.

Travel Plans Statements	R ²	F	sig.	Perception of COVID-19 Pandemic		COVID-19 Anxiety		General Anxiety	
				B	sig.	B	sig.	B	sig.
This year, I will change my travel plans.	0.300	78.808	0.001	0.720	0.001	0.003	0.957	−0.021	0.666
Safety is the deciding factor when I think about where to travel.	0.433	140.376	0.001	0.792	0.001	−0.050	0.213	−0.013	0.744
When evaluating travel destinations, the risk of corona virus is an important factor.	0.595	370.167	0.001	0.972	0.001	0.030	0.399	−0.003	0.938
I would not travel to a country where even a small percentage of people is infected with corona virus.	0.546	221.447	0.001	1.123	0.001	0.067	0.145	0.062	0.175
Due to corona virus, I will only travel with my own car	0.484	172.829	0.001	1.150	0.001	0.003	0.952	0.045	0.383
Due to corona virus, I will choose independent and isolated accommodation units for accommodation	0.630	313.477	0.001	1.137	0.001	0.062	0.116	−0.037	0.344
I will avoid traveling to big cities, due to corona virus.	0.636	321.829	0.001	1.218	0.001	−0.009	0.816	0.013	0.741
I will reduce the length of the trip, due to the corona virus.	0.519	198.872	0.001	1.030	0.001	0.149	0.001	0.135	0.003
My travel activities will be with respect for social distance, due to corona virus.	0.445	147.637	0.001	0.755	0.001	−0.035	0.353	−0.013	0.001
My travel activities will be mostly outdoors, due to corona virus.	0.399	122.071	0.001	0.795	0.001	−0.047	0.271	−0.057	0.184
I will spend less money on travel than in previous years, due to corona virus.	0.239	57.678	0.001	0.666	0.001	−0.032	0.537	0.001	0.979
The vacation I planned abroad will be spent in part on a tourist tour of Serbia, due to corona virus.	0.333	92.067	0.001	0.877	0.001	−0.147	0.006	−0.040	0.447
Although I am financially able, for safety reasons I will travel only in Serbia.	0.422	145.937	0.001	1.052	0.001	−0.153	0.003	0.032	0.532
I will not travel anywhere as a tourist, due to corona virus.	0.108	22.290	0.001	0.422	0.001	0.145	0.018	0.089	0.142

Linear regression analysis shows dependence of specific planned vacation behavior on factors of COVID-19 risk perception, COVID-19 anxiety and General anxiety. Each behavior in Table 5 is a separate prediction model, predicting between 10% and 60% of respective planned travel behavior. More specifically, COVID-19 risk perception and travel

anxiety affect general vacation plans, including not travelling anywhere. It is also evident that due to COVID-19 the study participants plan to replace international with domestic destinations and some respondents plan only travel domestically; however, they do not plan to avoid city destinations. Travelling by car is affected by COVID-19 risk perception, but travel anxiety does not play any role in the choice of transportation. Duration of planned vacation and vacation activities appear to be driven by COVID-19 risk perception as well as travel and general anxiety. More specifically, the study participants who perceive COVID-19 risk and report on the presence of COVID-19 and general anxiety also report taking shorter trips. In addition, general anxiety and COVID-19 risk perception also predict plans for the “untact” [38] vacation activities. More specifically, Covid-19 risk perception leads to travelers planning less sociable travel activities (more respect for social distancing), feeling of general anxiety leads to more sociable vacation activities (less respect for social distancing).

5. Discussion

Risk is an important driver of human behavior, in everyday life as well as in the vacation context. People shift their typical behavior to avoid risk; thus, protecting their material possessions [80] and health [81]. Ensuring safety is an important vacation planning objective [82] mainly due to a number of unknown situations related to visiting new places and meeting new people. Destination attributes play an important role in leisure travel, as they represent characteristics of tourist places that tourists find most important when making travel-related decisions. Tourists consider natural and cultural attractions as well as safety to be the most important attributes of their chosen destination [83]. These attributes are followed by costs of visiting and living. However, in times of a pandemic, ensuring health and safety becomes a priority when planning a vacation. Understanding the role of risk and anxiety in tourist behavior is important for the development of measures, which help to restore travelers’ certainty in general and in specific vacation related decisions. The COVID-19 pandemic was announced by the World Health Organization (WHO) in March 2020 [84] and now, to some extent, it controls all spheres of human life. The control mechanism may be external (for example, governmental regulations) or internal (risk perception, anxiety) to the individual. While external risk (for example, border closures) alters all types of travel behavior, this study shows that internal factors affect only some forms of vacation behavior. Behavior specific approaches are needed to restore travelers’ certainty, in times of Covid-19 pandemic, to encourage specific forms of vacation behavior.

Existing research on COVID-19 and tourism demonstrates a change in a typical vacation behavior, which has caused a significant drop in tourist numbers [85] and in the use of air transportation [86]. Without a doubt these changes are caused by external factors such as border closures [87] and air flight cancellations [86]; however, this study shows that behavior change occurs also due to travelers’ perceived COVID-19 risk. Moreover, perceptions of COVID-19 as a travel associated risk leads to a planned shift in a number of typical travel behaviors. This study shows that, due to COVID-19 beliefs, tourists plan to alter their choice of a destination, accommodation, travel activities and even decide not to travel or to travel for shorter periods. These changed behavior plans in individuals have a massive impact on the tourism industry when considering international tourism collectively.

This research also shows correlation among COVID-19 risk and the COVID-19 travel anxiety, which additionally alters some forms of vacation behavior. More specifically, COVID-19 travel anxiety leads to general omission of vacations altogether, not travelling internationally and even reducing the length of planned vacations. While this situation increases domestic travel, well evidenced in current travel statistics [88], it does significantly reduce the extent of international travel. International tourism is an important driver of the global economy [89]; hence the tourism industry must address the existing COVID-19 travel anxiety to restore international travel.

One way to restore international tourism is by structural and functional adaptations of “business as usual” [18]. In practice, this means lifting border closures, restoring international aviation [90] and even robotisation of hospitality services [91] to support contactless services via social distancing. But this may not be enough, because it is evident that people perceive COVID-19 as risk and thus experience travel related anxiety. This changes tourists’ “business as usual” vacation plans. The present study demonstrates that COVID-19 risk perception alters a number of vacation related plans; travel anxiety affects only a few. Clearly, this study findings suggest that activating international tourism demand will require general strategies to build tourists certainty about COVID-19 as a manageable travel risk, but behavior specific strategies to reduce behavior specific travel anxiety. This issue requires the implementation of communication strategies at the destination and also at the level of tourism providers on how to reduce behavior specific related risk. Strategies alleviating COVID-19 risk perception and related travel anxiety have the potential for restoring international tourism demand, which is clearly affected by the two factors. While social media is the most effective tool to spread the information demonstrating how COVID-19 risk is manageable [92], tourism industry and governments must provide information on what tourists need to do to manage the risk. When permitted, the industry must ensure as unified as possible measures for risk management to reduce tourists fatigue and decision effectiveness [56,93], which typically diverts tourists from making any decisions at all [94,95].

The present study extends the understanding of the role that COVID-19 plays in tourists’ vacation plans. The results demonstrate that COVID-19 presents an important risk for international travel which by itself, shifts typical vacation plans; however, understanding COVID-19 as a travel risk may also lead to a development of travel anxiety which additionally affects vacation plans. Pandemic situations cause an increase in general anxiety which can significantly affect rational decisions and impact tourists’ behavior [96]. This shows that general everyday situations remain risk factors which additionally influence some forms of peoples’ vacation plans. The COVID-19 pandemic has resulted in an increase in known risk factors for mental health problems, and together with unpredictability and uncertainty, lockdown and physical distancing might lead to social isolation, loss of income, loneliness, inactivity and limited access to basic services [81]. All of these factors can increase general anxiety level. In addition, COVID-19 is a psychosocial stressor, driven by fear of illness and fear of negative economic impacts [97].

Overall, the present study adds to existing research on COVID-19 and tourist behavior by providing empirical evidence that tourists perceive COVID-19 as a travel risk. Tourists develop travel anxiety which leads to shifts in planned vacation behavior. Moreover, COVID-19 related anxiety additionally alters some forms of planned vacation behaviors; but not all. The important contribution of the present study is that not all travel decisions are affected by Covid-19 perceptions and related travel anxiety. Following this, behavior specific interventions are needed to reduce the impact of travel anxiety on international tourism. Based on empirical evidence on effective mechanisms for reducing perceived risk and anxiety [35] we call upon destinations, governments and tourism providers to provide transparent and credible information for reducing COVID-19 related travel risks. Such information should demonstrate the safety of destinations and tourism services and teach tourists about best behavior practice to reduce risks during their vacation. This should help travelers in restoring trust in travel safety and eventually help in the recovery of international tourism. Given the role of general anxiety in travel plans, as evident in this study, tourism providers and destinations must pay attention also to general travel anxiety and address the drivers of this anxiety in their recovery strategies.

6. Conclusions

Covid-19 pandemic leads to the development of COVID-19 travel risk perception and travel anxiety; and most likely also to general anxiety. The three concepts have different impact on vacation plans. Behavior specific approaches are needed to reduce travel risk

associated with Covid-19 and related travel and general anxiety which will help restoring international travel. Empirical findings show that Covid-19 makes people uncertain and leads to the development of travel anxiety. This finding corroborates existing studies; for example, Turnšek et al. [98] report that people who traveled in the past express the least likelihood of not traveling in the future, due to the coronavirus. Following this, it is important that tourism industry improves their communication strategy by informing travelers on how health related COVID-19 risks can be reduced to a minimum. For example, brief step by step guidelines should be developed for key tourism sectors (transportation sector, accommodation sector, tourism experiences sector) on how travelers can reduce the transmission of the virus within the specific tourism sector. This piece of communication should be available to international travelers during their vacation planning phase, to reduce perceived risks. Results also suggest that tourism providers and destination should adapt their tourism offerings by providing smaller, isolated accommodation units and more outdoor tourists experiences so as to be prepared for the changed vacation behavior. It appears that general anxiety will affect the length of vacation which will have negative economic impacts on the industry. Before any practical recommendations to the tourism industry can be provided on how to address the general anxiety, more research is needed on what causes general anxiety, besides the COVID-19.

Prior to the COVID-19 pandemic, tourism was generating substantial positive impacts on the global economy; however, it was also causing vast negative environmental and social costs. While, the COVID-19 pandemic triggered devastating economic costs for the tourism and other industries, it may be expected that early forms of post covid-19 tourism will be more sustainable. The present study shows that tourist will focus on small scale tourism, domestic travel, individual tourism experiences and be more reserved in their tourism consumption. Such tourist behavior will substantially reduce negative environmental and social costs of tourism, typical for the pre-COVID-19 times. Before the COVID-19 pandemic, the general travelling population was reluctant to alter typical vacation behavior in favor of more sustainable tourism—very little tourists intendedly make sustainable vacation decisions [99]. The present study signals that, due to COVID-19 and general anxiety people will be making low risk vacation choices which will be more sustainable; thus helping tourism to recover into a more sustainable future. Tourism providers and destinations must develop small scale tourism, involving risk prevention measures and by so doing making sure that social, environmental and economic capabilities of their local communities are met.

The present study is limited by its geographical scope which limits the generalizability of the findings to Serbian travelling population. However, the present study does validly establish the role of COVID-19 and subsequent travel anxiety in vacation behavior plans and warrants further investigations in other cultural backgrounds as well as the drivers of general travel anxiety in health risk induced times. Therefore, future studies should look into the types of vacation behaviors that are affected by travelers' perceptions of COVID-19 across different geographical and cultural contexts. Another important limitation is in the number of behaviors studied in relation to COVID-19 and related travel anxiety. Results from this study warrant additional studies looking into the association of different forms of tourist behavior and the same health risk related factors. In addition, more research is needed into the profiles of tourists experiencing travel anxiety due to COVID-19 risk perception. This could help destinations and tourism providers to target segments of travelers based on their Covid-19 beliefs and travel anxiety. Lastly, future experimental studies should guide the development of effective approaches to reduce travel related risk perception and anxiety, due to COVID-19 and other similar health risk situations.

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Appendix A. Perception of the COVID-19 Risk

Table A1. Pearson's correlations for perceived COVID-19 risk.

	The Corona Virus Pandemic Is One of the Most Severe Situations in a Recent Human History.	The Coronavirus Pandemic Will Not End Anytime Soon.	The Coronavirus Will Exist Even after the Pandemic Will Officially Ended.	Corona Virus Makes Me Worried about My Health and the Health of People Close to Me.
The corona virus pandemic is one of the most severe situations in a recent human history.	1	0.400 **	0.238 **	0.477 **
The coronavirus pandemic will not end anytime soon.	0.400 **	1	0.567 **	0.438 **
The coronavirus will exist even after the pandemic will officially ended.	0.238 **	0.567 **	1	0.267 **
Corona virus makes me worried about my health and the health of people close to me.	0.477 **	0.438 **	0.267 **	1

** Correlation is significant at the 0.01 level (2-tailed).

Table A2. Total variance explained for the perception of the COVID-19 risk (factor analysis).

Factor	Total	Total Variance Explained		Extraction Sums of Squared Loadings		
		Initial Eigenvalues % of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.203	55.072	55.072	1.652	41.300	41.300
2	0.883	22.073	77.145			
3	0.522	13.046	90.191			
4	0.392	9.809	100.000			

Extraction Method: Principal Axis Factoring.

Table A3. Factor loading for the perception of the COVID-19 risk.

	Factor 1
The corona virus pandemic is one of the most severe situations in a recent human history.	0.556
The coronavirus pandemic will not end anytime soon.	0.567
The coronavirus will exist even after the pandemic will officially ended.	0.816
Corona virus makes we worried about my health and the health of people close to me.	0.597

Extraction Method: Principal Axis Factoring; a. 1 factors extracted. 12 iterations required.

Appendix B. Anxiety

Table A4. Pearson's correlations for anxiety.

	I Do Not Feel Frightened	I Am Nervous	I Am Not Satisfied with Myself	I Feel Less Happy than Other People	I Do Not Feel Rested	I Am Not Calm and Composed	I Feel Under a Lot of Pressure	Unimportant Things Bother Me	I'm Not Happy	I Have Disturbing Thoughts	I Lack Self-Confidence	I Do Not Feel Safe	I Do Not Make Decisions Easily	I Feel Inadequate	I Am Not Satisfied	I Think a Lot about Unimportant Things and That Upset Me	When Something Bad Happens I Cannot Stop Thinking about It	I Am Not Calm, Stable	Thinking about My Recent Problems Make Me Very Upset
I do not feel frightened	1	−0.220 **	0.454 **	−0.031	0.285 **	0.311 **	−0.071	−0.177 **	0.493 **	−0.138 **	−0.201 **	0.391 **	0.213 **	−0.124 **	0.510 **	−0.155 **	−0.101 *	0.358 **	−0.121 **
I am nervous	−0.220 **	1	−0.189 **	0.175 **	−0.026	−0.125 **	0.407 **	0.356 **	−0.214 **	0.426 **	0.398 **	−0.134 **	−0.054	0.343 **	−0.177 **	0.451 **	0.466 **	−0.190 **	0.453 **
I am not satisfied with myself	0.454 **	−0.189 **	1	−0.047	0.290 **	0.313 **	−0.122 **	−0.178 **	0.519 **	−0.101 *	−0.251 **	0.438 **	0.302 **	−0.151 **	0.569 **	−0.147 **	−0.105 *	0.421 **	−0.057
I feel less happy than other people	−0.031	0.175 **	−0.047	1	0.035	−0.042	0.268 **	0.175 **	−0.053	0.278 **	0.239 **	−0.046	0.008	0.226 **	−0.062	0.229 **	0.294 **	−0.034	0.259 **
I do not feel rested	0.285 **	−0.026	0.290 **	0.035	1	0.281 **	0.019	−0.072	0.180 **	0.001	0.028	0.288 **	0.263 **	0.055	0.214 **	−0.013	0.042	0.234 **	−0.023
I am not calm and composed	0.311 **	−0.125 **	0.313 **	−0.042	0.281 **	1	−0.082	−0.130 **	0.329 **	−0.102 *	−0.094 *	0.324 **	0.185 **	−0.100 *	0.337 **	−0.078	−0.069	0.432 **	−0.094 *
I feel under a lot of pressure	−0.071	0.407 **	−0.122 **	0.268 **	0.019	−0.082	1	0.458 **	−0.124 **	0.500 **	0.415 **	−0.116 **	−0.075	0.509 **	−0.122 **	0.414 **	0.419 **	−0.107 *	0.448 **
Unimportant things bother me	−0.177 **	0.356 **	−0.178 **	0.175 **	−0.072	−0.130 **	0.458 **	1	−0.113 **	0.521 **	0.402 **	−0.145 **	−0.072	0.364 **	−0.173 **	0.555 **	0.474 **	−0.177 **	0.451 **
I'm not happy	0.493 **	−0.214 **	0.519 **	−0.053	0.180 **	0.329 **	−0.124 **	−0.113 **	1	−0.118 **	−0.144 **	0.461 **	0.266 **	−0.148 **	0.622 **	−0.072	−0.118 **	0.506 **	−0.111 **
I have disturbing thoughts	−0.138 **	0.426 **	−0.101 *	0.278 **	0.001	−0.102 *	0.500 **	0.521 **	−0.118 **	1	0.444 **	−0.126 **	−0.025	0.436 **	−0.121 **	0.639 **	0.560 **	−0.134 **	0.541 **
I lack self-confidence	−0.201 **	0.398 **	−0.251 **	0.239 **	0.028	−0.094 *	0.415 **	0.402 **	−0.144 **	0.444 **	1	−0.194 **	−0.053	0.456 **	−0.187 **	0.449 **	0.448 **	−0.170 **	0.394 **
I do not feel safe	0.391 **	−0.134 **	0.438 **	−0.046	0.288 **	0.324 **	−0.116 **	−0.145 **	0.461 **	−0.126 **	−0.194 **	1	0.249 **	−0.127 **	0.483 **	−0.101 *	−0.093 *	0.512 **	−0.110 **

Table A4. Cont.

	I Do Not Feel Frightened	I Am Nervous	I Am Not Satisfied with Myself	I Feel Less Happy than Other People	I Do Not Feel Rested	I Am Not Calm and Composed	I Feel Under a Lot of Pressure	Unimportant Things Bother Me	I'm Not Happy	I Have Disturbing Thoughts	I Lack Self-Confidence	I Do Not Feel Safe	I Do Not Make Decisions Easily	I Feel Inadequate	I Am Not Satisfied	I Think a Lot about Unimportant Things and That Upset Me	When Something Bad Happens I Cannot Stop Thinking about It	I Am Not Calm, Stable	Thinking about My Recent Problems Make Me Very Upset
I do not make decisions easily	0.213 **	-0.054	0.302 **	0.008	0.263 **	0.185 **	-0.075	-0.072	0.266 **	-0.025	-0.053	0.249 **	1	0.010	0.301 **	-0.008	0.007	0.255 **	-0.038
I feel inadequate	-0.124 **	0.343 **	-0.151 **	0.226 **	0.055	-0.100 *	0.509 **	0.364 **	-0.148 **	0.436 **	0.456 **	-0.127 **	0.010	1	-0.064	0.392 **	0.463 **	-0.119 **	0.395 **
I am not satisfied	0.510 **	-0.177 **	0.569 **	-0.062	0.214 **	0.337 **	-0.122 **	-0.173 **	0.622 **	-0.121 **	-0.187 **	0.483 **	0.301 **	-0.064	1	-0.108 *	-0.109 *	0.506 **	-0.094 *
I think a lot about unimportant things and that upset me	-0.155 **	0.451 **	-0.147 **	0.229 **	-0.013	-0.078	0.414 **	0.555 **	-0.072	0.639 **	0.449 **	-0.101 *	-0.008	0.392 **	-0.108 *	1	0.592 **	-0.175 **	0.598 **
When something bad happens I cannot stop thinking about it	-0.101 *	0.466 **	-0.105 *	0.294 **	0.042	-0.069	0.419 **	0.474 **	-0.118 **	0.560 **	0.448 **	-0.093 *	0.007	0.463 **	-0.109 *	0.592 **	1	-0.125 **	0.615 **
I am not calm, stable	0.358 **	-0.190 **	0.421 **	-0.034	0.234 **	0.432 **	-0.107 *	-0.177 **	0.506 **	-0.134 **	-0.170 **	0.512 **	0.255 **	-0.119 **	0.506 **	-0.175 **	-0.125 **	1	-0.140 **
Thinking about my recent problems make me very upset	-0.121 **	0.453 **	-0.057	0.259 **	-0.023	-0.094 *	0.448 **	0.451 **	-0.111 **	0.541 **	0.394 **	-0.110 **	-0.038	0.395 **	-0.094 *	0.598 **	0.615 **	-0.140 **	1

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed).

Table A5. Total variance explained for the perception of the COVID-19 risk (factor analysis).

Factor	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.538	29.148	29.148	5.003	26.331	26.331	4.365	22.974	22.974
2	3.381	17.795	46.943	2.828	14.885	41.216	3.466	18.242	41.216
3	1.020	5.371	52.314						
4	0.896	4.715	57.029						
5	0.861	4.532	61.562						
6	0.794	4.176	65.738						
7	0.752	3.956	69.694						
8	0.688	3.623	73.317						
9	0.634	3.338	76.655						
10	0.611	3.217	79.872						
11	0.567	2.983	82.856						
12	0.528	2.779	85.635						
13	0.458	2.411	88.046						
14	0.451	2.374	90.420						
15	0.437	2.299	92.720						
16	0.402	2.115	94.834						
17	0.355	1.867	96.701						
18	0.330	1.737	98.438						
19	0.297	1.562	100.000						

Extraction Method: Principal Axis Factoring.

Table A6. Factor loading for the perception of the COVID-19 risk.

	Factor	
	1	2
I do not feel frightened	-0.132	0.619
I am nervous	0.580	-0.170
I am not satisfied with myself	-0.122	0.691
I feel less happy than other people	0.353	-0.004
I do not feel rested	0.051	0.396
I am not calm and composed	-0.081	0.492
I feel under a lot of pressure	0.643	-0.064
Unimportant things bother me	0.639	-0.136
I'm not happy	-0.103	0.722
I have disturbing thoughts	0.760	-0.055
I lack self-confidence	0.605	-0.161
I do not feel safe	-0.107	0.645
I do not make decisions easily	0.004	0.401
I feel inadequate	0.603	-0.068
I am not satisfied	-0.098	0.762
I think a lot about unimportant things and that upset me	0.762	-0.054
When something bad happens I cannot stop thinking about it	0.760	-0.025
I am not calm, stable	-0.136	0.661
Thinking about my recent problems make me very upset	0.725	-0.040

Extraction Method: Principal Axis Factoring; Rotation Method: Varimax with Kaiser Normalization; a. Rotation converged in 3 iterations.

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