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Shifts in travel behavior influenced by risk perception, particularly in relation to the COVID-19 pandemic

DOCTORAL DISSERTATION

Supervisor: Prof. Dr. János Csapó

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Abstract

Szabina Végi

Shifts in travel behaviors influenced by risk perception, particularly in relation to the COVID-19 pandemic

Supervisor: Prof. Dr. János Csapó

Tourism is one of the main drivers of the economy, but it is exposed to several crises that can negatively affect its functioning. One of the objectives of this dissertation was to better understand the past crises affecting the tourism sector by applying a systematic literature review methodology. Based on the literature, I categorized them into three groups: natural disasters such as volcanic eruptions, earthquakes, hurricanes, floods, and tsunamis; man-made crises such as wars, terrorism, political instability, and financial crises; and a combination of the two such as the coronavirus pandemic, which, apart from its natural origin, can be attributed to human activity.

In the aftermath of the pandemic COVID-19, there have been significant changes in travel patterns, characterized by a complex interplay of risk factors and individual decision-making. A further aim of this PhD dissertation was to explore the complex relationship between risk-taking and travel decisions, highlighting the unique challenges posed by the pandemics. The research seeks to determine how concerns about the spread of COVID-19 have led to fundamental changes in travel behavior. It examines the various factors that influence risk decisions, including health concerns, government policy, media influence, and personal experiences.

It is important to emphasize that the empirical research on the impact of COVID-19 on travel behavior is based on primary research conducted in Hungary.

Keywords: tourism crises, natural disasters, man-made crises, combined crises, COVID-19 pandemics, travel behavior, risk perception, individual decision-making, health and safety risks, destination choice, Hungary.

JEL classification codes: L83, Z32, Z33, Z39

1. INTRODUCTION

1.1. Framework and objectives of the dissertation

Tourism is one of the most dynamically growing sectors of the last decades, and in addition to its job-creating effect, it is also one of the most important drivers of economic growth (Csapó & Gonda, 2019). The crises that have occurred since 2008, including the COVID-19 pandemic, the Russian-Ukrainian conflict, and the energy crisis, have posed significant challenges to the tourism sector (Raffay, 2020; Cruz-Ruiz et al., 2022; Nagy et al., 2021; Keller et al., 2022).

Security is a precondition for the effective operation of tourism, which also has a strong influence on tourists' travel decisions (Dávid et al., 2007; Karl and Schmude, 2017; Garg, 2013; Isaac and Van den Bedem, 2020, Kiss & Michalkó, 2020). The successful functioning of this sector is not only the result of effective marketing communication but also the complex outcome of external and internal influences (Csapó & Törőcsik, 2019; Nundy et al., 2021; Cruz-Ruiz et al., 2022).

Consumers show complex behaviors in response to different risks, influenced by personal and psychological characteristics, in addition to economic, natural, political, and social circumstances (Sönmez & Graefe, 1998, Lőrincz & Sulyok, 2017). Learning from historical crises becomes crucial, allowing for more effective preparation for the next crisis. This dissertation aims to provide a comprehensive overview of past crises affecting the tourism sector and using an interdisciplinary approach integrating insights from psychology, sociology, anthropology, and economics, the dissertation seeks to explore changes in consumer behavior as a function of risk-taking. Based on the results, the primary objective is to develop a framework for studying changes in consumer behavior as a function of risk-taking. I started the research from the initial concept illustrated in Figure 1.

Furthermore, the dissertation aims to contribute methodological insights to the systematic literature review methodology used. The challenge posed by the vast amount of literature available online encouraged me to adopt a systematic approach. An essential part of the methodology is the identification and in-depth analysis of 120 relevant studies.

Key findings include the differentiation and classification of different crises according to their origin. In exploring the internal and external factors that influence travel decisions,

the dissertation focuses on demographic characteristics, socio-economic factors, health, psychological characteristics, attitudes, travel motivation, and geographical knowledge.

External factors such as media influence, marketing strategies, political factors, or security measures are also considered. The aim is to get a comprehensive picture of how travelers navigate in times of crisis.

In parallel with my primary research, I also sought to categorize results from the international literature based on the different waves of the COVID-19 pandemic and the availability of vaccines as part of my secondary research. However, significant differences in how COVID-19 waves affected various countries were influenced by factors such as government responses, healthcare capacity, and socioeconomic conditions. Furthermore, COVID-19 vaccines were not available in all countries simultaneously, with availability varying due to production capacity, distribution logistics, and financial resources. In light of these considerations, the emergence of different waves varied by country, making it impossible to categorize the results found in the international literature accordingly.

In addition to the overall framework, this dissertation also includes specific research questions that focus on exploring the complex dynamics of travel behavior during the COVID-19 pandemic. These questions aim to provide a comprehensive picture of changes in consumer behavior amid a global pandemic, with a particular focus on the Hungarian population.

RQ1: What distinct consumer groups have emerged in terms of travel as a result of the coronavirus pandemic?

The first research question aims to identify those consumer groups that have emerged as a result of the impact of the coronavirus pandemic on travel behavior. The research aims to understand how different groups of the population have adapted to the global pandemic and what changes in their travel behavior can be observed. The identification of these different consumer groups is crucial for understanding the changes in the tourism sector and helping tourism professionals develop strategies that consider the changing needs and behaviors of these different groups.

RQ2: How do concerns related to the financial situation and the perceived impact of travel on subjective quality of life influence the number of trips planned post-COVID?

The second research question aims to investigate the factors that influence individuals' travel planning behavior in the context of the COVID-19 pandemic's aftermath. Specifically, it seeks to understand how concerns about personal financial situations and the perceived benefits of travel on subjective quality of life affect the number of domestic and international trips people plan to take in 2021. By exploring these relationships, the study aims to provide insights into travel behavior trends and inform tourism industry stakeholders about the potential impacts of financial and psychological factors on travel planning decisions in a post-pandemic world.

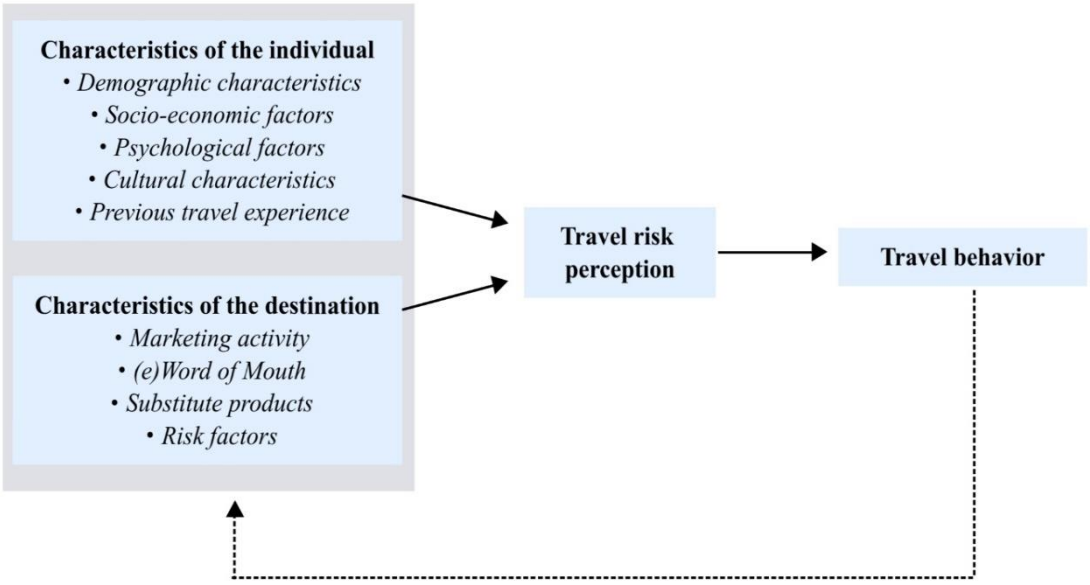
RQ3: How have demographic characteristics influenced virtual tourism participation during the COVID-19 pandemic?

The third research question addresses the impact of demographic characteristics on participation in virtual tourism amid the COVID-19 pandemic. It seeks to understand how factors such as age have influenced individuals' choices regarding participation in virtual tourism during the pandemic.

RQ4: Since the outbreak of the COVID-19 pandemic, how has the composition of various consumer groups changed?

The fourth research question is intended to examine shifts and changes in the composition of consumer groups following the onset of the COVID-19 pandemic.

Figure 1: The initial concept of the research



Note. Self-edit.

1.2. Methodology overview

The aim of my secondary research is to use a systematic literature review methodology to identify past crises that have affected the tourism industry and classify their impact on consumer behavior in tourism, taking into account demographic, socio-economic and psychological characteristics. Given the complexity of consumer behavior, an interdisciplinary approach is essential. Therefore, in addition to economics, the paper also examines the work of disciplines such as psychology, sociology and anthropology.

For my primary research, I used several statistical methods, which are described in detail below. My first hypothesis assumes that the COVID-19 pandemic has led to significant variations in consumer groups regarding travel behavior. To test this, I employed a quantitative research methodology through an online questionnaire survey conducted in 2020. My analysis involved exploratory factor analysis to uncover underlying relationships between variables, hierarchical cluster analysis to group respondents based on similar travel behaviors, and K-means cluster analysis to refine these clusters. Additionally, I used Pearson's chi-squared test to examine whether the segments differed from each other based on demographic characteristics.

In exploring the relationship between the number of trips planned, financial concerns, and perceived impact on subjective quality of life, my second hypothesis is divided into two

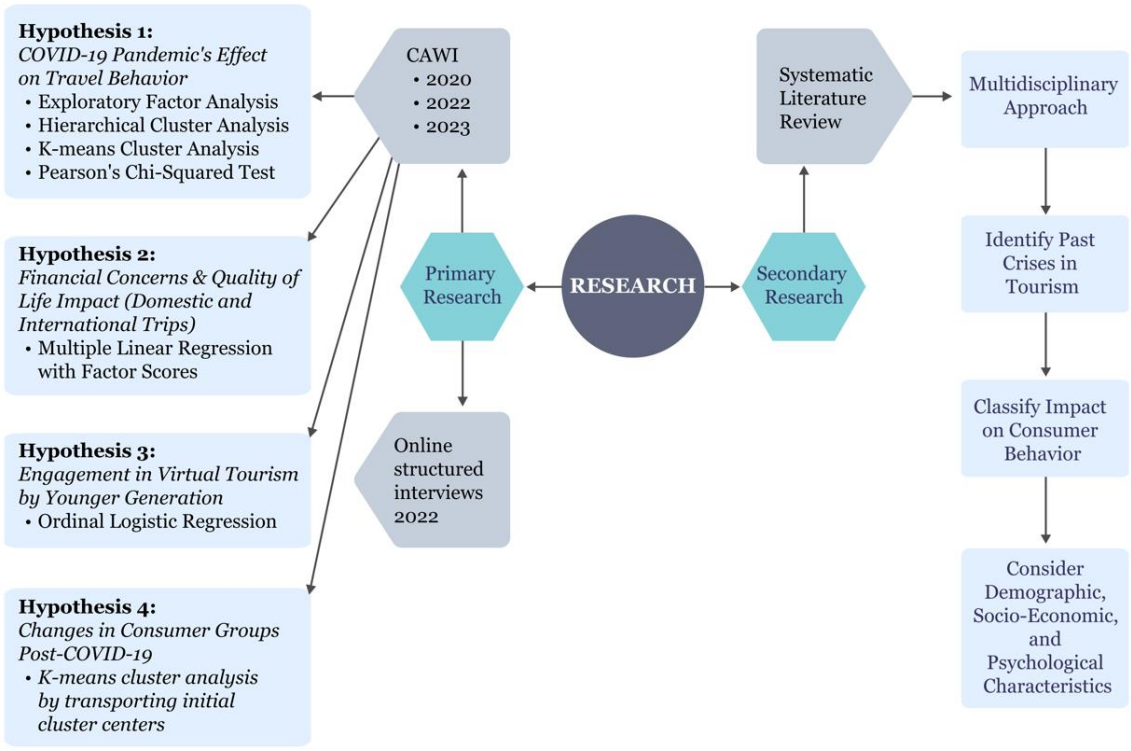
parts. The first part examines whether there is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over. I used a quantitative approach, conducting an online questionnaire survey in 2020, and applied multiple linear regression with factor scores to assess the impact of financial concerns and perceived quality of life on the number of domestic trips planned. The second part of my hypothesis investigates the same relationship for international trips planned in 2021. Similar to the first part, I tested this hypothesis using multiple linear regression with factor scores, based on data from the 2020 online questionnaire survey.

My third hypothesis posits that the younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic. I tested this hypothesis using a quantitative research approach through an online questionnaire survey conducted in 2022. The analysis was performed using ordinal logistic regression to determine the likelihood of engagement in virtual tourism based on age and other influencing factors.

Finally, my fourth hypothesis suggests that the composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics. To test this hypothesis, I utilized a quantitative research methodology via an online questionnaire survey conducted in 2023. K-means cluster analysis, with the transportation of initial cluster centers, was applied to identify and analyze the changes in the composition of consumer groups over time.

Figure 2 outlines the primary and secondary research methodologies, breaking down the hypotheses and the statistical methods used for each hypothesis.

Figure 2: Overview of research methodologies and hypotheses testing



Note. Self-edit.

1.3. Structure of the dissertation

The *first part* of my dissertation starts with an introduction to the tourism industry, pointing out its vulnerability to various crises. I highlight the importance of safety for the success of the sector. My goal is to examine consumer behavior affected by economic, natural, political, and social factors through a review of existing literature. This review analyzes past crises and how they impacted tourism, considering different aspects. I apply knowledge from psychology, sociology, anthropology, and economics to provide a comprehensive understanding of the topic. Also, in this section, I describe the methodology of the systematic literature review and the characteristics of the studies included in the research.

In the *second part* of my dissertation, I present the findings of the systematic literature review. I emphasize the distinction between crises and disasters, categorizing them into internally originated, man-made crises, and externally influenced natural disasters while introducing a third category that combines these two. Additionally, I provide clear definitions of terrorism and political instability, explaining how each has distinct impacts on tourism. My research also explores the factors that motivate travelers, using the push-

pull framework to understand both internal and external forces influencing travel decisions. I examine the impact of perceived risk on travel intentions, highlighting its significance in the decision-making process. I categorize tourists' perceptions of risk into different types based on existing literature. Moreover, I underline the difference between perceived risk and uncertainty, indicating that tourists often make decisions based on perceived risks rather than actual hazards.

In the *third part* of my dissertation, I develop a conceptual model based on the literature review, focusing on segmenting the factors that influence travel decisions in the context of risk perception. I examine how different elements of the conceptual model contribute to the individuals' perception of risk during the process of travel decision-making.

In the *fourth part* of my dissertation, I focus on exploring and analyzing three prominent tourist typologies: Cohen (1972), Plog (1974), and Smith (1989). These typologies provide valuable insights into the diverse motivations, behaviors, and characteristics of tourists, serving as frameworks for understanding different segments within the tourism industry. The dissertation further explores additional tourist typologies developed from the perspective of risk perception.

In the *fifth part* of my dissertation, I delve into the primary research phase, building on the research questions formulated earlier and insights gathered from the systematic literature review. The central objective of this section was to comprehend changes in consumer preferences and choices within the context of the global crisis, with a specific focus on the Hungarian population. The hypotheses were formulated and tested using various methodologies such as exploratory factor analysis, hierarchical cluster analysis, k-means cluster analysis, Pearson's chi-squared test, multiple linear regression and ordinal logistic regression.

In the *sixth and final part*, I summarize the results of my entire research by providing answers to the hypotheses of the four research questions and formulating the theoretical and practical implications of the research. As a conclusion to the dissertation, I outline the limitations of the research and identify possible future research directions.

1.4. Personal motivation

As a practicing tourism professional working in the field of tourism marketing, I am particularly motivated to study changes in tourism consumer behavior in the context of

the crisis. This unique opportunity has allowed me to bridge the gap between theory and practice. The hotel environment where I work provides an excellent opportunity to observe directly how travel behavior changes in response to different crises. Studying the complex decision-making processes of guests provides a great opportunity to understand the theoretical context. My aim is to provide the industry with meaningful insights that can positively shape the recovery and future growth of the sector, both in Hungary and in the international tourism market. In any case, my motivation stems mainly from the desire to combine my academic research with its practical application and contribute valuable knowledge to drive positive change within the tourism sector.

2. SYSTEMATIC LITERATURE REVIEW

2.1. Introduction to the reviewed topic

Tourism has been one of the most dynamic sectors in recent decades, playing a fundamental role in job creation and economic growth (Csapó & Gonda, 2019). However, it is important to understand that alongside its steady expansion, the tourism industry is also inherently vulnerable (Gössling et al., 2020, cited in Cruz-Ruiz et al., 2022; Nagy et al., 2021; Keller et al., 2022).

While crises have always been present (Ritchie et al., 2009), since 2008, we have been caught in a spiraling pattern of crises (Raffay, 2020). We have not even recovered from the shock of the COVID-19 pandemic, and we have already been confronted with the adverse consequences of the Russian-Ukrainian conflict and the energy crisis. The success of the tourism sector is not only determined by the effectiveness of marketing activities (Kaur, 2017, cited in Cruz-Ruiz et al., 2022) but rather by a combination of external and internal factors (Csapó & Törőcsik, 2019; Nundy et al., 2021, cited in Cruz-Ruiz et al., 2022).

Safety is a fundamental condition for the smooth functioning of tourism (Dávid et al., 2007; Karl & Schmude, 2017; Garg, 2013, cited in Isaac & Van den Bedem, 2020), as tourists often avoid destinations that they perceive as risky (Kapuściński & Richards, 2016, cited in Oshriyeh et al., 2021; Sönmez & Graefe, 1998). An economic crisis, a natural disaster, or perhaps societal impacts such as terrorism, can bring very rapid and sudden changes, almost immediate setbacks in this sector (Végi et al., 2020). Moreover, the kind of global hypermobility we have been living in over the past decades has not

only erased borders but has simultaneously increased the number of shocks that evolve from local to global (Hall, 2010). All this explains the complexity of the sector.

Furthermore, consumers evaluate various risks in unique ways and respond to them with distinct behaviors, resulting in complex patterns that are challenging to understand. Besides the economic, natural, political, and social environment, certain aspects of personality and psychological characteristics influence travel decisions (Sönmez & Graefe, 1998). Therefore, it is crucial to learn from the past, understanding the nature of crises and the micro- and macroeconomic responses to them, enabling us to be better prepared for each new crisis than we were before.

This dissertation aims to use the methodology of a systematic literature review to identify past crises affecting tourism and categorize their impact on consumer behavior in tourism, considering demographic, socio-economic, and psychological characteristics. Given the complex nature of consumer behavior, an interdisciplinary approach is essential, therefore this dissertation will explore the insights of disciplines such as psychology, sociology, and anthropology in addition to economics.

2.2. The methodology of systematic literature review

In my dissertation, I decided to use the SLR (Systematic Literature Review) approach for the investigation of the related literature because I found this approach as the most adequate method for understanding and framing such a broad and complex topic. A systematic literature review embodies a comprehensive investigation conducted through scientific methodology. It involves gathering responses to a specific research query, subjecting them to strict criteria assessment, and analyzing all available research findings (Booth et al., 2011; Bettany-Saltikov, 2012).

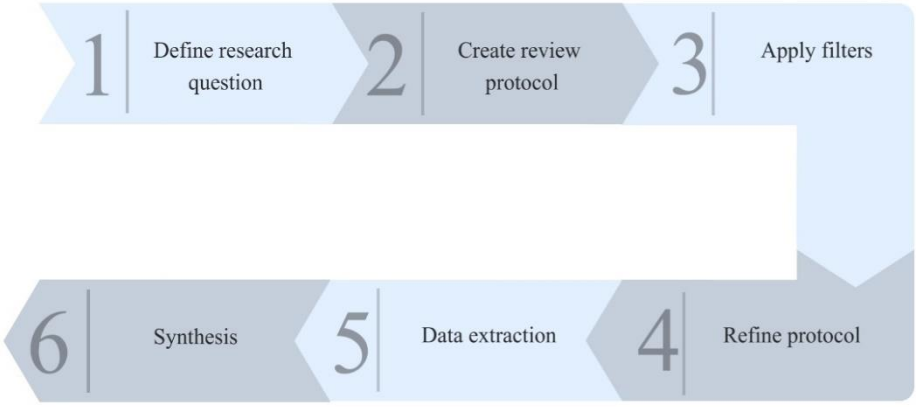
The accessibility and speed of online scientific databases have increased the volume of available content to a degree that paradoxically complicates, rather than simplifies, the process of assimilating scientific findings.

For instance, the search term "tourism AND crisis" produced over 2 million results on the Google Scholar search engine[1]. Conversely, a Systematic Literature Review (SLR),

[1] Based on the query as of January 9, 2023.

guided by a predetermined methodology, yields notably precise and transparent outcomes. The process is explained through the steps illustrated in Figure 3.

Figure 3*:* **Phases of the systematic literature review approach**



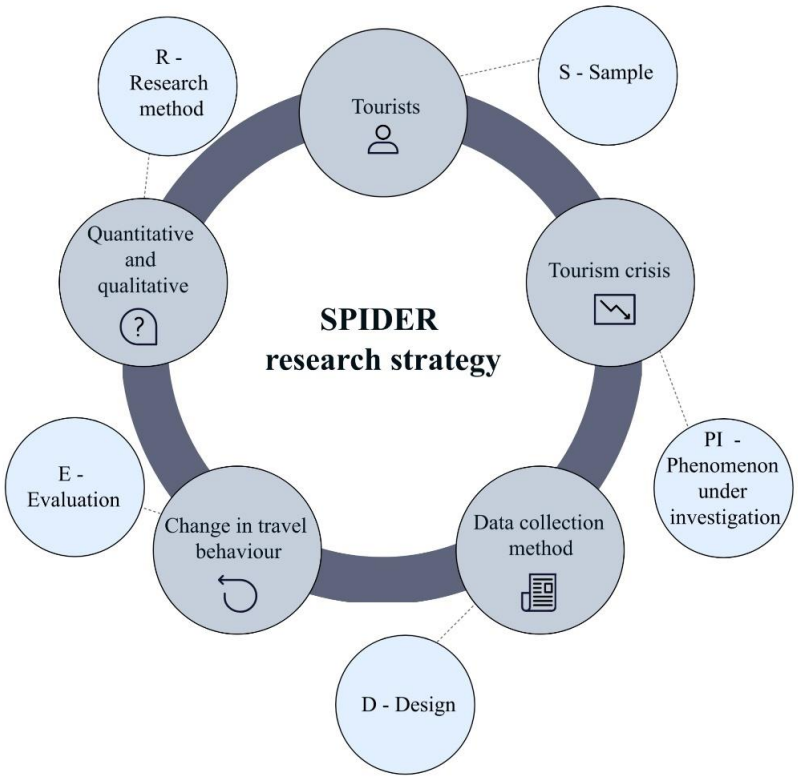
Note. Self-edit based on Bettany-Saltikov (2012).

The 1-5 steps illustrated in Figure 3 took place from October 14, 2022, to January 28, 2023, followed by the synthesis part, which continued until August 28, 2023. A systematic literature review is a comprehensive and time-consuming process, typically taking an average of 9-12 months to complete. This is the reason why the current literature review includes literature up to 2022, but I believe that the detected 120 pieces of literature included in the research provide a punctual and relevant overall understanding and reliable results. Furthermore, due to the precise documentation, this research can be easily complemented with new studies published since then within a subsequent study.

After formulating the research question, I established the research methodology (SPIDER[2]), using it to define the subjects under investigation, the events being studied, and the direction toward the desired outcome — in this case, changes in travel behavior resulting from crises. The visual representation of the research strategy is presented in Figure 4.

[2] Research strategy, where each letter stands for the initials of the following terms: sample (S), phenomenon under investigation (PI), design (D), evaluation (E), research method (R)

Figure 4*:* **Visualization of the search approach following the SPIDER framework**



Note. Self-edit based on the SPIDER search strategy tool (Cooke et al., 2012).

Afterward, I identified the primary keywords[3], which I employed to search the electronic databases: Web of Science, Scopus, EconLit with Full Text, and Academic Search Complete.

Following this, I arranged the obtained results in order of citation following the SLR method protocol. Then, after reviewing the titles, keywords, and abstracts, I compiled the final list of keywords[4] using the three most relevant studies, i.e., those investigating changes in tourist behavior resulting from crises (Table 1).

[3] Primary keywords: tourism AND crisis.
[4] They are included in Appendix 1.

Table 1: The three most frequently referenced literature sources concerning the subject

	Author (year)	Type of risk	Sampling location / sample composition	Research method	Google Scholar citation (27.01.2023)
1.	Sönmez & Graefe (1998)	Terrorism	USA / U.S. residents who have previously traveled or plan to travel internationally	Quantitative - Self-completion questionnaire by post	1470
2.	Rittichainuwat & Chakraborty (2009)	Terrorism & SARS outbreak	Thailand / International tourists arriving in the country	Quantitative & qualitative - questionnaire survey & interview	650
3.	Lepp & Gibson (2008)	Comprehensive literature, consideration of multiple risks	USA / Young adult residents of the United States	Quantitative - Questionnaire survey	606

Note. Self-edit based on my research.

Next, using the earlier identified keywords and their synonyms, I created the following search query:

TS = ((tourist OR visitor* OR vacationist*) AND ("financial cris*" OR "economic cris*" OR recession* OR disaster* OR "natural disaster*" OR pandemic* OR epidemic OR outbreak OR war OR terror*) AND (interview* OR "focus group" OR "case stud*" OR "literature review*" OR synthesis OR observation* OR surve*) AND (react* OR act* OR behav* OR perform*))*

The search conducted in the four electronic databases yielded a total of 1593 results. Following this, I defined the criteria for inclusion and exclusion, further refining the list of literature to be processed. According to these criteria, the studies I intended to include in my research could be international journal articles from Scimago Q1-Q4 categories. Additionally, according to the accepted SLR methodology protocol, I excluded books, conference proceedings, and other types of documents. The language of the studies could only be English, with no geographical or publication time restrictions. It was also sufficient for a study to appear in one of the four examined databases; it did not need to be present in all four. Due to the interdisciplinary nature of the research question, I

included studies from the following fields: economics, psychology, sociology, anthropology, and other social sciences. With the above criteria, 711 studies were remaining on the list, which decreased to 653 after removing duplicates. After reviewing their titles and abstracts, I selected those studies that proved to be relevant to my research question.

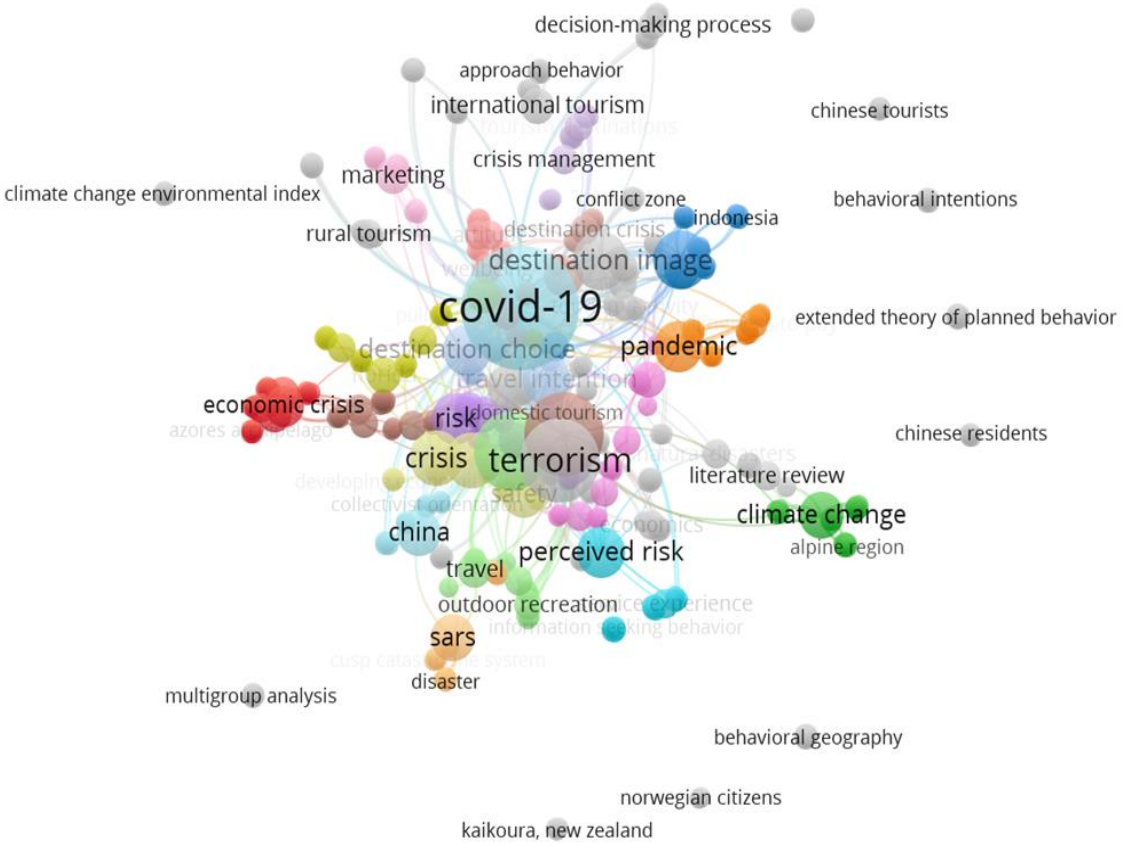
In the primary search list, a total of 96 studies remained that I deemed worthy of processing. Following the recommendations from the methodology literature, I conducted supplementary searches. By thoroughly examining the references of the previously selected 96 studies and consulting with experts in the field, I included an additional 24 studies in the research. The following chapters present the results of this combined set of 120 pieces of literature. A visual representation of the study selection process is presented in the form of a PRISMA diagram, which is found in Appendix 2.

2.3. The description of the studies included in the research

Based on my theoretical investigations, in the academic literature, numerous studies examining the effects of crises on tourism can be found; however, most of these studies rely on macro-level data and investigate events from the perspective of service providers rather than households. In my research, I managed to include 120 international journal articles from Scimago Q1-Q4 categories that meet the criteria outlined in the methodology chapter and examine the topic from the consumer's perspective.

As the next step, I visualized the keywords of the studies to be processed using a network analysis application (see Figure 5). In this figure, individual keywords and phrases represent the nodes of the network, while the connections between them indicate the frequency of common occurrences. As could be predicted based on the keywords, and as my later detailed analysis confirmed, most of the studies were related to the COVID-19 pandemic.

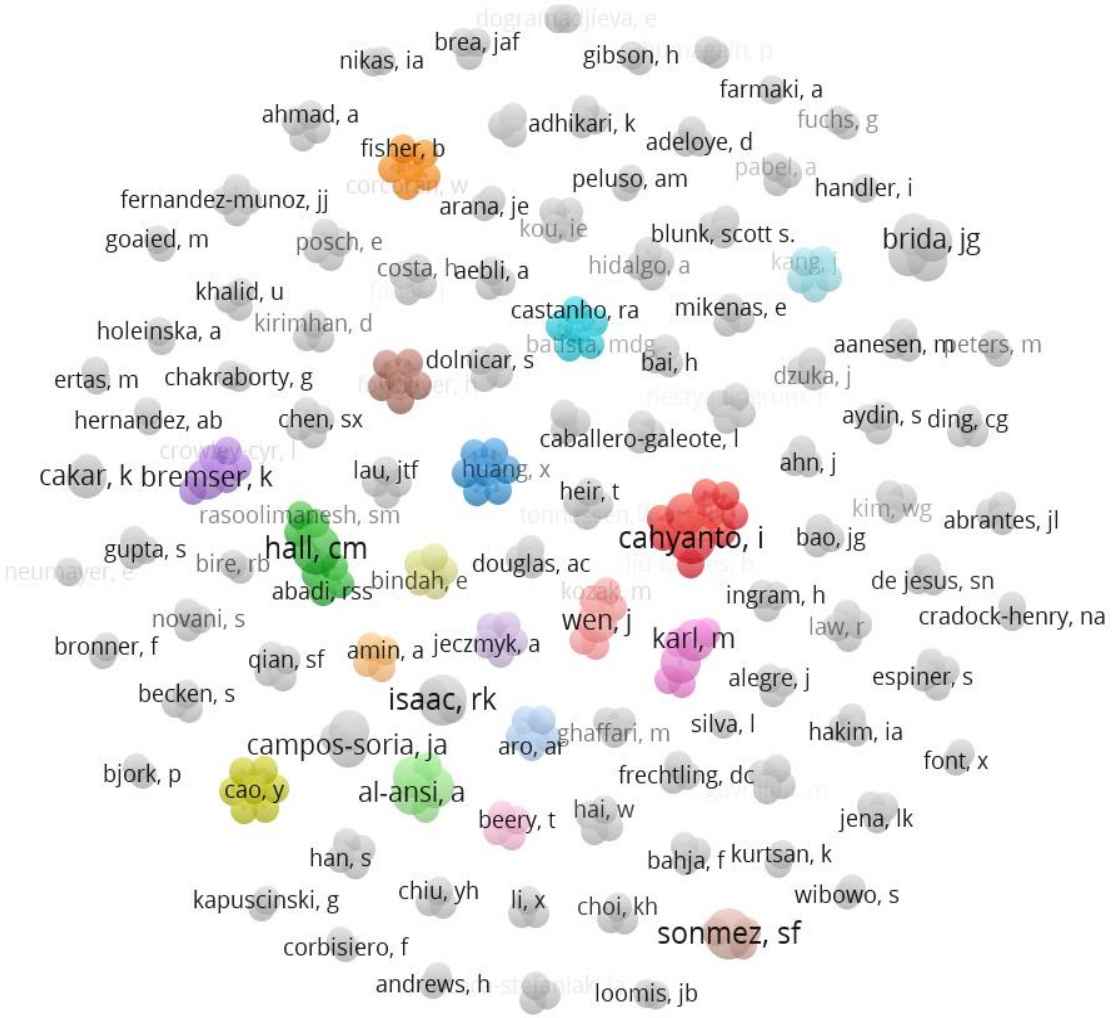
Figure 5: Network of keywords from the studies included in the research



Note. Self-edit using VosViewer.

Following this, I attempted to map the authors of the studies and any potential connections or collaborations between them, which would have served as indications of rapid knowledge exchange (see Figure 6). However, the figure reveals several smaller groups of authors in which entry is presumably challenging, as no connections are evident between these groups. Nevertheless, it's important to note that the studies included in the analysis do not fully encompass all the research conducted on the topic. Therefore, general conclusions cannot be drawn from the author's network.

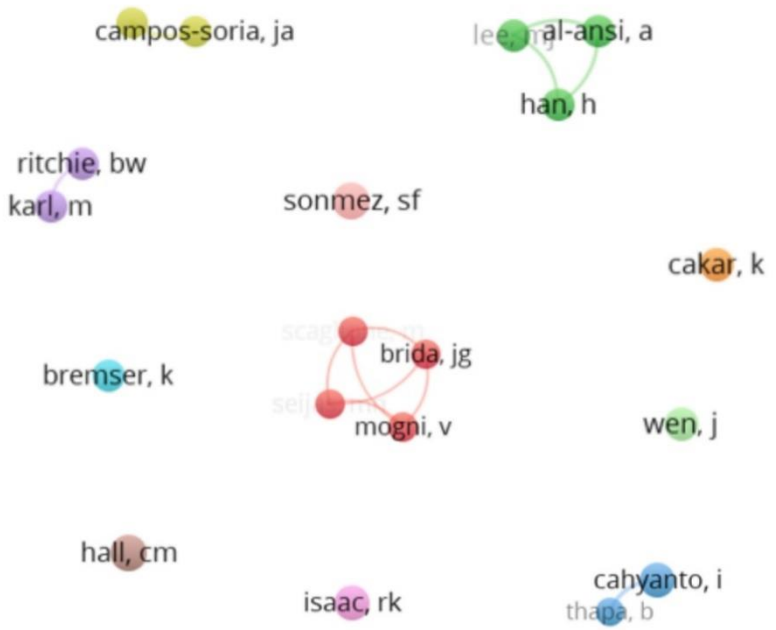
Figure 6: Contact network of authors of the studies included in the research



Note. Self-edit using VosViewer.

Figure 7 illustrates authors who are associated with at least 2 studies among the 120 studies included in the research. Among the 19 authors, four are particularly notable: Cahyanto, I. (Black Hills State University, USA), Hall, CM. (University of Canterbury, New Zealand), Isaac, RK. (Breda University of Applied Sciences, Netherlands), and Sönmez, SF. (Arizona State University, USA), each of whom has authored 3 studies. In all three studies, both Isaac, RK. and Sönmez, SF. are listed as primary authors.

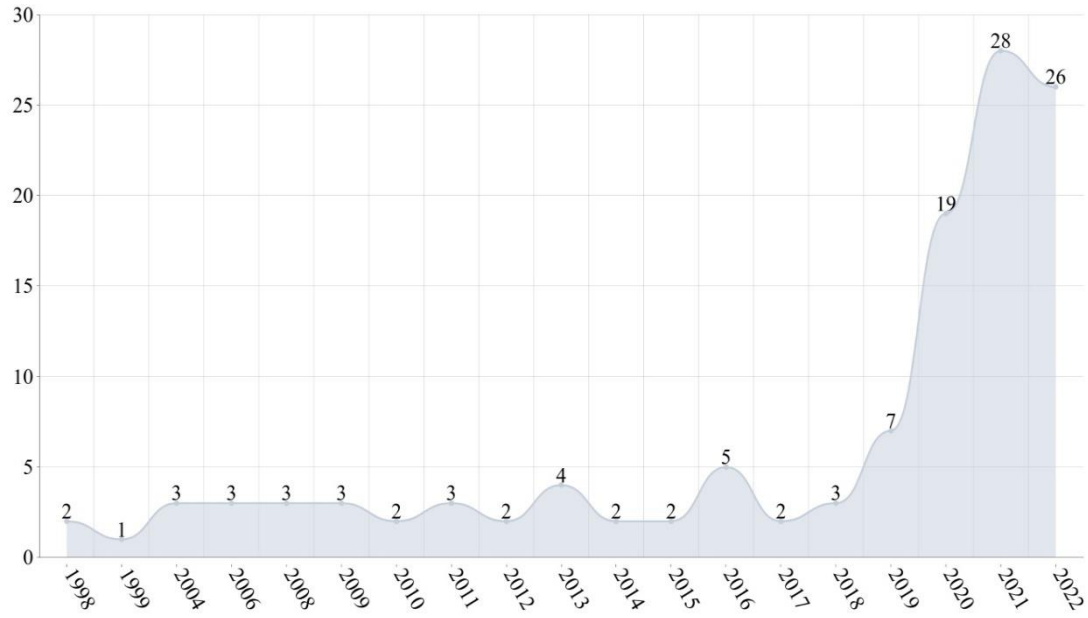
Figure 7: Authors who are associated with at least 2 studies



Note. Self-edit using VosViewer.

The journal articles included in the analysis have been published in a total of 54 different international Scimago Q1-Q4 journals. The articles appearing in the Tourism Management (12.6%), Current Issues in Tourism (8.4%), Annals of Tourism Research (5.8%), International Journal of Tourism Cities (5.8%), and Tourism Review (5.8%) journals make up just over 38% of all articles. Nearly 72% of the literature included in my research is from Q1-ranked international journals, further strengthening the results of my research. The identified literature spans from the years 1998 to 2022, as shown in Figure 8. Up until 2019, the number of articles examined was distributed across the years, ranging from 1 to 5. However, in 2019, 7 articles were included, in 2020 there were 19 studies, in 2021 there were 28 studies, and in 2022 there were 26 studies. Out of the 120 examined studies, the majority, a total of 33, used international data. 17 studies used Chinese data, 12 studies used data related to the United States, 6 studies worked with Spanish data, 4 with Indian data, and 3 with data from South Korea, Germany, and the United Kingdom. Additionally, the studies included in the research contain samples from Australia, Austria, Brazil, Bulgaria, the Czech Republic, Finland, Greece, Indonesia, Iran, Italy, Lithuania, Malaysia, the Netherlands, New Zealand, Nigeria, Norway, Pakistan, Poland, Portugal, Slovakia, Sweden, Taiwan, Tunisia, Turkey, Ukraine, and Uruguay, demonstrating the diversity of the research.

Figure 8: Distribution of studies by year of publication



Note. Self-edit based on the distribution of studies included in the systematic literature review by publication year.

2.4. From crisis to caution: risk perception and tourist decision-making

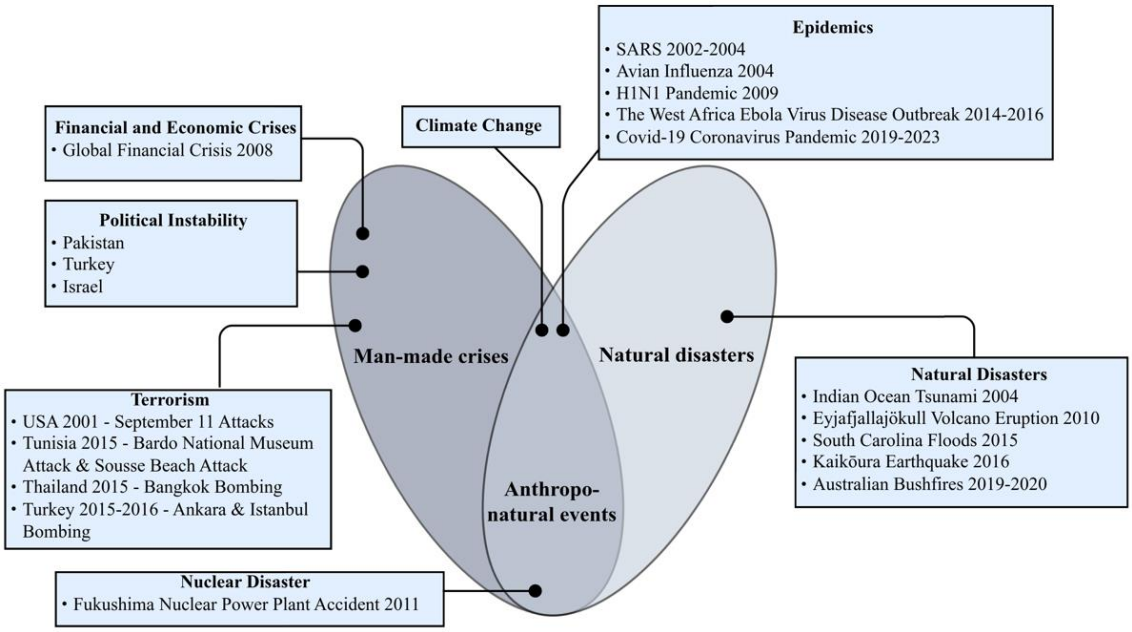
2.4.1. Clarifying the definition of crisis and disaster

While the terms "crisis" and "disaster" are often used interchangeably, there is a significant difference between the two concepts in scientific terms (Scott & Laws 2006, cited in Çakar & Aykol, 2022). While a crisis refers to an internally originated situation, with its main cause to be found within the organization, whether it be poor management structure or inadequate adaptability, a disaster occurs as a result of an unforeseeable external impact over which we have little or no control (Faulkner 2001, cited in Çakar & Aykol, 2022). Based on this definition, I categorized the tourism crises (Végi & Csapó, 2023), mentioned in the literature, into different categories, as illustrated in Figure 9.

According to the categorization mentioned above, war, terrorism, political instability, and financial or economic recessions can be considered internally originated, man-made crises (Duan et al. 2021, cited in Çakar & Aykol, 2022), while volcanic eruptions, earthquakes, hurricanes, floods, and tsunamis fall into the category of natural disasters. As a combination of these two categories, I also created a third group where I included events such as the COVID-19 pandemic, which, although its origin is natural, its spread is influenced by human factors, or extreme weather conditions resulting from global

climate change, where human factors play a role in its origin, while the outcome can be defined as a natural disaster, or the Fukushima nuclear power plant accident (see Figure 9). I have named this category “anthropo-natural events”, where "anthropo-" derives from "anthropogenic," meaning human-caused or human-influenced, while "natural" reflects the involvement of natural elements or events, such as diseases, weather conditions, or environmental factors.

Figure 9: Categorization of events leading to tourism crises in the included literature



Note. Self-edit based on the studies included in the systematic literature review.

2.4.2. Clarifying the definition of terrorism and political instability

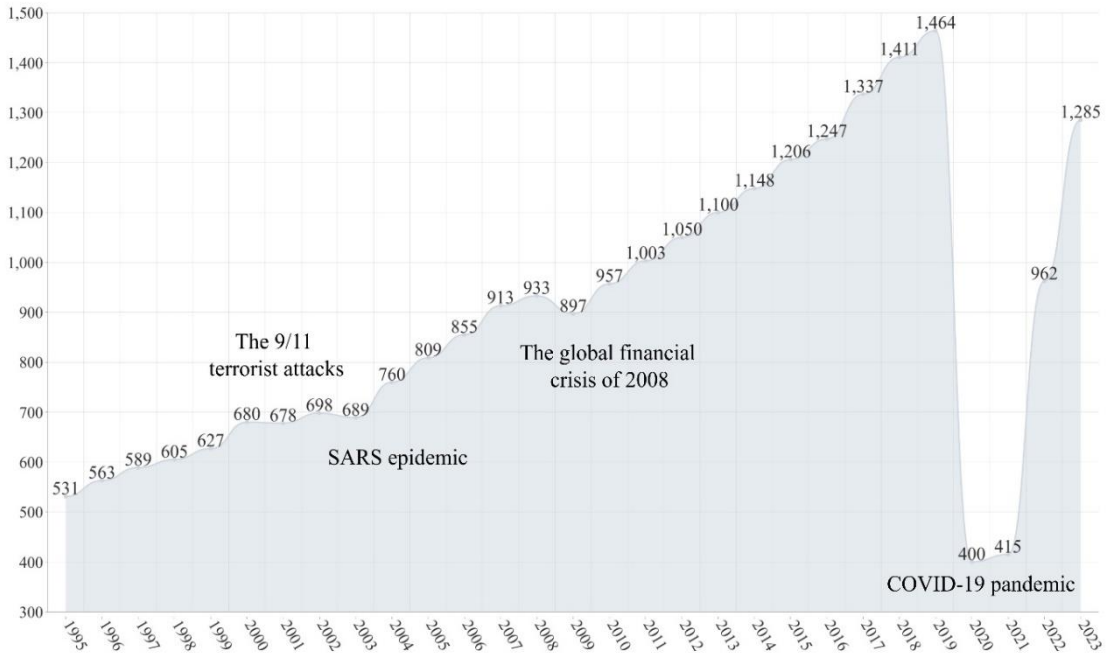
Despite the different nature of the impact of terrorism and political instability on tourism, the two concepts are sometimes confused in the literature. Terrorism could be defined as *"...premeditated, politically motivated violence perpetrated against civilians and unarmed military personnel by subnational groups…usually intended to influence an audience"* (US State Department definition, cited in Sönmez 1998:417). On the other hand, political instability is defined by Hall and O'Sullivan (1996, cited in Neumayer 2004) as a situation in which the normal functioning of the political system is challenged in terms of its political legitimacy by elements from outside. When the challenge comes from within a political system, the system can adapt and change to meet the demands placed on it and is thus said to be stable.

2.4.3. Impact of crises and disasters on the tourism sector

Irrespective of the classification, all the above factors can influence tourists' attitudes towards travel and tourism, leading to changes in both their travel behavior and their choice of holiday destination. Therefore, in my research, I interpret the concept of tourism crisis as a comprehensive definition according to Sönmez et al. (Sönmez, Backman & Allen 1994:2.2, cited in Sönmez, 1998) *" ... any occurrence which can threaten the normal operation and conduct of tourism-related businesses; damage a tourist destination's overall reputation for safety, attractiveness, and comfort by negatively affecting visitors' perceptions of that destination; and, in turn, cause a downturn in the local travel and tourism economy, and interrupt the continuity of business operations for the local travel and tourism industry, by the reduction in tourist arrivals and expenditures."*

We can categorize events that negatively impact tourism demand not only by their origin but also by their extent. They can be limited to a single country or region, or they can affect larger, even global areas, such as the 2008 global economic crisis, the coronavirus pandemic, or extreme weather events caused by global warming. As shown in Figure 10, between 1995 and 2021, we can identify four events with a global impact that negatively influenced international tourist arrivals. These are the September 11, 2001, terrorist attacks, the 2002-2003 SARS epidemic, the global financial crisis of 2008, and the COVID-19 pandemic. In addition to these, I have examined numerous events (see Figure 9) that had only a local impact on the tourism sector but posed significant challenges to the respective destination.

Figure 10: The trends of international tourist arrivals (in millions) with associated crises from 1995 to 2023



Note. Self-edit based on World Bank data.

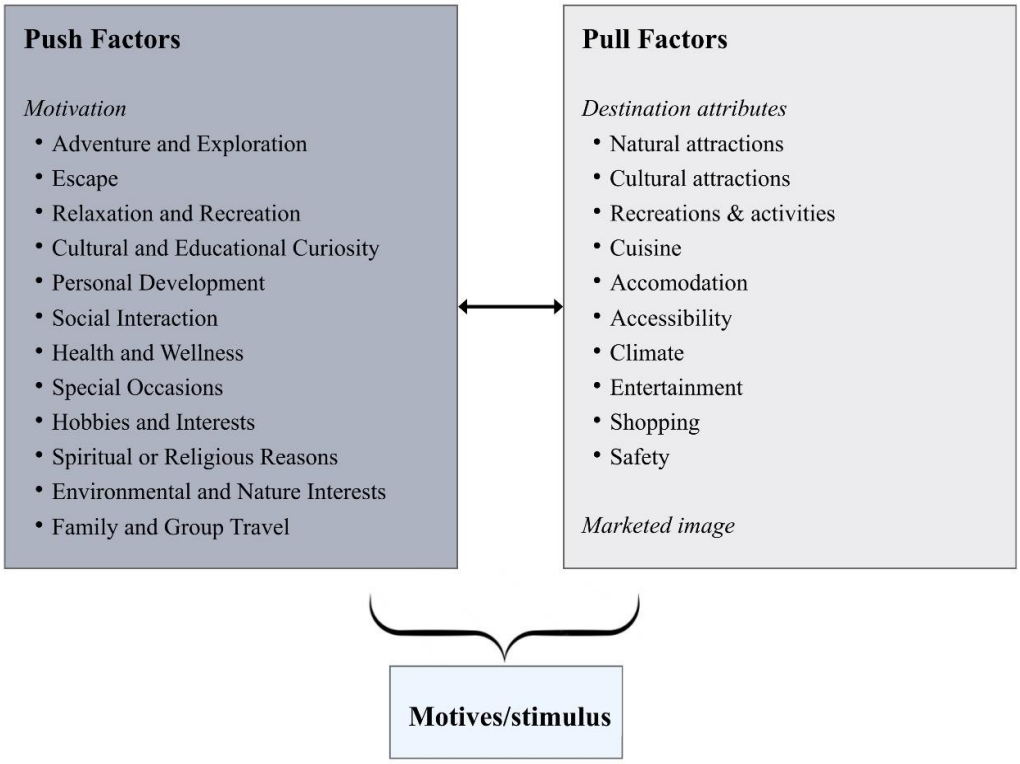
2.4.4. The motivations behind the desire to travel

Numerous factors and motivations inspire people to travel and explore different places (Li et al., 2016, cited in Pattanayak et al., 2022). Travel motivation is a complex evaluation process that considers both the benefits and costs associated with travel (Sirakaya & Woodside, 2005, cited in Aebli et al., 2022). The advantages of traveling may include, for example, getting away from everyday life or gaining new experiences, while the disadvantages may cover things such as financial costs (Ritchie & Jiang, 2019, cited in Aebli et al., 2022). Evaluating and measuring tourists' motivations is complex due to the various combinations of tourism products and experiences and the possibility of motivations changing over time (Lew et al., 2008, cited in Ingram et al., 2013).

Researchers have developed various models and frameworks to understand and explain tourism motivations. The push-pull framework is a widely used model in tourism research. Push factors are the reasons for individuals' travel intentions, while pull factors influence the selection of specific destinations (Bayih & Singh, 2020, cited in Chandra Pratiwi et al., 2022). Intrinsic travel motivations, such as relaxation, thirst for knowledge, or curiosity about the world, are referred to as push travel motivations (Crompton, 1979, cited in Wang et al., 2019). In contrast, pull travel motivations encompass the specific

characteristics of destinations as perceived by travelers (Jang et al., 2009, cited in Wang et al., 2019). Therefore, individuals are pushed toward travel by internal forces, while external forces pull them toward a particular destination. The travel behavior of tourists is predominantly influenced by push factors arising from individual circumstances (Jang et al., 2009, cited in Wang et al., 2019). However, pull factors play a crucial role in the actual selection of a destination, as they can influence travelers positively or negatively regarding a specific destination (Lehto et al., 2008, cited in Wang et al., 2019). Many individuals choose the same destination year after year because it meets their travel needs and makes them feel secure (Ingram et al., 2013). Travel motivation is a key factor that influences travel decisions before the actual trip, and perceived risk plays a critical role in the travel decision-making process (Sönmez & Graefe, 1998).

Figure 11: The framework of push and pull travel motivations



Note. Self-edit based on Crompton, 1979, Lehto et al., 2008, Jang et al., 2009, Bayih & Singh 2020.

As shown in Figure 11, push and pull factors are interconnected and influence each other throughout the travel decision-making process. Travelers seek destinations that fulfill their internal motivations (push factors) while offering the experiences and attractions they desire (pull factors). Understanding this interplay is crucial for tourism professionals to create appealing travel experiences and market destinations effectively.

2.4.5. The impact of perceived risk on travel intention

Bauer (1960) was the first to introduce the concept of "risk perception" to explore how consumers make decisions and act (Oshriyeh et al., 2021; Zhang et al., 2022). Since then, it has become a widely studied topic to understand how people assess uncertain or risky situations and how they react to them. Risk is an event associated with unexpected and undesirable outcomes (Ritchie & Jiang, 2019), and its perception can be defined as the recognition of negative consequences when purchasing a product, using a service, or engaging in an activity (Reisinger & Mavondo, 2005, cited in Chua et al., 2020a). The perception of risk can diminish the enjoyment derived from participating in tourism activities; however, it is an element that needs to be considered when evaluating potential risks related to leisure activities, such as tourism (Williams & Balaz, 2014, cited in Oshriyeh et al., 2021). Research into the potential risks associated with travel dramatically increased following the events of September 11, 2001, the 2003 SARS epidemic, and the 2004 Indian Ocean earthquake and tsunami. Extensive media coverage of these events heightened public concerns about the potential hazards they posed (Liu & Pennington-Gray, 2015, cited in Cahyanto & Liu-Lastres, 2020). In comparison to research in economics and psychology, studies related to tourism have developed unique theories regarding risk perception and assessment, primarily focusing on tourists' fears, anxieties, and concerns (Wolff et al., 2019, cited in Godovykh, 2021).

Chew & Jahari (2014) argued that the perceived risk associated with tourist destinations is part of a psychological state related to the mental image of the place (Oshriyeh et al., 2021). Research on the subjective nature of risk is important for tourism scholars because people's fears and anxieties can influence their decisions (Lepp & Gibson, 2008; Ritchie & Jiang, 2019; Han et al., 2020, cited in Shahabi Sorman Abadi et al., 2021). People have an innate need for safety, which can significantly influence their travel decisions during periods of uncertainty and risk. Feeling safe can trigger positive emotions and travel motivation (Lepp et al., 2011, cited in Zhang et al., 2022; Godovykh et al., 2021).

Tourists' perceived risk can be influenced by various factors, including external sources of information such as the media and advice from others, as well as internal factors like sociodemographic and cultural background or past travel experiences (Roehl & Fesenmaier, 1992, cited in Abraham et al., 2020; Zheng et al., 2021a, cited in Ertas & Kirlar-Can, 2022; Lepp & Gibson, 2008; Sharifpour et al., 2014, cited in Oshriyeh et al., 2021). Risk perception is how people assess the likelihood of a negative outcome

occurring and is thus widely used as a key determinant influencing tourists' decision-making and behavior (Yu et al., 2021, cited in Han et al., 2022).

Safety and overall well-being are among the most important factors influencing tourism demand (Sönmez & Graefe, 1998). Potential tourists typically go through several phases when deciding on travel plans, from initial interest to weighing options and making a decision. The perception of risk is a significant factor in this process, as individuals considering travel often aim to avoid risky places and prefer destinations they perceive as safe (Sönmez & Graefe, 1998). Higher levels of perceived risk result in lower levels of satisfaction, loyalty, and intention to visit (Hasan et al., 2017, cited in Godovykh, 2021). If tourists perceive that risk is high, they are likely to change their travel behavior, such as not booking or canceling the trip (Mansfeld, 2006, cited in Chua et al., 2020a). Additionally, perceived travel risk is situation-dependent (Seabra et al., 2013, cited in Chua et al., 2020a). In other words, when making a travel decision, tourists tend to pay more attention to some risks than others, depending on the circumstances (Lepp & Gibson, 2008). The process of selecting travel destinations is continually influenced by an individual's budget constraints and available resources, as opposed to the rewards of relaxation and enjoyment (Teeroovengadum, 2021; Roehl & Fesenmaier, 1992, cited in Abraham et al., 2020).

With the increase in choice, the role of substitute products has been enhanced, and the likelihood of choosing risky places has decreased (Seabra et al., 2012, cited in Adeloye, 2020). Therefore, consumer behavior is often explained by perceived risk (Björk & Kauppinen-Räisänen, 2011). However, it's worth noting that the definitions, methodologies, and measurement techniques for tourists' perceived risk concerning destinations vary, with risk perceptions being specific to each situation (Fuchs & Reichel, 2011). Researchers have consistently found that when potential travelers are exposed to risk, their travel intentions can lead to several possible outcomes. Individuals may choose to stick to their travel plans without making any modifications, or they may make certain changes. These changes can include shortening the length of their stay, altering their destination to a safer one with similar attractions, canceling the trip altogether, or seeking additional information to proceed with their travel plans (Reisinger & Mavondo, 2005, cited in Thapa et al., 2013). If a destination is judged to be too dangerous for one's risk tolerance, it becomes undesirable and may be dropped from the selection process (Sönmez & Graefe, 1998).

From a destination perspective, we can distinguish between external and internal shocks. In the case of Tunisia, internal shocks have a more significant impact, while external shocks (e.g., the 2008 global economic crisis) are only moderately noticeable. One reason for this might be that Tunisia fundamentally offers lower-priced trips (Lanouar & Goaied, 2019). However, human-caused events, especially those involving political violence, can trigger public outrage or intimidation (Sönmez, 1998). Crises caused by human actions, such as terrorism, are subject to different evaluations (Sönmez et al., 1999). The terrorist attacks on September 11, 2001, pushed the industry into a financial crisis, and the attacks had a significant short-term impact on the industry (Blunk et al., 2006). If there are no further terrorist attacks, the destination typically recovers within 6-12 months (Araña & León, 2008; Survila et al., 2017).

Adjustments will be observed due to extreme weather conditions, which can shorten the season in some places (e.g., ski resorts), requiring tourism providers to introduce new types of services. Conversely, in other areas, the extended season may lead to an increase in visitor numbers (Loomis & Richardson, 2006). The effects of climate change will have long-term implications, resulting in lasting changes (Hernandez & Ryan, 2011).

Health-related concerns are less deterrent compared to economic crises and restrictions, primarily observed in the context of foreign travel (Terziyska & Dogramadjieva, 2022). Due to unpredictability, shorter domestic trips have become more prominent (Bire & Nugraha, 2022). Instead of completely avoiding travel, people are more willing to pay extra for safe travel when necessary (Castanho et al., 2021). Research has not demonstrated any significant changes in the travel habits of Airbnb users due to the pandemic (Hidalgo et al., 2022). Given these findings, the long-term impact of the pandemic on travel habits is debatable (Terziyska & Dogramadjieva, 2022).

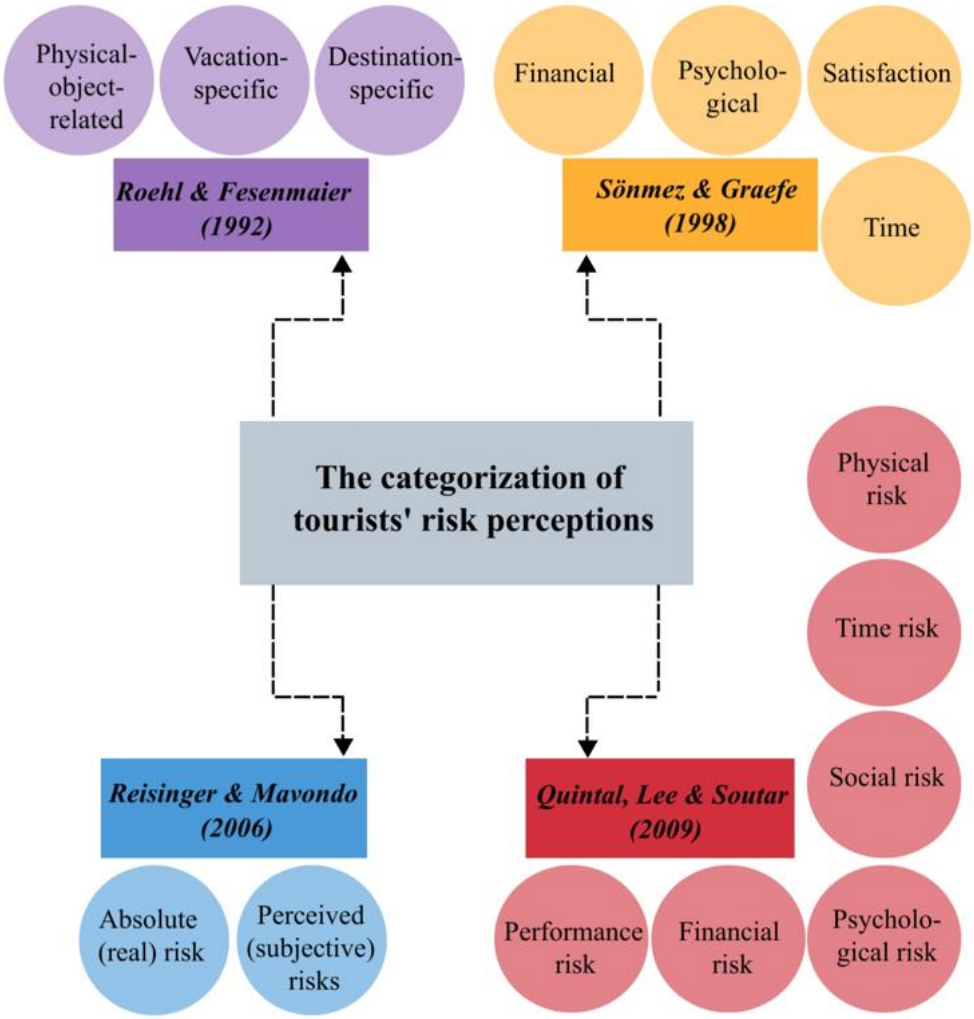
Based on the above-mentioned results, researchers have recognized the impact of risk perception on travelers' behavior, and as research on travel risks has advanced, the importance of this has become evident. It is widely accepted in the tourism literature that tourists' risk perceptions can be categorized into various categories and types of risks.

2.4.6. The categorization of tourists' risk perceptions

Previous research has identified several different perceived risks (Çakar & Aykol, 2022). For example, Roehl & Fesenmaier (1992) distinguished three types of perceived risks, namely physical object-specific, holiday-specific, and destination-specific risks (Björk & Kauppinen-Raisanen, 2011). Sönmez & Graefe (1998) identified four types of risks, including financial, psychological, satisfaction, and time risks. Quintal, Lee & Soutar (2009) categorized six types of risk, including performance risk, financial risk, psychological risk, social risk, time risk, and physical risk. Performance risk refers to the possibility of dissatisfaction or disappointment with the quality, reliability, and efficiency of tourism products, services, or experiences, while financial risk refers to the risk of financial loss, for example, when a paid holiday remains unused. Psychological risk relates to emotional concerns, social risk deals with the opinions of others, and time risk refers to the loss of time, such as flight delays (Björk & Kauppinen-Raisanen, 2011). Reisinger & Mavondo (2006) differentiate between absolute (real) and perceived (subjective) risks (Çakar, 2020). However, the relationship between perceived risk and travel behavior cannot be generalized as individuals may react differently depending on the context (Çakar, 2020).

For clarity, the different categorizations are presented in Figure 12. It is important to note that the figure only shows the categorizations found in the studies included in the systematic literature review. Additionally, there may be other categorizations in the literature that are not shown in the figure.

Figure 12: The categorization of tourists' risk perceptions



Note. Self-edit based on Roehl & Fesenmaier, 1992; Sönmez & Graefe, 1998; Reisinger & Mavondo, 2006; Quintal, Lee & Soutar, 2009.

2.4.7. The difference between perceived risk and uncertainty

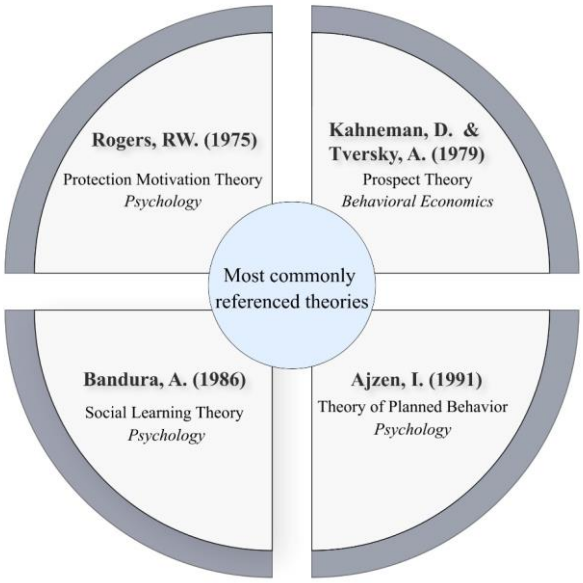
Tourists often base their travel decisions more on perceived risks than actual hazards (Irvine & Anderson, 2006, cited in Rittichainuwat & Chakraborty, 2009). Tourism risk and uncertainty are related concepts but have distinct characteristics (Quintal et al., 2010, cited in Isaac, 2020). Risk is the likelihood of a potential event or situation that could have a negative impact on tourism activities, stakeholders, or tourists themselves. Risks are typically associated with known potential dangers or threats, such as natural disasters, political instability, security concerns, health emergencies, or financial issues (Williams & Balaz, 2014, cited in Yang & Wibowo, 2022). Uncertainty refers to a lack of knowledge or predictability about future events or outcomes. It includes situations where the probability or consequences of an event are unknown or difficult to determine.

Uncertainty can arise from various factors, such as rapidly changing market conditions, shifting consumer preferences, technological advancements, or geopolitical changes (Crompton, 1992, cited in Isaac, 2020). Risks become evident when possible outcomes can be identified, whereas perceived uncertainties are based on consumers' inability to make judgments (Karl, 2018, cited in Yang & Wibowo, 2022).

2.4.8. The most referenced theories explaining risk perception

Consumer behavior is an interdisciplinary field that encompasses various disciplines, including economics, sociology, psychology, and anthropology. Therefore, it's not surprising that among the 120 reviewed pieces of literature, the four most frequently cited models are associated with psychologists (see Figure 13).

Figure 13: The most referenced theories explaining risk perception



Note. Self-edit based on the studies included in the systematic literature review.

2.4.8.1. Protection motivation theory - Rogers, 1975

The protection motivation theory (PMT) is a psychological theory that examines how the perceived threat of a dangerous event or condition influences individual behavior. According to the theory, the intensity of a person's defensive behavior is determined by their perception of the threat and their belief in their ability (Kumar et al., 2022; Pan et al., 2022; Qiao et al., 2021; Villacé-Molinero et al., 2021; Chua et al., 2020b). PMT was originally focused on health-related behaviors but has been adapted to various contexts,

including tourism. In tourism research, PMT can help researchers understand how tourists assess and respond to potential risks during their travel decision-making process.

2.4.8.2. Prospect theory - Kahneman & Tversky, 1979

Prospect theory is a behavioral economics theory that assumes that human decisions are context-dependent. According to the theory, people tend to perceive losses as more significant than gains, leading to lower risk tolerance in situations where losses appear larger relative to gains (Karl & Schmude, 2017; Sönmez & Graef, 1998; Golets et al., 2020; Yang & Wibowo, 2022). Researchers in tourism may use prospect theory to better understand how travelers weigh the potential positive outcomes (such as enjoyable experiences) against the potential negative outcomes (such as travel risks or unexpected costs). This understanding can guide marketing strategies, pricing models, and risk management in the tourism industry.

2.4.8.3. Social learning theory - Bandura, 1986

The social learning theory is a psychological theory that emphasizes the role of cognitive, behavioral, personal, and environmental factors in shaping human behavior and interactions. According to this theory, individuals learn by observing and imitating others and by experiencing the consequences of their actions (Hao et al., 2021; Teeroovengadum et al., 2021; Humagain & Singleton, 2021). Researchers can use this theory to explore how social interactions, cultural influences, and social norms impact tourists' choices and behaviors in various tourism contexts.

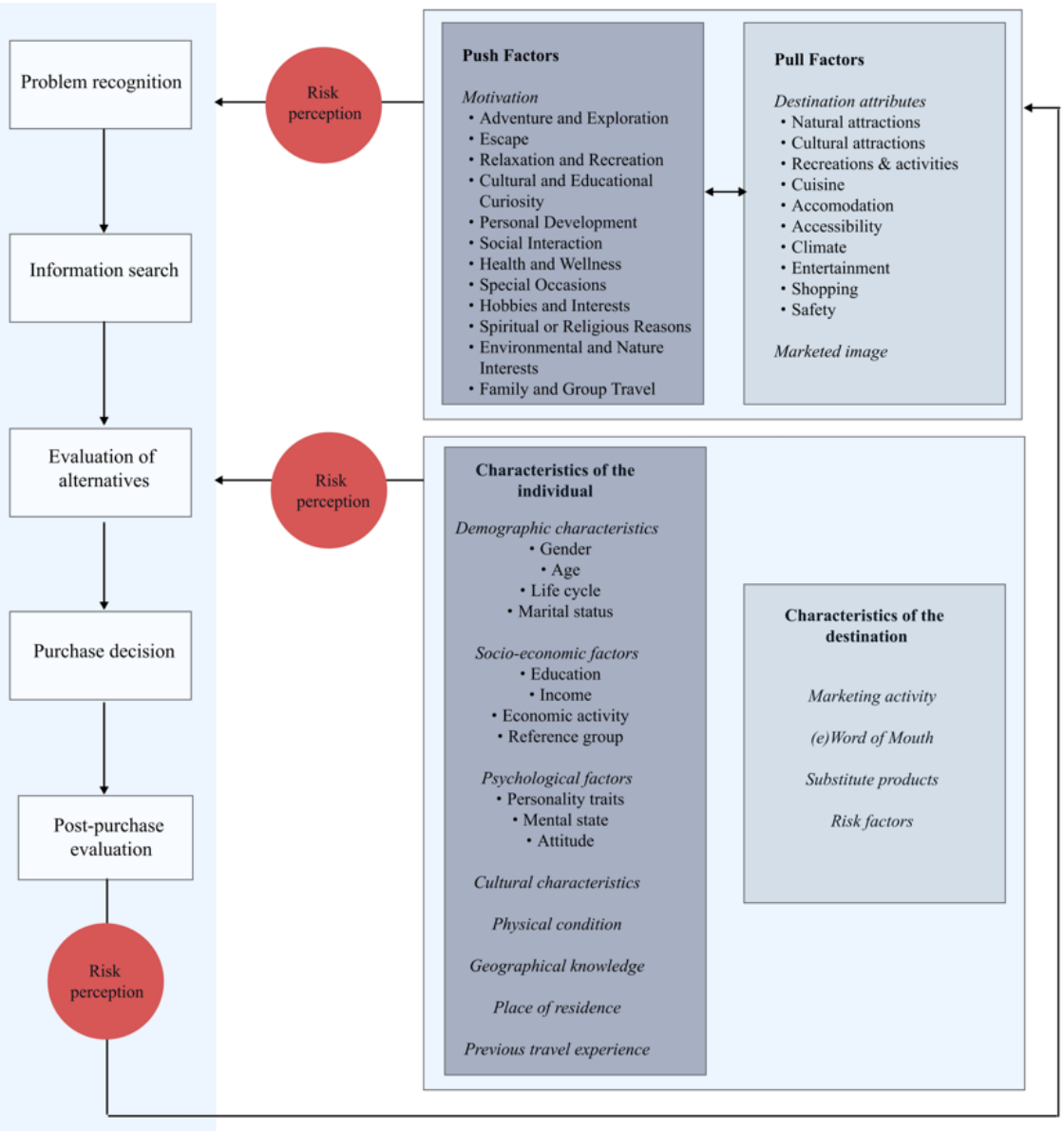
2.4.8.4. Theory of planned behavior - Ajzen, 1991

The model starts from the assumption that attitudes, subjective norms, and perceived behavioral control guide behavioral intentions, with the latter influencing behavior not only indirectly but also directly (Liu et al., 2021; Jin et al., 2021; Li et al., 2021; Shin et al., 2022; Taha et al., 2021). In the context of tourism research, the theory of planned behavior can be applied to study and predict behaviors such as travel intention, destination choice, travel-related decision-making, and even sustainable tourism behaviors.

2.5. Conceptual framework of the secondary research: segmenting the factors influencing travel decisions in the light of risk perception

Based on the previously analyzed content, the travel decision is a complex process influenced by numerous factors (Figure 14). In the following, based on the literature analysis, I will comprehensively analyze how the elements of the conceptual model influence risk perception. Furthermore, this conceptual framework serves not only as a model for the present research but hopefully provides a complex system or model for further related research.

Figure 14: Conceptual framework of the secondary research



Note. Self-edit based on the results of the systematic literature review.

In the decision-making process, the stage of need recognition marks the initial point where we begin to form our list of potential destinations. However, even at this early stage, there are destinations that we consciously exclude from consideration due to safety concerns. This exclusion may be based on previous negative experiences or simply on prejudices and perceptions about the destination's safety. As we progress to the information search stage, we gather more data about the remaining alternatives on our list. It is during this phase that we once again encounter risk perception as we evaluate the safety aspects of each destination. Finally, the impact of our post-purchase experiences plays a crucial role in shaping our future travel decisions. These experiences, whether positive or negative, contribute to our perception of each destination and influence our decisions on future trips (Lőrincz & Sulyok, 2017, Kiss & Michalkó, 2020).

The evaluation of potential risks is significantly influenced by the motivation behind visiting a destination. One-time, unique trips tend to be perceived as less risky (Kim et al., 2019). In the case of Israel, religion and spirituality also play a crucial role in perception, thus having a substantial influence on the final travel decision (Fuchs & Reichel, 2011). Similarly, the impact of the "once-in-a-lifetime experience" motivation can be seen in destinations affected by the adverse effects of climate change (Salpage et al., 2019), despite recognizing human activities' contribution to climate change (Purdie et al., 2020).

Although the initial predictions during the COVID-19 pandemic suggested an increasing interest in nature-oriented places with a positive impact on rural tourism, this trend has not been observed in the long term (Silva, 2021). Due to the impacts of the global pandemic, leisure travel and visiting friends and family gained prominence, based on the two main aspects of safety and cost reduction. People mostly traveled domestically, with cars being the primary mode of transportation, although airplanes were still preferred for ease and speed of reaching certain destinations. Large hotels were often avoided due to overcrowding, and less popular destinations took the forefront. Those who chose major cities did so primarily for accessibility and healthcare infrastructure (Poulaki & Nikas, 2021; Majeed et al., 2022). The COVID-19 pandemic brought about feelings of fear and sadness as dominant emotions, which manifested in both pull and push factors influencing travel motivations (Pattanayak et al., 2022).

2.5.1. The characteristics of the individual

2.5.1.1. Demographic characteristics

- *The role of gender in travel decisions in terms of risk perception*

In the case of both terrorist acts and pandemics, fear was observed to be much more intense in women than in men (Isaac & Van den Bedem, 2020; Zheng et al., 2021b; Ertas & Kirlar-Can, 2022; Shahabi Sorman Abadi et al., 2021; Brida et al., 2022). In comparison to planned travel, women traveled in smaller percentages following the first wave of the coronavirus pandemic (Li et al., 2021), and they were less likely to travel abroad, which can be attributed to their higher risk perception (Shin et al., 2022). However, no observable correlation was found between travel experience and gender concerning decisions to maintain or cancel planned trips during the coronavirus pandemic (Villacé-Molinero et al., 2021). Lower risk perception among men also manifested in their pandemic prevention efforts, as they were less likely to wear masks or practice hand sanitization (Lau et al., 2004).

- *The role of age, life cycle, and marital status in travel decisions in terms of risk perception*

In the case of terrorist acts, age did not show a significant correlation with risk perception, but life stage demonstrated a significant relationship (Isaac & Van den Bedem, 2020). Families with young children prioritize safety, leading them to perceive risks more acutely (Isaac & Van den Bedem, 2020), possibly because people often worry more about the well-being of others than themselves (Isaac, 2020). It is likely that not only children (Isaac & Van den Bedem, 2020) but also other family members influence our travel decisions, as these decisions often result from compromises made between parties. Therefore, our actions may not fully reflect our desires and personalities.

In contrast, concerning the COVID-19 pandemic, evident age-related differences have emerged (Brida et al., 2022; Aro et al., 2009), likely linked to the increased susceptibility to disease of individuals aged 65 and older. Consequently, the older demographic significantly restricted their travel during the pandemic, leading to a greater tendency to travel after the pandemic (Shin et al., 2022). On the other hand, older individuals may perceive themselves as more at risk, further reducing their travel intentions (Peluso & Pichierri, 2020). Younger individuals tend to have a greater willingness to take risks and,

therefore, express a stronger intent to travel during a potential global pandemic (Brida et al., 2021; Ertas & Kirlar-Can, 2022).

2.5.1.2. Socio-economic characteristics

- *Education as a factor affecting travel decisions in times of crisis*

Educational attainment has an impact on our risk-taking (Brida et al., 2022). Those with higher educational qualifications are likely to have greater trust in science, which was evident in their approach to the pandemic (Golets et al., 2020).

As indicated above, education plays a substantial role in shaping travel decisions, especially in times of crisis. Individuals with higher levels of education tend to approach travel choices with a more informed perspective. They often have a better understanding of the risks associated with different destinations and are more likely to stay updated on global events and health advisories. This awareness can influence their decision-making process during crises, such as natural disasters or pandemics. Educated travelers may be more cautious and responsive to official recommendations and guidelines, making them more inclined to modify or postpone their travel plans when faced with potential risks (Brida et al., 2022; Golets et al., 2020).

- *The impact of income on tourist consumer behavior during economic crises and pandemics*

During economic crises, consumers are expected to experience a reduction in discretionary income, which also impacts their travel decisions (Khalid et al., 2019). Potential outcomes of this include reducing the length and frequency of vacations, opting for more affordable accommodations, choosing closer destinations, using cheaper modes of transportation, and traveling during non-peak periods (Campos-Soria et al., 2015).

In the case of the COVID-19 pandemic, even those with lower incomes had travel plans (Cruz-Ruiz et al., 2022), with the most significant changes in travel behavior occurring among those whose income declined due to the pandemic (Štefko et al., 2022; Chandra Pratiwi et al., 2022; Li et al., 2021). Individuals with greater travel experience tend to have a higher tolerance for risks, and it is assumed that they also have higher incomes (Golets et al., 2020).

- *The relationship between economic activity and travel choices in times of economic crisis*

The impact of unemployment resulting from an economic crisis on tourism participation is significant when the primary breadwinner is affected. According to Alegre and colleagues' research in 2013, in such cases, the likelihood of participation decreases by 17.8%. However, unemployment of other family members also affects tourism spending, resulting in an 11% decrease in overall expenditures. Meanwhile, when the primary breadwinner becomes unemployed, a 37.12% reduction in tourism spending is observed. This strengthens the findings related to income.

As highlighted above, economic downturns, such as recessions or financial crises, have a substantial impact on individuals' financial stability and, consequently, their travel decisions. When economic activity declines, job security, and disposable income often become more uncertain. This heightened economic instability can lead to shifts in travel behavior. Individuals may prioritize essential expenses over leisure travel, opt for cost-effective vacation options, or reduce the frequency and duration of trips.

- *The role of reference groups in travel decisions*

Not only our travel companions but also our parents, relatives, or friends can influence our travel decisions. In the case of a destination characterized by political instability, we may encounter resistance and an increased likelihood of others trying to discourage us, which is less likely to happen for a seemingly safe and peaceful destination (Fuchs & Reichel, 2011). During pandemics, the opinions of others can also be a significant influencing factor (Chandra Pratiwi et al., 2022).

The impact of reference groups emphasizes the complex interaction between social dynamics and individual travel decisions, highlighting the significance of considering not only personal preferences but also external viewpoints when undertaking journeys.

2.5.1.3. Psychological factors

- *The role of personality as a determinant of perceived risk in travel decisions*

Tourist demand is sensitive to terrorist acts (Kapuściński & Richards, 2016) and political instability, leading to an immediate decline in the number of visitors, which also affects the neighboring regions (Ivanov et al., 2016). There is a significant relationship between perceived risk and travel intention: the higher the perceived risk, the less likely people are to travel to that destination. Leisure travel is seen as a hedonistic activity, and during

our journeys, we do not want to constantly face sacrifices (Teeroovengadum et al., 2021). For most people, safety is of utmost importance (Ingram et al., 2013; Rittichainuwat & Chakraborty, 2009; Li et al., 2018), so even with a more favorable price, the majority is unwilling to compromise on it. While the perceived risk of terrorism may deter tourists in the short term, it does not affect long-term decisions regarding foreign travel (Rittichainuwat & Chakraborty, 2009). Of course, there are differences in personality traits, and there is a group of tourists (e.g., backpackers) who consider safety important but still venture to riskier destinations (Hajibaba et al., 2015). Tourists weigh the utility offered by the journey (Araña & León, 2008), and according to Maslow's rule (1968), the basic need for security becomes significant when it is jeopardized. This security concerns not only affects travel preferences but also cultural openness. It is less applicable to those with a cosmopolitan perspective (Veréb et al., 2018). Safety is not the exclusive consideration when selecting a destination; the natural environment, price (Isaac & Velden, 2018), as well as weather, culture, and attractions, are also crucial in our decision-making process (Isaac & Van den Bedem, 2020). Individual interests guide travel decisions, with consumers believing that making the sector more sustainable is the responsibility of governments, not consumers (Hindley & Font, 2014).

During the COVID-19 pandemic, planned trips were greatly influenced by individual personality traits and risk tolerance. Uglis and colleagues (2021), while examining the travel habits of Polish tourists, found that the majority still planned trips despite the pandemic and primarily intended to use hotel accommodations (Uglis et al., 2021). This contradicts findings from Poulaki & Nikas (2021), who suggest that Greeks mainly prefer private accommodations to avoid crowded places. I believe that behind this discrepancy, there may be not only cultural but also supply-side reasons, and it's possible that Greeks, unlike the Poles, inherently favor private accommodations during their travels. Due to the unpredictability stemming from the pandemic, shorter trips took precedence, and there was an increased focus on safety concerns and technological innovations facilitating contactless services (Kubickova & Holeinska, 2019).

- *The role of mental state in travel decisions in times of crisis*

Natural disasters can cause physical and psychological trauma, either directly or indirectly. Since psychological trauma can have long-term consequences, studying it would require follow-up, which complicates the research process (Chen et al., 2022).

Visiting the site of the disaster can aid in processing the catastrophe and grief, making it a therapeutic intervention as well (Kristensen et al., 2012).

In the case of the COVID-19 pandemic, economic recovery happened relatively quickly, but the sociological and psychological effects have persisted in the long term (Wen et al., 2020). The lockdowns have had a severe impact on our mental health (Lin et al., 2021; Chua et al., 2020a). To counterbalance this, there has been a re-evaluation of natural settings (Grima et al., 2020; Sayginer & Kurtsan, 2022; Hansen et al., 2022; Gao et al., 2021), and the concept of 'staycation' has gained prominence as a form of travel aimed at reducing workplace stress and burnout (Zhang et al., 2022). However, this form of travel did not persist in the long term (Pocinho et al., 2022), nor did it have a lasting impact on environmental conservation behavior resulting from the pandemic (Lin et al., 2022).

While the tourism sector is vulnerable, its resilience is high, driven by tourists' needs. On one hand, there is a demand concerning our health and safety, but these considerations only temporarily override our desire to travel, contributing to our mental well-being (Hao et al., 2021; Jin et al., 2021). The majority experienced social exclusion and isolation as more significant issues than the fear of the disease itself. Information gaps and restrictions were the primary inhibiting factors for travel (Humagain & Singleton, 2021). Those with chronic illnesses, married individuals, and those who frequently experience negative emotions reported significantly higher levels of concern. Conversely, individuals who were convinced that the world is a just place, where everyone, including themselves, gets what they deserve, and those who experience positive emotions more often expressed less worry (Štefko et al., 2022).

- *The impact of attitudes on travel decisions*

Previous research indicates that attitudes have the strongest explanatory power concerning travel intentions (Liu et al., 2021). How we perceive a specific destination is a complex matter. It can be influenced by our past experiences, the opinions of others, as well as news in the media, all of which collectively shape our own opinions, including political aspects, potentially leading to generational differences (Ingram et al., 2013; Li et al., 2018). Negative emotions can reduce both the intention to visit and recommend a destination; altruism or curiosity may not always be the driving force behind actual visits (Wang et al., 2019). There is a clear relationship between destination image and attitudes, with attitudes directly related to behavioral intentions. Thus, a potential negative image

poses a significant threat to destinations, such as Wuhan (Riestyaningrum et al., 2021; Abraham et al., 2020). However, the destination image is a dynamic variable in our minds (Fuchs & Reichel, 2011). Since we constantly receive new stimuli that affect our memory, the memories of crises and disaster events gradually fade, especially if we are indirectly affected (Farmaki, 2021). It is observable that after a year, memories fade, which is reflected in the increase in tourist numbers (Seabra et al., 2020).

Terrorist acts can have a negative impact not only on the perception of a specific destination but also on the surrounding regions (Isaac, 2020). This negative attitude can be counterbalanced by organized travel, which enhances their sense of security, as well as the implementation of additional risk-reduction strategies, such as following the dress code regulations of the destination in question (Isaac, 2020).

Fear of the pandemic reduces travel intentions, with tourists who trust the government being more likely to avoid travel (Zheng et al., 2021a). During the COVID-19 pandemic, social distancing reduced the opportunity for tourists to interact with residents, which diminished their chances of forming positive impressions of them (Tan et al., 2022).

Destinations with loyal visitors have a significant advantage in the post-pandemic recovery period because prior travel experiences and the resulting trust can foster a sense of solidarity (Rasoolimanesh et al., 2021). For those who haven't visited the destination before, the quality of the healthcare system is exceptionally important and has a profound influence on travel decisions (Rasoolimanesh et al., 2021).

Consumer attitudes are strongly influenced by personal experiences, family and close friends, marketing, and mass media (Qiao et al., 2021). Attitude is a crucial determining factor; the more someone believes that it's worthwhile to travel during the pandemic, the more likely they are to do so (Chandra Pratiwi et al., 2022). Fear of the COVID-19 pandemic has heightened the importance of safety but has also impacted the enjoyment of services, thereby influencing future willingness to recommend (Pan et al., 2022).

The availability of COVID-19 vaccinations has amplified the positive impact of a destination's attractiveness on loyalty (Nie et al., 2022). If someone chooses to travel despite the pandemic, they may encounter negative experiences, such as residents' mistrust of foreigners, which can affect their future travel decisions (Kour et al., 2020).

Reducing service prices is not an effective strategy for service providers in the event of a pandemic or natural disaster since it cannot significantly alter attitudes (Chua et al., 2020b).

2.5.1.4. Cultural differences in risk perception associated with travel decisions

Contrary to the findings of Rittichainuwat & Chakraborty (2009), who examined the attitudes of international tourists arriving in Thailand towards terrorist acts, Survila and colleagues (2017) found that Lithuanians are willing to prioritize a favorable price over their safety. This is particularly interesting since 82% of the sample were women, who are generally perceived to be more sensitive to risks (Isaac & Van den Bedem, 2020; Zheng et al., 2021a; Ertas & Kirlar-Can, 2022; Shahabi Sorman Abadi et al., 2021; Brida et al., 2022). Cultural differences are also observed in the assessment of pandemics (Mao et al., 2010).

2.5.1.5. The impact of health status on travel decisions

Individuals in poorer health tend to feel more vulnerable, which, in turn, diminishes their intent to travel. Based on the above, an individual's health condition significantly influences their travel preferences and choices. Individuals in poor health or with underlying medical conditions tend to approach travel with increased vulnerability, often leading to heightened caution when planning trips. Health considerations also affect the selection of travel destinations, as individuals tend to choose places that cater to their physical well-being and healthcare needs (Peluso & Pichierri, 2020).

2.5.1.6. The impact of geographic knowledge on the selection of travel destinations from the perspective of risk perception

We may perceive some destinations differently due to geographic knowledge, which may also affect our travel decisions (Sayira & Andrews, 2016; Rittichainuwat & Chakraborty, 2009). Perceptions of political instability have a spill-over effect, whereby even though a country may be large, tourists may perceive it as a dangerous destination (Neumayer, 2004).

2.5.1.7. The relationship between place of residence and travel decisions during crises

Eugenio-Martina and their colleagues examined, in a 2014 study, how the 2008 global economic crisis affected the tourism expenditures of individuals living in European Union countries. The results showed that 46.32% of respondents reduced their expenses related to tourism, and this decision was influenced not only by the climate of the home country but also by its economic stability. The researchers concluded that residents of countries in northern, colder zones were less inclined to make cutbacks and, consequently, less likely to refrain from international travel. In contrast, for southern countries, an increase in domestic tourism was a common consequence of economic crises. However, findings regarding climate and travel willingness may also correlate with the economic conditions of the countries, as Scandinavian countries rank high globally in terms of GDP per capita.

Place of residence also plays a role in the case of terrorist attacks. If the target of the attacks is a popular destination among residents of a country, there is a higher likelihood that they will choose domestic tourism as an alternative (Seabra et al., 2020).

Geographic differences can also be observed concerning travel habits in the context of the COVID-19 pandemic. While residents of southern Italy traveled for shorter durations during the pandemic, those from central and northern Italy continued to travel for a week or more. One possible explanation is that economically disadvantaged southern regions, which largely rely on tourism, were hit harder by the impact of the COVID-19 pandemic (Corbisiero & Monaco, 2021).

2.5.1.8. The relationships between risk perception and previous travel experiences in the process of destination selection

While in the literature, I found that previous travel experiences mitigate perceived risk (Rittichainuwat & Chakraborty, 2009; Adeloye et al., 2020; Isaac, 2020), this does not always hold in cases of political instability. Exceptions arise when the motivation behind travel (e.g., religious) makes the destination irreplaceable (Isaac & Velden, 2018). Those who have previously visited the destination can apply their past experiences (Seabra et al., 2020) to perceive the place as safer and consider different types of risks before and during travel, unlike those visiting the place for the first time (Fuchs & Reichel, 2011; Isaac & Van den Bedem, 2020). The less knowledge we have about a particular

destination, the more extensively we seek information regarding it before making travel decisions (Cahyanto et al., 2016).

However, research on the COVID-19 pandemic has found that the perception of the global pandemic risk, travel behavior, and behavioral intentions are not dependent on tourists' previous travel experiences (Ertas & Kirlar-Can, 2022; Yang & Wibowo, 2022).

2.5.1.9. Individual characteristics overview

This section explores various internal factors that influence travel decisions, with a focus on risk perception. It studies the demographic characteristics, socio-economic factors, health status, psychological traits, attitudes, travel motivation, geographic knowledge, place of residence, and the role of previous travel experiences in destination selection. It also discusses cultural differences in risk perception concerning travel decisions.

Women tend to exhibit higher levels of fear and risk perception in the context of both terrorist acts and pandemics. They are less likely to travel during crises and are more cautious about traveling abroad. However, gender does not significantly affect decisions to maintain or cancel planned trips during a pandemic.

The influence of age on risk perception varies between terrorist acts and pandemics. Families with young children prioritize safety, leading to increased risk perception. Older individuals tend to be more cautious during pandemics due to their increased susceptibility to disease. Younger individuals are more willing to take risks and express a stronger intent to travel during pandemics.

Higher levels of education are associated with a greater trust in science and a more informed perspective on travel choices during crises. Income levels impact travel behavior during economic crises and pandemics, with reduced discretionary income leading to changes in travel plans. Economic downturns, particularly job losses, significantly influence tourism participation and spending. The impact is more pronounced when the primary breadwinner is affected. Travel decisions can be influenced not only by travel companions but also by parents, relatives, or friends. Opinions of reference groups play a role in destination selection, particularly concerning political stability.

Individuals in poorer health tend to feel more vulnerable and are less inclined to travel. Health considerations also affect the choice of travel destinations, aligning with individuals' physical well-being and healthcare requirements.

Personality traits play a significant role in risk perception and travel decisions. Safety is a primary consideration for most travelers, but there are differences in personality traits, leading some individuals, like backpackers, to venture to riskier destinations. Natural disasters and crises can cause psychological trauma, influencing travel decisions. Factors like social isolation and mental health impact travel habits and preferences. Attitudes, shaped by personal experiences, opinions of others, and media, strongly influence travel intentions. Negative emotions can deter travel, and destination image and attitudes are directly related to behavioral intentions.

Travel motivation, such as religion and spirituality significantly affects risk perception. Unique and once-in-a-lifetime travel experiences are perceived as less risky.

Geographical imperfections can influence how destinations are perceived and impact travel decisions. Perceptions of political instability can affect entire countries, even if only specific regions are affected. Place of residence plays a role in travel decisions during crises. Climate, economic stability, and geographic location can impact travel behavior.

Previous travel experiences can mitigate perceived risks, particularly in destinations where motivation makes the place irreplaceable. Those with prior visits apply past experiences to perceive a place as safer.

Cultural differences are observed in risk perception during travel decisions. Some cultures prioritize favorable prices over safety, while others may be more risk-averse.

2.5.2. The characteristics of the destination

2.5.2.1. Marketing activities of travel destinations during crises

Communication and credibility in the media are of paramount importance during pandemics, as they significantly influence tourists' commitment to travel destinations (Kumar et al., 2022). Poor communication creates uncertainty, negatively impacting the country's image and, consequently, the tourism sector (Hai et al., 2004). The COVID-19 pandemic also had a political dimension, causing statements from politicians in different countries to evoke sympathy or antipathy among potential tourists (Cruz-Ruiz et al., 2022). As the importance of touchless services and hygiene has been elevated, it was

crucial to communicate this not only from service providers but also from the perspective of the destination itself (Awan et al., 2021). A destination with a strong image can recover more quickly from a crisis resulting from a potential terrorist act (Ingram et al., 2013). During the 2008 global economic crisis, brand recognition was a critical factor. Loyal customers could assist in the recovery and hotels that prioritized quality over promotions performed well (Alonso-Almeida & Bremser, 2013).

2.5.2.2. The role of social media and word of mouth in risk perception regarding travel decisions

The media plays a crucial role in shaping the image of various destinations (Lehto et al., 2008; Lepp & Gibson, 2008; Rittichainuwat & Chakraborty, 2009; Sayira & Andrews, 2016; Cahyanto & Liu-Lastres, 2020; Fountain & Cradock-Henry, 2020; Taha et al., 2021). The created image serves as a significant mediator in terms of perceived risk, which influences the sense of safety and, consequently, travel intentions (Parrey et al., 2019). Negative news coverage in the media can amplify people's perception of risk, but the lack of information can also have the opposite effect (Sönmez & Graefe, 1998; Wang et al., 2019).

During the COVID-19 pandemic, trust in government officials and healthcare professionals' official communication, along with individuals' personal risk perception, primarily increased the likelihood of whether a person would maintain their travel plans or not (Villacé-Molinero et al., 2021). In addition to government communication, the media also played a significant role in shaping how we assessed external threats (Han et al., 2022).

In the case of natural disasters, damage to infrastructure reduces the attractiveness of the travel destination; however, the number of fatalities does not have such an effect. In some cases, the number of visitors to the region may even increase due to humanitarian tourists or visits from relatives and friends (Rosselló et al., 2020). There is also a segment of tourists who are specifically attracted to the locations of natural disasters (Lehto et al., 2008). There are clear differences between various natural disasters, with volcanic eruptions having the greatest impact (Rosselló et al., 2020). In terms of how a destination is perceived, in addition to the media's influence, local communication also has a significant impact on the region's image (Peters & Pikkemaat, 2006). Word of mouth plays a significant role in destination selection, and the importance of its online version

(e-wom) has increased even more due to the COVID-19 pandemic. The media has an increasingly significant influence on our decisions, sidelining recommendations from friends and relatives (Toubes et al., 2021).

2.5.2.3. The role of substitute products in travel decisions during crises

Instead of simply accepting unfavorable environmental conditions, people tend to make changes and seek alternative solutions (Humagain & Singleton, 2021). If it is easy to substitute a particular travel destination in terms of travel motivation, individuals are likely to do so when their safety is at risk (Sönmez & Graefe, 1998; Araña & León, 2008; Seabra et al., 2020). Regarding international tourist arrivals, it can generally be stated that political unrest and terrorist attacks do not significantly affect the overall volume of foreign travel, but they do influence the choice of destination (Isaac & Velden, 2018).

Tourism is one of the most resource-dependent industries, heavily influenced by extreme weather conditions, which have both short-term and long-term effects on travel decisions (Olefs et al., 2021). As long as there are alternative destinations with better natural attributes, such as more snow, the role of substitute products becomes more significant (Steiger et al., 2020).

2.5.2.4. The impact of restrictions on travel decisions

After the first wave of the COVID-19 pandemic, people traveled more often domestically, citing restrictions as the primary reason (Ertas & Kirlar-Can, 2022). Due to the uncertainty stemming from the pandemic, the majority expressed that they do not plan to travel abroad even after the lifting of travel restrictions (Brida et al., 2021).

2.5.2.5. Destination characteristics overview

In this part, I analyzed the external factors that affect travel decisions, especially in times of crisis. Research from various studies shows that the media plays a significant role in shaping people's perceptions of different destinations. It acts as a mediator in how people perceive risks and strongly influences their intentions to travel. Trust in official communications and personal risk assessment emerged as critical factors during the COVID-19 pandemic. In a time of crisis, effective marketing strategies are essential. These strategies should aim to communicate clearly, thereby creating a credible image of the destination. The political aspect could influence tourists' feelings, and emphasizing hygiene and contactless services became very important. As seen during the pandemic,

travel restrictions led to an increase in domestic travel. In most cases, safety is one of the basic conditions of travel, because of this the opportunities offered by alternative options have been appreciated. Overall, these external factors collectively influenced travelers' choices during crises.

2.6. Types of tourists - the most cited basic typologies

In the forthcoming section, I will present the three most frequently cited tourist typologies, namely Cohen (1972), Plog (1974) and Smith (1989). These typologies offer valuable insights into the diverse motivations, behaviors, and characteristics of tourists, providing a framework for understanding the various segments within the tourism industry.

2.6.1. Cohen's (1972) categorization

According to Cohen (1972), tourists can be categorized based on the type of travel they undertake and how open they are to exploring a foreign, unfamiliar place (Lepp & Gibson, 2008; Björk & Kauppinen-Raisanen, 2011; Kubickova & Holeinska, 2019). Based on this, Cohen identified four types of tourists: organized and individual mass tourists, as well as explorers and drifters (Karl & Schmude, 2017; Çakar, 2020; Villacé-Molinero et al., 2021; Çakar & Aykol, 2022). Cohen (1972) characterized these groups as follows:

Organized mass tourists are tourists who travel in large groups and follow pre-planned itineraries. They often visit popular tourist attractions and participate in organized activities. They are generally less adventurous and prioritize comfort and convenience over exploration and cultural immersion.

Individual mass tourists also travel in large numbers but do not follow pre-planned routes. They may visit popular tourist attractions but are more likely to venture off the beaten path and seek unique experiences. They are more interested in cultural immersion and interacting with locals.

Explorer tourists are motivated by a sense of adventure and a desire for exploration. They actively seek out remote, less-known places and engage in activities such as hiking, camping, and wildlife observation. Comfort and luxury are not major attractions for these travelers; instead, they crave immersion in nature.

Drifter tourists are driven by a desire for freedom and independence. They travel alone or in small groups and avoid pre-planned routes. They may opt for budget accommodations or camping and are often willing to take risks and try new things.

It's important to note that these categories are not mutually exclusive, and a tourist can exhibit characteristics of multiple categories. Cohen's typology has served as a foundation for further research into tourist behavior and has contributed to a better understanding of the diverse motivations and preferences of tourists.

2.6.2. Plog's (1974) categorization

According to Plog's theory, individuals' personality and psychographic characteristics influence their travel habits, such as their desired travel destinations and travel motivations, categorizing people into *psychocentrics* and *allocentrics* (Sönmez & Graefe, 1998; Hajibaba, 2015; Kubickova & Holeinska, 2019; Isaac & Van den Bedem, 2020; Pattanayak et al., 2022; Çakar & Aykol, 2022).

He argued that *psychocentrics* are less adventurous, introverted individuals who tend to favor familiar things and popular tourist destinations. *Allocentrics*, on the other hand, are extroverted individuals who like to take risks and seek more adventurous vacations. Plog believed that such people prefer exotic destinations and individual travel. Between these two extremes, Plog identified several intermediate categories, such as near psychocentrics, mid-centrics, and near allocentrics (Björk & Kauppinen-Raisanen, 2011; Kapuściński & Richards, 2016; Karl & Schmude, 2017; Isaac & Velden, 2018), who, depending on where they fall on the scale, tend to balance outgoing and conservative traits and are open to trying new things while valuing familiar and comfortable experiences.

Plog suggested that as travel destinations become more popular and mainstream, they tend to attract *psychocentric* travelers, while less popular and more adventurous destinations attract *allocentric* travelers (Plog, 1974). Although the model has faced criticism, as it implies that tourist destinations follow a predictable pattern of development, growth, and decline, overall, Plog's theory has had a significant impact on understanding how personality traits and psychographic characteristics influence travel behavior and destination choices.

2.6.3. Smith's (1989) categorization

Smith (1989) categorized tourists into seven groups based on their motivations, behaviors, and attitudes toward travel (Çakar, 2020; Çakar & Aykol, 2022).

Explorers include a small group of travelers who approach the world with an anthropological mindset, seeking to discover it from a unique perspective.

Elite tourists are experienced and frequent travelers who enjoy expensive, personalized journeys.

Off-beat tourists avoid popular tourist destinations and seek out less common attractions to avoid crowds.

Unusual tourists combine organized tours with independent excursions to immerse themselves in local cultures.

Incipient mass tourists look for destinations where tourism has not yet become dominant.

Mass tourists have expectations similar to what they are accustomed to at home.

Charter tourists are minimally interested in the destination itself as long as their vacation provides the entertainment, dining, and accommodation quality they expect.

2.6.4. The critical approach to tourist typologies

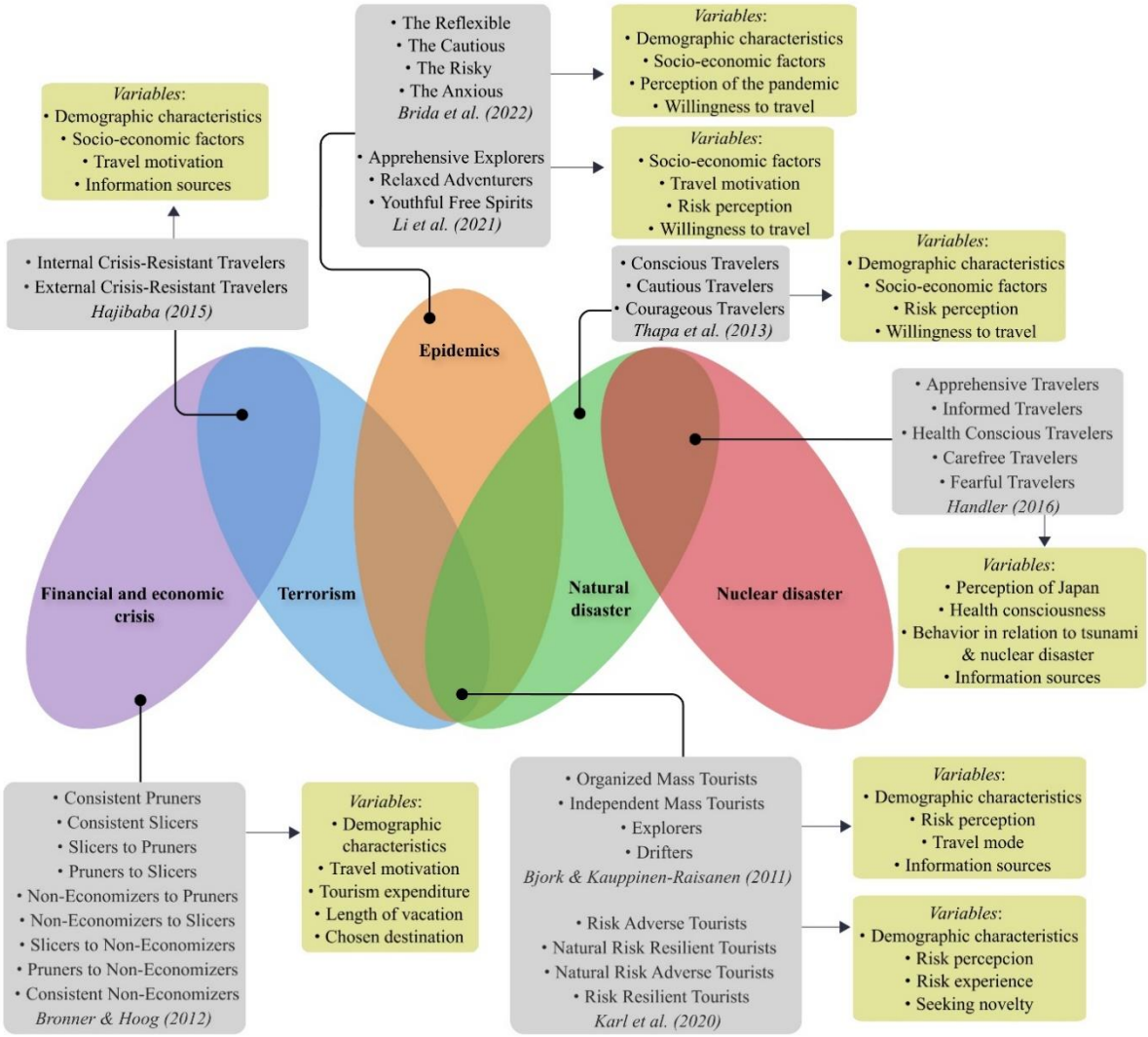
In the following, I would like to make some critical comments on the tourist typologies described above. Given the complex nature of consumer behavior, I believe that these approaches oversimplify the intricate nature and motivations of tourists. Many factors can influence people's travel behavior and preferences. It is also not possible to generalize these typologies due to cultural differences. Tourist behavior and motivations are not static and may change over time. Typologies based on a particular period may become outdated over time as the social, economic, and technological factors that influence the travel behavior of the population change. Typologies do not provide a comprehensive picture of the diversity of travel or the complexity of motivations. The typologies above tend to focus on factors such as demographics or the type of trip while ignoring components such as emotions and personal transformations.

2.7. Further tourist typologies developed from the perspective of risk perception

Risk perception plays a significant role in influencing travel behavior. The categories mentioned below often include travelers who have different levels of willingness to take risks, which is a common theme in many studies. Some studies have shown that tourists, no matter how they perceive or behave towards risks, are relying more on the Internet to get important travel information. This shows that the internet is becoming increasingly important for trip planning for all kinds of travelers. Age is a factor that consistently appears in the categorization of tourists. Whether it's older tourists who are more risk-averse or younger ones with a willingness to explore, age is used to distinguish between different travel preferences and behaviors. Age is consistently used to categorize tourists, whether it's older tourists who are more risk-averse or younger ones who are more adventurous. These external factors often lead to adjustments in travel plans or preferences.

The studies identify various travel types or preferences among tourists, such as those who prefer organized tours, those seeking independence, or those who are more adventurous. These categories help explain differences in travel behavior and choices. Many of the studies use behavioral factors to categorize tourists, such as their willingness to modify travel plans, their preference for certain destinations, or their engagement in economizing behaviors. Perceived safety and risk perception play a significant role in shaping travel choices across different segments. Some tourists are more risk-averse and prioritize safety, while others are more willing to take risks in their travel decisions. The educational background of tourists is another common factor used for segmentation in these studies. It often correlates with their preferences, behaviors, and risk perceptions. Trust in public authorities is mentioned in some studies as a factor influencing travel behavior. Some tourists place a higher level of trust in authorities, while others may be more skeptical. Economic conditions and financial constraints are frequently considered when categorizing tourists. For a better visual representation, I illustrate the various tourist typologies in Figure 15.

Figure 15: Tourist typologies developed from the perspective of risk perception



Note. Self-edit based on the results of the systematic literature review.

2.7.1. Björk & Kauppinen-Raisanen (2011): Organized Mass Tourists, Independent Mass Tourists, Explorers & Drifters

In their 2011 study, Björk & Kauppinen-Raisanen conducted empirical research that explored how perceived risk influences the search for information and travel behavior, drawing from Cohen's (1972) established tourist typology. The study classifies travelers into four distinct categories based on their preferences and travel behaviors:

Organized mass tourists: This group prefers pre-packaged vacations and wouldn't travel without a group. They are typically older and more risk-averse. They heavily rely on conventional information sources like travel agencies and brochures.

Independent mass tourists: These travelers also enjoy package tours but seek a degree of freedom in their journeys. They tend to be younger and use various sources of information, including the Internet.

Explorers: Explorers like to plan their trips independently and value freedom in their travels. They travel more frequently and use a mix of information sources, including guidebooks and online resources.

Drifters: Drifters prefer solo travel and spontaneous decision-making. They are less adventurous than explorers and use information sources differently, relying less on TV commercials and more on the internet.

These traveler types differ in terms of age, travel frequency, and risk tolerance. Organized mass tourists are generally older and more risk-averse, while independent mass tourists are younger and seek a balance between structure and freedom. Explorers and drifters are more independent and adventurous in their travel choices. However, all four groups increasingly turn to the Internet as a crucial source of travel information, highlighting its growing significance in trip planning for diverse types of travelers.

2.7.2. Brida et al. (2022): The Reflexible, the Cautious, the Risky and the Anxious

As part of their 2022 study, Brida and colleagues classified tourists into four distinct groups, considering factors such as their perception of the pandemic, precautionary measures, and willingness to travel. Cluster analysis was employed to group individuals based on their decision-making regarding planned vacations and their responses to various COVID-19 control measures. This research used variables such as decision-

making regarding vacations in different COVID-19 control scenarios, alongside sociodemographic factors such as age, gender, place of residence, educational background, occupation, and income.

The reflexible: Making up approximately 15% of the sample, this group is characterized by older age, a balanced gender ratio, and more non-residents. They are well-educated, with a notable presence of executives. Despite COVID-19 concerns, they take moderate travel precautions and accept health measures at destinations.

The cautious: Representing about 20.60% of the sample, this younger group has more females and includes mostly educated residents. They express significant COVID-19 concerns, avoid various transportation modes, and generally stick to their travel plans despite changing circumstances.

The risky: The largest group, accounting for 42.28% of the sample. A more feminine group made up of people of different ages. This group includes employees, second jobs, and retired people. They are considered to be less at risk of catching COVID-19 and therefore do not take as many precautions and doubt the security measures in place at travel destinations. However, they may change their plans if the situation changes.

The anxious: This group of people in their middle age makes up about 25% of the sample. They have an equal number of men and women and are highly educated. Even though they are concerned about COVID-19, they have no plans to alter their travel routines. They have a strong desire to travel and hardly ever cancel trips because of health regulations. They are also receptive to vaccine mandates and are flexible when it comes to adjusting their vacation plans based on health situations.

2.7.3. Karl et al. (2020): Risk Adverse Tourists, Natural Risk Resilient Tourists, Natural Risk Adverse Tourists and Risk Resilient Tourists

The following research examines how travel risks, such as natural disasters, health risks, terrorism, crime, or political instability, take precedence in tourists' destination choices and how the perception of these risks influences tourists at key decision-making stages.

Risk adverse tourists: This group, primarily consisting of females (57%), tends to modify their travel plans in response to various risks. They prefer familiar and secure destinations and are risk-averse, eliminating high-risk options early in their decision-making process.

Natural risk resilient tourists: These individuals, generally younger, travel frequently (67%) and are less influenced by natural or health risks. Although they currently prefer safe destinations, they remain open to riskier ones in the future, displaying a moderate level of risk aversion.

Natural risk adverse tourists: Typically consisting of middle-aged females with an average age of 39, this group modifies travel plans in response to natural risks and also takes other types of risks into account. They have limited experience with risks, display moderate risk aversion, and may contemplate destinations with varying risk factors.

Risk resilient tourists: Predominantly male (61%) and younger, with an average age of 38.69, these tourists are less influenced by the type of risk. While they currently favor safe destinations, they have intentions to explore riskier ones in the future. They are highly adventurous, exhibit minimal risk aversion, and do not consider risk a significant factor in their choices.

2.7.4. Bronner & Hoog (2012): Consistent Pruners, Consistent Slicers, Slicers to Pruners, Pruners to Slicers, Non-Economizers to Pruners, Non-Economizers to Slicers, Slicers to Non-Economizers, Pruners to Non-Economizers, Consistent Non-Economizers

This study investigates tourists' economizing behavior during their summer holidays in the Netherlands in 2010. It underscores the significance of economizing, with 67% of respondents actively engaging in it. The research further reveals that 68% of respondents successfully carried out their intended economizing behavior, while 32% deviated from their initial plans. Among this group, 17% hadn't initially planned to economize but ended up doing so, while 15% had intended to economize but didn't.

The following segments are based on vacationers' economizing behavior, intentions, and how they change or maintain their strategies during vacations.

Consistent pruners: In this group, people willingly decided to skip their holidays and followed through with this decision. This group represents a strong reaction to financial difficulties, where their vacation plans were completely canceled, most likely due to serious economic hardships or worries.

Consistent slicers: People who like to budget wanted to save money on specific parts of their vacation, and they were successful in implementing these money-saving actions.

Their method enabled them to control their expenses while still enjoying some level of holiday enjoyment.

Slicers to pruners: They initially intended to cut back on some parts of their vacation to save money, but ultimately, they decided to cancel the entire holiday. This change indicates that their financial situation or worries may have gotten worse.

Pruners to slicers: The group initially planned to cancel their holiday plans, but then they decided to save money on certain things instead. This change could be due to improved financial circumstances or a desire for a scaled-down vacation experience.

Non-economizers to pruners: These people didn't originally intend to save money, but in the end, they had to give up their vacations. This implies that external economic factors or events might have forced them to alter their plans.

Non-economizers to slicers: This segment had no initial intention to economize but ultimately reduced their spending on certain holiday aspects. Their behavior change may have been influenced by a desire for more cautious spending.

Slicers to non-economizers: Although they initially wanted to save money in certain aspects, this group did not stick to their plans. Factors such as temptation may have influenced their behavior.

Pruners to non-economizers: Individuals in this segment initially intended to give up their holidays but did not engage in any economizing behaviors. This may indicate a lack of opportunity or a desire to save.

Consistent non-economizers: This segment neither intended to economize nor did they engage in economizing behaviors. They represent vacationers who maintained their holiday plans without significant cost-cutting efforts.

The study also considers the economic context in the Netherlands during the study period, indicating that Dutch consumers perceived the impact of the worldwide economic crisis, but it had only moderate consequences for their disposable income.

This research also investigates how family composition and vacation preferences relate to different groups of people. Families with more members, particularly parents and children, were less likely to try to save money on vacations. Surprisingly, the study found that consistent economizers spent less time on vacation but didn't spend the least amount

of money. It also discovered that trying to save money influenced where people chose to go on vacation, with consistent economizers opting for closer destinations. On the other hand, non-economizers allocated more of their budget to activities done on-site, while consistent economizers spent the least in this area. The study did not find a significant connection between money-saving strategies and how vacations were planned. Additionally, different groups of people showed preferences for specific types of vacations, with consistent economizers preferring socially-oriented and spontaneous trips. Lastly, the research showed that non-economizers tended to gather more information before their vacations compared to consistent economizers.

2.7.5. Hajibaba et al. (2015): Internal Crisis-Resistant Travelers and External Crisis-Resistant Travelers

The following research aims to examine consumer behavior about external and internal crises. The study highlights that not all tourists show the same level of resilience and suggests that the distinction between internal and external events effectively explains differences in crisis resilience.

Internal crisis-resilient travelers: This category includes tourists who are not bothered by internal crises, such as illness or family emergencies, during their travels. They tend to be younger, work full-time, and are less likely to be married or retired than other travelers. Personality-wise, individuals in this group tend to be less agreeable and often rely on resources such as social media.

External crisis-resilient travelers: This group of travelers is resilient to external crises such as natural disasters, strikes, or terrorist attacks during their travels. They are typically younger and more likely to have full-time jobs, exhibiting higher levels of extraversion in terms of their personal characteristics. They are less likely to rely on recommendations from friends or family and more likely to use social media for travel information. They prefer to participate in adventurous activities and are open to traveling alone.

2.7.6. Thapa et al. (2013): Conscious Travelers, Cautious Travelers and Courageous Travelers

Three distinct groups emerged from the analysis, forming a pattern along the spectrum. In the middle, we find the largest segment, referred to as "*conscious travelers*," while at each end, there are segments characterized by different risk levels: "*cautious travelers*," with higher risk perception, and "*courageous travelers*," with lower risk perception.

These segments also exhibit varying levels of perceived risk, the threat from different wildfire risk types, and adjustments in travel behavior in response to specific wildfire situations, which could impact their future travel decisions in fire-prone areas.

Conscious travelers: This group, constituting 42% of the participants, demonstrates a cautious approach to wildfires when traveling. They carefully assess the risks associated with wildfires before deciding to visit Florida. They perceive a medium level of risk across various aspects that could influence their travel decisions in Florida. Demographically, there are no significant differences in terms of gender and income, but a notable proportion has obtained college degrees (22.5%), and some have postgraduate degrees (13.5%). Most of them are married (63.6%). When faced with specific wildfire-related situations, they are more inclined to cancel their trip in cases of significant traffic due to fire detours (48%) but are less likely to alter their plans when encountering situations like automobile accidents due to smoke.

Cautious travelers: This segment, making up 25% of the respondents, exhibits a strong emphasis on safety and risk aversion when it comes to travel. They express a willingness to travel only if they are certain their destination is free from wildfires. They perceive the highest level of risk across various categories affecting their travel decisions in Florida and other states. In terms of education, they have diverse educational backgrounds, with a significant proportion (31%) having a high school degree or lower. Most of them are married (69.3%). They are more likely to adjust their travel behavior in response to various wildfire-related situations, such as detecting the smell of burned wood in the air, experiencing health issues from smoke and ash, and encountering high fire danger conditions. Negative media reports about wildfires significantly impact their travel decisions.

Courageous travelers: This group, representing 33% of the participants, displays a willingness to travel to Florida regardless of wildfire situations. They perceive relatively low levels of threat concerning safety and wildfires in Florida and other states. They are less likely to be married (44.8%), and a higher percentage of female-headed households among them hold postgraduate degrees (44.7%). They exhibit a lower inclination to modify their travel behavior when confronted with specific wildfire-related situations, such as health issues resulting from smoke and ash or adverse media reports about wildfires. This segment demonstrates a relative resistance to altering their travel plans based on wildfire concerns.

2.7.7. Handler (2016): Apprehensive Travelers, Informed Travelers, Health-Conscious Travelers, Carefree Travelers and Fearful Travelers

Cluster analysis was employed to categorize tourists based on their risk perception and travel habits. The analysis unveiled four key factors, explaining 72.6% of the sample's variance, known as 'Japan anxiety,' 'health consciousness,' 'disaster area concern,' and 'information seeking.' These factors led to the identification of five distinct traveler groups: '*apprehensive travelers*,' '*informed travelers*,' '*health-conscious travelers*,' '*carefree travelers*,' and '*fearful travelers*.' These segments exhibited different concerns and behaviors regarding trips to Japan post the Fukushima incident. Despite these concerns, most Taiwanese travelers still showed interest in visiting Japan in the future. The study recommends tailored marketing and information campaigns to address these specific traveler concerns and enhance Japan's appeal as a secure destination. In the following, I will describe the different traveler groups in more detail.

Apprehensive travelers: These travelers are strongly worried about visiting Fukushima and its surrounding areas, as well as consuming Japanese cuisine and products.

Informed travelers: They seek more information than usual but do not significantly alter their travel habits. They have respect for the Japanese who endured the Fukushima incident and tsunami.

Health-conscious travelers: While they are concerned about their health and take precautions, they do not refrain from traveling to Japan.

Carefree travelers: These travelers neither change their travel behavior nor seek additional information before visiting Japan.

Fearful travelers: They are concerned about traveling to Japan as a whole, not just the affected areas, and may prefer alternative destinations until they feel safe to visit Japan again.

2.7.8. Li et al. (2021): Apprehensive Explorers, Relaxed Adventurers and Youthful Free Spirits

The primary aim of this research was to uncover the factors influencing individuals' decisions regarding travel, including whether they chose to travel, the reasons behind their choices, the modes of travel they opted for, and any alterations in the duration, distance,

or expenditure related to their travels. Furthermore, the study aimed to create consumer groups based on the above factors.

Apprehensive explorers: Approximately 23.4% of the sample belongs to this group. It has the highest percentage of individuals who chose not to travel (72.1%). Interestingly, despite their decision not to travel, display a strong desire to explore, even though they exhibit high anxiety related to travel and perceive a significant level of risk. They tend to place trust in public authorities and perceive fewer financial constraints when it comes to planning a holiday. Notably, many in this group have an annual household income lower than 80k RMB, and a substantial portion lacks tertiary education qualifications.

Relaxed adventurers: Relaxed adventurers are the most extensive category, encompassing 38.4% of the total sample. This cluster demonstrates the lowest levels of anxiety and perceived risk among all groups. They are highly motivated to travel and exhibit substantial trust in public authorities, along with low financial constraints for holiday planning. Many in this category fall between the ages of 30 and 39 and live with dependents. Most of them have a high level of education, with a large portion having completed university. Although they are spending slightly less than they did on their previous long vacation, this group still includes many people who are traveling, and most of them are keeping the same length of their vacation.

Youthful free spirits: This group represents 38.1% of the total sample. This cluster displays the lowest levels of trust in public authorities and the lowest motivation for post-pandemic travel among all groups. They perceive high financial constraints. However, these perceptions are counterbalanced by relatively low anxiety levels and perceived risk. This group is the most recent one and includes more than half of the participants who are under the age of 30. Although their educational background is slightly lower, this is most likely because of their young age. Among travelers in this cluster, most did not reduce spending compared to their previous long holiday, and a majority did not reduce travel distance compared to their previous long holiday.

2.8. Summary of the results of the systematic literature review

In the previous chapters of the dissertation, I introduced a systematic literature review that explores the consequences of crises on the tourism industry and the subsequent shifts in consumer behavior. I underscored the tourism sector's vulnerability to various crises, covering economic downturns, pandemics, and societal impacts such as terrorism. Safety is a key factor in travel decisions, as tourists often avoid destinations they perceive as unsafe. The main objective of the research was to gain a deeper understanding and systematize the impact of various crises on consumer behavior. Taking an interdisciplinary approach, I have also included literature from disciplines such as psychology, sociology, anthropology, and economics.

I also presented in detail the methodology of systematic literature review. Ultimately, I identified and selected a total of 120 relevant studies for in-depth analysis. In this systematic literature review, several key findings emerge regarding crises and their impact on the tourism sector. Firstly, a distinction is drawn between crises, which originate internally, and disasters, resulting from external factors. Various crises, including wars, terrorism, economic recessions, and natural disasters, have been categorized based on their origins. Additionally, the influence of terrorism and political instability on tourism is clarified. The review underscores that regardless of their origin, these factors can significantly shape tourists' attitudes and behaviors, leading to changes in travel preferences. Risk perception plays a crucial role in this process, impacting satisfaction, loyalty, and travel intentions. The study also categorizes tourists' risk perceptions and distinguishes between perceived risk and uncertainty.

I also explored the internal and external factors that influence travel decisions, especially in times of crises and uncertainty. Demographic characteristics, socio-economic factors, health status, psychological traits, attitudes, travel motivation, geographic knowledge, place of residence, and previous travel experiences all play crucial roles in shaping risk perception and travel choices. The media have a significant impact on risk-taking and travel behavior. Effective marketing strategies, political factors, and safety measures also shape travel decisions. In times of uncertainty, substitute options, and domestic travel gain prominence.

I also presented three extensively cited tourist typologies - Cohen (1972), Plog (1974), and Smith (1989). Cohen's categorization encompasses organized mass, individual mass,

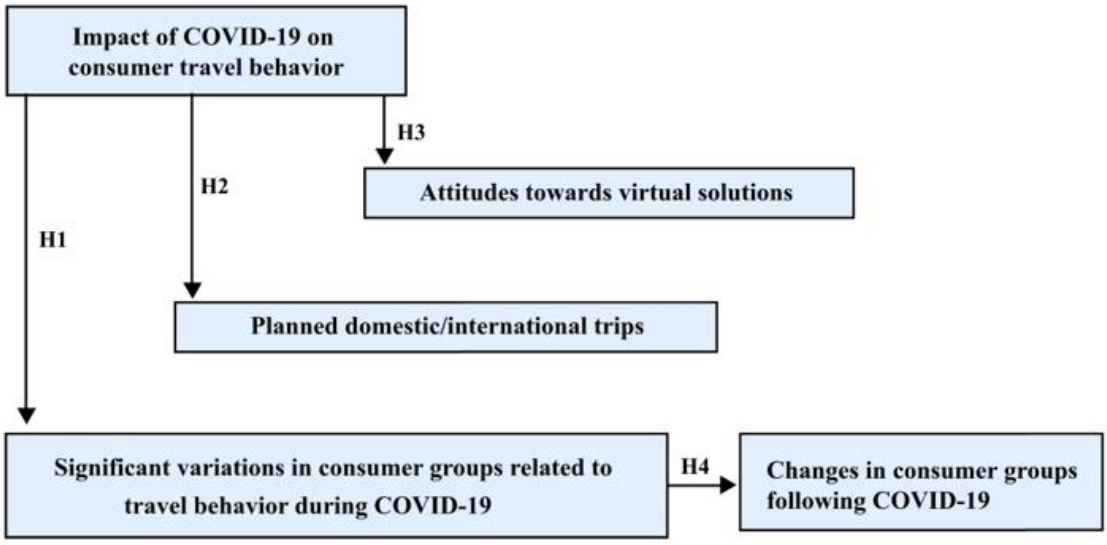
explorers, and drifters, emphasizing travel style and openness to exploration. Plog's theory classifies individuals into psychocentrics and allocentrics, linking personality traits to preferred travel destinations. Smith identifies seven tourist groups based on motivations and behaviors. Despite their valuable insights, a critical perspective is presented, shedding light on the oversimplification and static nature of these typologies.

I also explored additional tourist typologies developed from the perspective of risk perception. A comprehensive study of different types of tourists helps to understand the complex relationship between risk perception and travel behavior and highlights the multiple factors that influence tourists' choices in times of uncertainty.

3. PRIMARY RESEARCH

Building upon the previously formulated research questions listed below and the insights derived from the systematic literature review, I have developed the hypotheses (Table 2). The purpose of this section of the dissertation is to comprehend changes in consumer preferences and choices within the global crisis context, with a particular emphasis on the Hungarian population. The formulated hypotheses serve as key guiding principles, defining the study's direction and enabling a targeted exploration of the nuanced dynamics of consumer behavior amidst prevailing global challenges (Figure 16). This focused approach aims to yield valuable insights into the specific considerations and patterns within the Hungarian demographic group, contributing to a more nuanced understanding of the broader impact of the global crisis on consumer preferences.

Figure 16: The conceptual framework of my primary research



Note. Self-edit.

Research question 1 (RQ1): What distinct consumer groups have emerged in terms of travel as a result of the coronavirus pandemic?

Hypothesis 1 posits that the COVID-19 pandemic has led to substantial variations among consumer groups about travel behavior. At the outset of the coronavirus crisis, our research team, led by Prof. Dr. Mária Törőcsik, assumed that the primary changes could be identified regarding certain factors. These factors include attitudes towards virtual solutions, concerns related to financial situations, the subjective impact of travel on the quality of life, local patriotism (preference for domestic travel), sustainability

considerations, visiting family and friends as travel motivations, and willingness to use public transportation. This hypothesis suggests that the anticipated changes in these specific areas have likely contributed to the emergence of distinct consumer groups, each responding uniquely to the challenges and uncertainties introduced by the pandemic.

Hypothesis 1: The COVID-19 pandemic has led to significant variations in consumer groups about travel behavior.

Research Question 2 (RQ2): How do concerns related to the financial situation and the perceived impact of travel on subjective quality of life influence the number of trips planned post-COVID?

Hypothesis 2 posits that concerns regarding financial stability and the perceived benefits of travel significantly influence individuals' travel planning in the post-COVID era. Previous research indicates that even individuals with lower incomes maintained travel aspirations during the pandemic, although the most notable shifts in travel behavior were observed among those experiencing income reductions (Cruz-Ruiz et al., 2022; Štefko et al., 2022; Chandra Pratiwi et al., 2022; Li et al., 2021). This hypothesis suggests that the interplay between financial concerns and the perceived subjective quality of life associated with travel may lead to differing levels of trip planning, both domestically and internationally. Consequently, it is anticipated that those who perceive travel as a vital component of their well-being and who are less concerned about their financial situations will plan more trips in 2021, following the resolution of the pandemic.

Hypothesis 2.1: There is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.

Hypothesis 2.2: There is a significant relationship between the number of international trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.

Research Question 3 (RQ3): How have demographic characteristics influenced virtual tourism participation during the COVID-19 pandemic?

In response to the specific challenges posed by COVID-19, my hypothesis is grounded in the experience of the rapid growth of online solutions, suggesting potential impacts on

the tourism sector, particularly in terms of virtual tourism. I propose that younger generations are more likely to participate as they are familiar with digital technologies. The pandemic is accelerating the adoption of online tools (Pásztor, 2020; Pásztor & Bak, 2020), and the tourism industry appears to be adapting this practice.

Hypothesis 3: The younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic.

Research Question 4 (RQ4): Since the outbreak of the COVID-19 pandemic, how has the composition of various consumer groups changed?

According to research by Bronner & Hoog (2012), who investigated the impact of the 2008 economic crisis on travel habits, there is a significant difference between planned and actual travel behavior. Based on these findings, I have hypothesized that there may be a discrepancy between planned and actual travel behavior in the context of COVID-19, leading to changes in the size and characteristics of segments identified through research conducted at the onset of the pandemic. The uncertainties and evolving circumstances surrounding the pandemic are likely to have influenced individuals' travel plans, potentially causing a divergence between their intentions and actual actions.

Hypothesis 4: The composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics.

As shown in Table 2, the primary research was conducted across different waves of the pandemic, allowing for a more detailed understanding of its impact on travel behavior. The timing and content description of each wave were based on the records from the National Public Health Center and are included in Appendix 3.

Table 2: The hypotheses adapted to the research questions and the methodology used to test them

Research question	Hypothesis	Research methodology	Methodology used for hypothesis testing
RQ1	Hypothesis 1: The COVID-19 pandemic has led to significant variations in consumer groups about travel behavior.	Quantitative research - Online questionnaire survey conducted in 2020	• Exploratory factor analysis • Hierarchical cluster analysis

			• K-means cluster analysis • Pearson's chi-squared test
RQ2	Hypothesis 2.1: There is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.	Quantitative research - Online questionnaire survey conducted in 2020	• Multiple linear regression with factor scores
	Hypothesis 2.2: There is a significant relationship between the number of international trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.		
RQ3	Hypothesis 3: The younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic.	Quantitative research - Online questionnaire survey conducted in 2022	• Ordinal logistic regression
RQ4	Hypothesis 4: The composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics.	Quantitative research - Online questionnaire survey conducted in 2023	• K-means cluster analysis by transporting initial cluster centers

Note. Self-edit.

3.1. Online questionnaire survey conducted during the first wave of the coronavirus pandemic

In the spring of 2020, the Institute of Marketing and Tourism at the University of Pécs Faculty of Economics launched an extensive research project led by Prof. Dr. Mária Törőcsik. The project's objective was to investigate how the outbreak of the new coronavirus (COVID-19) in Hungary impacted the behavior of Hungarian consumers. As a member of the research team, my specific focus was on studying the changes in tourist consumer behavior. The applied questionnaire is presented in Appendix 4.

Our survey, designed to explore shifts in tourism behaviors during the initial wave of the pandemic, was carried out between late April and early June 2020. The data collection was quota-based and conducted by the CoRe Lab. It's important to note, right from the start of this analysis, that the COVID-19 crisis presented significant challenges, resulting in the survey's non-representative nature.

Nevertheless, given the sample size and its diverse demographic composition encompassing aspects like gender, age, education, income, and various sociological factors, we have confidence in its adequacy for drawing certain conclusions. Therefore, the findings obtained from this sample serve as a valuable source of preliminary insights.

The pilot nature of the sample is evident in the notable gender imbalance, with the majority of respondents (76.8%) being female. Additionally, the survey primarily focused on the geographic areas of Budapest, Pest County, and Baranya County. However, even with these constraints in mind, further exploration of the demographic characteristics reveals that they offer a robust basis for conducting comprehensive analyses. You can find the primary demographic characteristics of the respondents in Table 3.

Table 3. Main demographic characteristics of respondents to the online survey 2020 (n=736)

Number of people living in the household		
	Total	% (n=736)
1 person	86	11.7%
2 people	265	36.0%
3 people	168	22.8%
4 people	153	20.8%
5 people	51	6.9%
6 or more people	13	1.8%
Σ	736	100%

Gender		
	Total	% (n=736)
Man	171	23.2%
Woman	565	76.8%
Σ	736	100%

Marital status		
	Total	% (n=736)
Single	98	13.3%
Married	413	56.1%
Divorced	59	8.0%
Widowed	28	3.8%
Domestic partnership	138	18.8%
Σ	736	100%

Residence by county		
	Total	% (n=736)
Budapest	177	24%
Baranya county	168	22.8%
Bács-Kiskun county	22	3.0%
Békés county	17	2.3%
Borsod-Abaúj-Zemplén county	30	4.1%
Csongrád county	15	2.0%
Fejér county	29	3.9%
Győr-Moson-Sopron county	29	3.9%
Hajdú-Bihar county	17	2.3%
Heves county	7	1.0%
Jász-Nagykun-Szolnok county	14	1.9%
Komárom-Esztergom county	14	1.9%
Nógrád county	10	1.4%
Pest county	94	12.8%
Somogy county	18	2.4%
Szabolcs-Szatmár-Bereg county	10	1.4%
Tolna county	21	2.9%
Vas county	8	1.1%
Veszprém county	16	2.2%
Zala county	20	2.7%
Σ	736	100%

Highest completed level of education		
	Total	% (n=736)
Up to 8th grade	2	0.3%
Vocational school	35	4.8%
Vocational high school diploma	88	12.0%
General high school diploma	111	15.1%
Advanced technical college	47	6.4%
Bachelor's degree	184	25.0%
Master's degree	262	35.6%
No answer provided	6	1.0%
Σ	736	100%

Economic activity		
	Total	% (n=736)
Manual worker	79	10.7%
Intellectual worker	344	46.7%
On parental leave	52	7.1%
Stay-at-home parent	11	1.5%
Student	47	6.4%
Retired	161	21.9%
Unemployed	13	1.8%
Other inactive worker	11	1.5%
Uncertain/no answer provided	18	2.4%
Σ	736	100%

Monthly net family income		
	Total	% (n=736)
Below average	80	10.9%
Average	430	58.4%
Above average	195	26.5%
No answer provided	31	4.2%
Σ	736	100%

Age categories		
	Total	% (n=736)
- 24	50	6.8%
25-34	90	12.2%
35-44	166	22.6%
45-54	168	22.8%
55-64	140	19.0%
65+	117	15.9%
No answer provided	5	0.7%
Σ	736	100%

Settlement type of residence		
	Total	% (n=736)
Budapest	180	24.5%
County-level city	246	33.4%
Other city	177	24.0%
Village, municipality	132	17.9%
Homestead, dispersed settlement	1	0.1%
Σ	736	100%

Note. Self-edit.

3.1.1. Preliminary assumptions at the beginning of the pandemic

The global impact of COVID-19 has brought about profound changes in people's lives and perspectives (Boros & Kovalcsik, 2021; Kupi & Szemerédi, 2022; Sass et al., 2023). This pandemic has presented a series of trials that have evoked diverse reactions from both individuals and communities (Kinczel & Müller, 2022; Palkovics, 2022). At the outset of the outbreak, the unfamiliarity with COVID-19 and the limited available information led to a sense of confusion. Responses to the threat varied widely, ranging from concern to outright denial. The rapid spread of the pandemic and the uncertainties surrounding its origin gave rise to a spectrum of fears and precautionary measures.

Furthermore, challenges are intensified by the growing reliance on online platforms not only for human relationships but also for education and work. This shift amplifies the sensation of FOMO (Fear of Missing Out), signifying the anxiety arising from the potential of missing vital information or tasks. These consequences of the pandemic are especially prominent among the youngest generation, referred to as Generation Z (Pásztor, 2020; Pásztor & Bak, 2020). As time has progressed and information has become more accessible, people's viewpoints and interpretations have evolved. The gravity and consequences of the pandemic gradually became clearer, prompting shifts in attitudes (Árva & Várhelyi, 2020).

Additionally, the implementation of strict government measures, such as curfews and lockdowns, prompted individuals to take the situation more seriously and to place greater emphasis on health protocols. The introduction of vaccines introduced a new layer to public opinion (Kinczel & Müller, 2022). Attitudes towards vaccines and the act of vaccination exhibited considerable diversity. While many endorsed vaccines as pivotal tools for epidemic control, others harbored reservations and voiced doubts regarding their effectiveness and safety. Furthermore, the economic, societal, and emotional consequences of the pandemic have also influenced people's perceptions (Kupi & Szemerédi, 2021). Job losses, business closures, disruptions in education, and social isolation negatively impacted mental well-being and overall quality of life. These factors played a role in shaping individuals' outlooks towards the pandemic and the imposed restrictions. Those directly affected by the virus, whether through illness or the loss of loved ones, often adopted a more cautious and solemn stance, underscoring the personal and emotional toll of the epidemic.

At the onset of the coronavirus pandemic, there was a profound sense of uncertainty and a lack of comprehensive knowledge about the novel virus that had rapidly swept across the world. The world found itself facing a global crisis for which there was no precedent. With limited information and an evolving understanding of the virus, the research team started with the following preliminary assumptions:

Attitudes toward virtual solutions

Due to COVID-19, the use of virtual solutions will increase, and this trend will have a lasting impact even after the pandemic. Remote work, online education, and virtual meetings will become essential tools for individuals and organizations, reshaping the way we approach work, learning, and communication. In the long run, we can expect virtual solutions to coexist with traditional practices, with virtual travel and remote collaboration continuing to play a significant role in our lives. The pandemic will have accelerated the adoption of these technologies, and they will remain valuable options for individuals and businesses seeking efficiency and flexibility in a post-COVID world.

Concerns related to the financial situation

The economic impact of the pandemic will lead to concerns about job security and financial stability. Many individuals and families will face reduced incomes, leading to cautious spending habits. In the short run, these concerns will result in a sharp decline in leisure travel. In the long run, economic uncertainty may prompt travelers to seek more cost-effective options, such as domestic travel or budget-conscious choices, even after the pandemic subsides.

The subjective impact of travel on quality of life

In the future, travel will continue to have a significant impact on the quality of life, but certain factors will change due to the experiences of canceled and postponed trips during the COVID-19 pandemic. As travel resumes, people will cherish the opportunity to explore new places and cultures once more, enhancing their overall well-being and happiness. However, the fear of contracting the virus and the need for ongoing social distancing measures may lead to decreased satisfaction with travel experiences. People will need to adapt to new safety protocols and find a balance between the desire to travel and the need for precautions. As we move forward, responsible and safe travel practices

will be essential to ensure that travel continues to enrich our lives while maintaining our health and well-being.

Local patriotism (preference for domestic travel)

Local patriotism will surge during the pandemic, with travelers showing greater interest in exploring their own countries. In the short run, domestic tourism will experience a resurgence as international travel restrictions persist. In the long run, this newfound appreciation for local destinations may continue as travelers prioritize supporting domestic tourism providers and exploring their backyards.

Sustainability

The pandemic will catalyze discussions on sustainability within the travel industry. In the short run, decreased travel will result in temporary environmental benefits, such as reduced carbon emissions. In the long run, there may be a shift towards more sustainable travel practices, including eco-friendly accommodations, responsible tourism, and a heightened awareness of the environmental impact of travel.

Visiting family and friends as a travel motivation

Travel to visit family and friends will take on greater significance during the pandemic. In the short run, reconnecting with loved ones will become a primary motivation for travel. In the long run, these strong social ties may continue to drive travel decisions as people prioritize meaningful connections and shared experiences.

Willingness to use public transportation

The pandemic will bring heightened awareness of hygiene and safety, affecting public transportation. In the short run, travelers will be hesitant to use public transportation due to fears of virus transmission. In the long run, public transportation systems may need to adapt by implementing enhanced sanitation measures and promoting a sense of security to regain travelers' trust.

3.1.2. Exploring travel behavior and attitudes amidst the COVID-19 pandemic

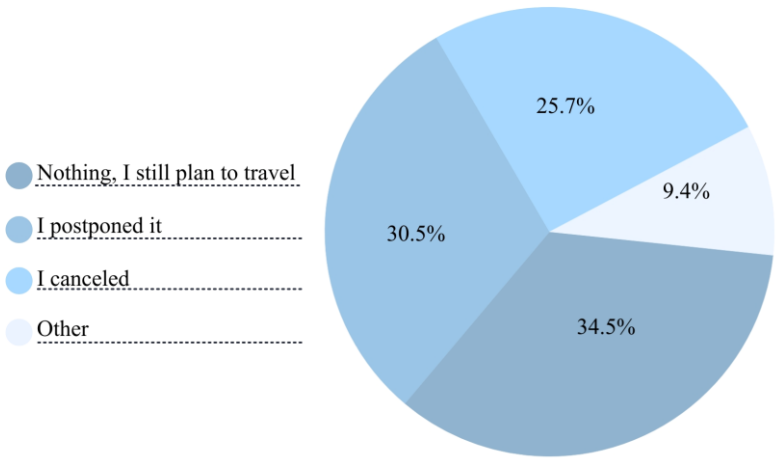
Due to the constraints of the doctoral dissertation length limitations, only the portion of the results that holds a prominent role in addressing the research problem and the subsequent research phase will be presented.

As mentioned above, a survey was conducted in spring 2020 to assess the likely impact of the coronavirus pandemic on travel decisions. The sample included a total of 736 respondents, 702 of whom already had domestic or international travel reservations for the year. These individuals were asked about the actions they had taken about their bookings, and the results are presented in Figure 17, providing valuable insights into their responses.

The data from Figure 17 reveals a range of reactions among the respondents. Notably, a significant portion, comprising 34.5% of the participants, displayed optimism about the future despite the uncertainties of the time. They chose to maintain their existing reservations, firmly holding onto their travel plans, reflecting a resilient attitude toward travel even in the face of adversity.

Figure 17: What happened to domestic/international reservation(s) (n=702)

If you have had a reservation(s) (whether domestic or international, what did you do with them?



Note. Self-edit.

On the other hand, a substantial 30.5% of the respondents decided to postpone their trips, indicating a willingness to adapt to the evolving circumstances. This group acknowledged the challenges posed by the situation but remained committed to experiencing their planned trips at a later, presumably safer time.

In contrast, 25.7% of the participants opted to cancel their reservations altogether. This decision likely stemmed from a combination of health concerns, travel restrictions, and uncertainty surrounding the future, demonstrating a cautious approach to travel during the uncertain period of the pandemic.

A noteworthy 9.4% of respondents fell into the "other" category, expressing a diverse range of responses. Many in this group mentioned adopting a wait-and-see approach, wanting to assess how the situation would unfold before making concrete travel decisions. Additionally, some respondents cited cancellations initiated by accommodation providers as the reason for their altered plans.

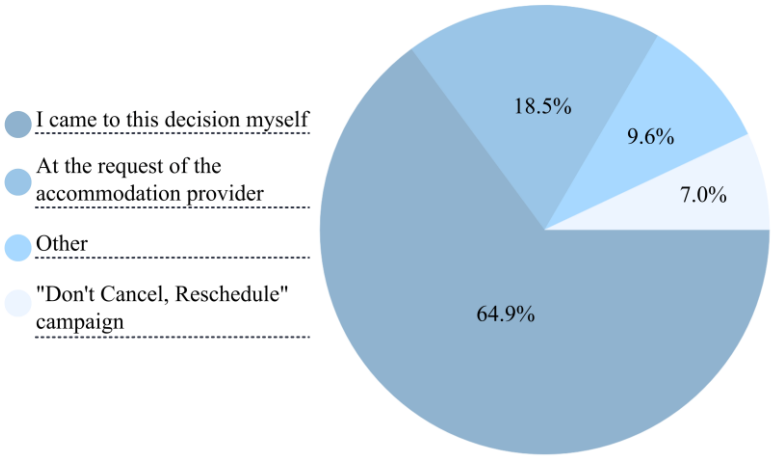
Intriguingly, a few respondents mentioned canceling international trips while still planning to travel domestically, highlighting the differing levels of comfort and risk associated with various types of travel experiences. Furthermore, only two respondents chose to postpone their domestic trips while keeping their international travel plans intact, showcasing the exceptional circumstances under which they were willing to undertake such journeys.

In sum, the responses to this question reflect the complex interplay of optimism, caution, adaptability, and uncertainty that individuals faced when confronted with the need to alter their travel plans during the challenging period of spring 2020. The diversity of responses underscores the multifaceted nature of decision-making in the context of travel, especially in times of global uncertainty.

The survey delved further into the reasons behind respondents' decisions to postpone their trips, and the findings are presented in Figure 18. Among the individuals who had opted for trip postponement, a substantial 64.9% indicated that they had personally made this choice. This suggests that a majority of travelers took the initiative to reschedule their plans, possibly due to concerns about the evolving situation or a desire for a safer and more convenient travel experience in the future.

Figure 18: Reasons for postponing a trip (n=114)

What are the primary reasons for postponing your booking (whether for domestic or international trips)? Please, select one answer!



Note. Self-edit.

Interestingly, a significant 18.5% of respondents indicated that they had postponed their trips in response to requests or recommendations from their accommodation providers. This finding underscores the significant influence of accommodation providers on travel decisions during this period, suggesting that these providers may have taken proactive steps to manage reservations in response to the uncertainties surrounding travel.

The "other" category, selected by 9.6% of respondents, featured various reasons for trip postponement. These included situations such as employers implementing bans on travel due to a mandatory 14-day quarantine upon return, canceled flights, and the cancellation of festivals or events at the intended destination. These external factors illustrate how broader circumstances beyond individual control influenced travel choices.

Notably, only a minority of 7% of respondents mentioned the "Don't cancel, rebook" campaign as a reason for postponing their trips. This suggests that while such campaigns may have been promoted during the pandemic, they had a relatively limited impact on travelers' decisions compared to other factors.

In summary, the data from Figure 18 provides valuable insights into the drivers behind trip postponement during the survey period. It underlines the importance of personal decision-making, the influence of accommodation providers, the impact of external factors, and the relatively modest effect of promotional campaigns aimed at encouraging

travelers to reschedule rather than cancel their plans. These findings shed light on the complex and multifaceted nature of travel decision-making during uncertain times.

After this, participants in the online survey were asked about their opinions on when the situation would normalize. The results are presented in Figure 19, providing comprehensive insights into the respondents' perspectives.

Notably, the survey findings reveal a prevailing sense of optimism among many participants regarding the future. Remarkably, the largest share, precisely 13.1%, expressed the expectation that the situation would normalize as early as July 2020. The strong optimism suggests a commonly held belief in a prompt resolution to the current challenges.

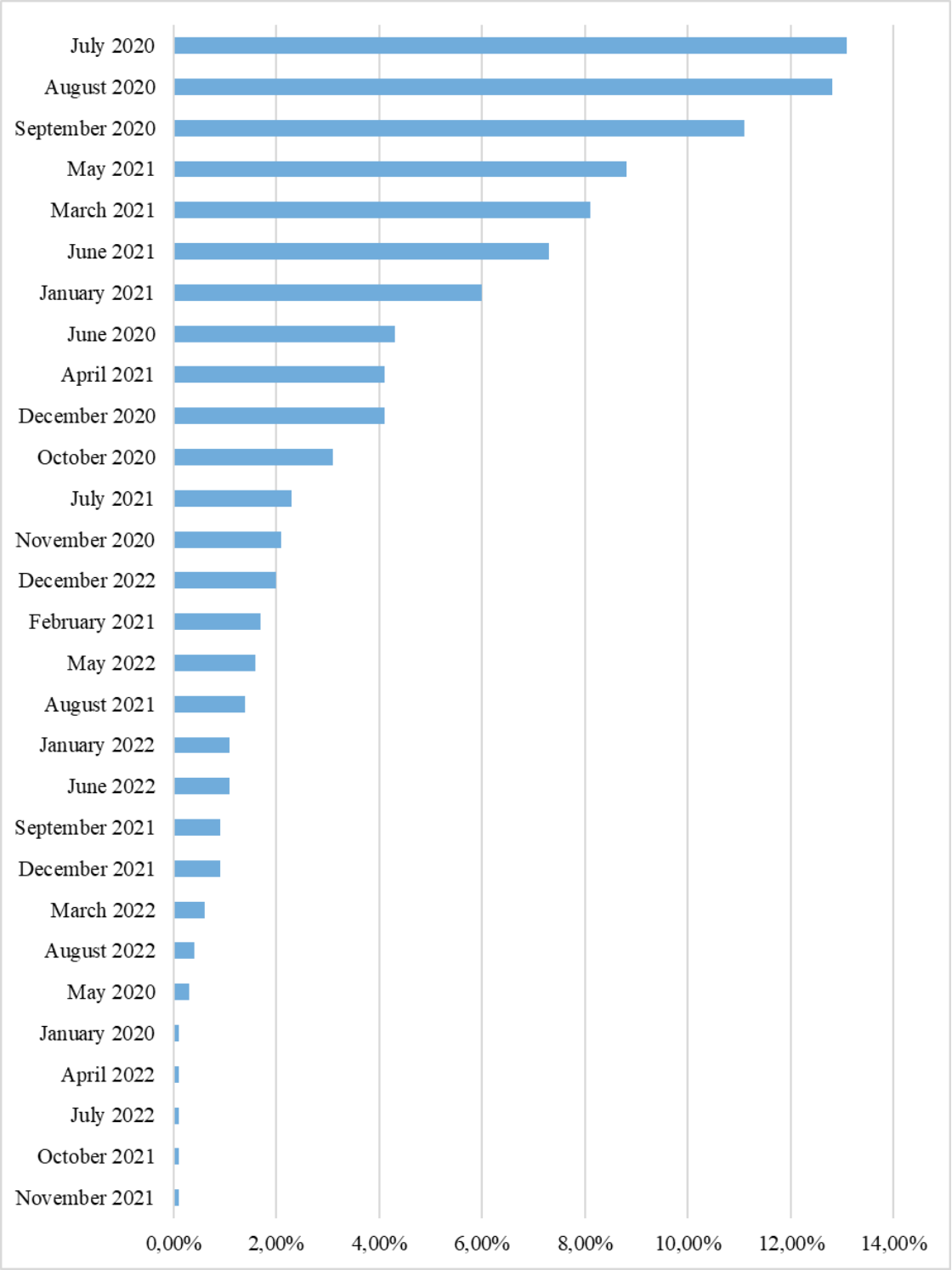
Following closely behind are the outlooks for August 2020 and September 2020, capturing the sentiments of 12.8% and 11.1% of respondents, respectively. This clustering of expectations in the late summer and early fall of 2020 underscores the prevailing hope for a rapid recovery, possibly driven by the anticipation of better conditions during these months.

Furthermore, the data highlights the significance of May 2021 as another notable point of expectation. This suggests that a substantial portion of respondents held the belief that the arrival of warmer weather might play a pivotal role in containing the virus's spread, leading to a return to normality by that time.

In essence, the findings from Figure 19 reveal that the majority of respondents held a positive outlook, with a notable concentration of expectations centered on the mid to late summer of 2020 and the potential influence of seasonal factors in mitigating the pandemic's impact. This optimism, as reflected in the survey results, underscores the profound influence of hope and anticipation in times of uncertainty. It also provides valuable insights into the collective mindset during this challenging period, as individuals aimed to envision a brighter and more predictable future.

Figure 19: When we will return to the old routine (n=702)

When do you expect the current situation to return to normal?



Note. Self-edit.

The subsequent inquiry in the survey aimed to gain insights into the typical purposes for which respondents had traveled in the three years leading up to the onset of the

coronavirus crisis. Furthermore, it sought to uncover their travel intentions for the year that followed. The revealing results are presented in Table 4, which provides valuable context on how travel behaviors and intentions have evolved.

One prominent trend that emerges from the data is a significant decline of 22.7 percentage points in attending concerts, sports events, and exhibitions. This sharp decrease underscores the profound impact of the pandemic on leisure and entertainment travel.

Conversely, there is a notable upswing in activities such as hiking and excursions, which increased by 7.7 percentage points, as well as visiting relatives and friends, which saw a 7.5 percentage point increase. These findings suggest that during the pandemic, people sought more localized and outdoor experiences, often prioritizing connections with loved ones and nature over larger-scale events and gatherings.

While there is a significant decline in the case of religious trips, it's worth noting that this category involved a relatively low number of instances, which can sometimes distort the overall results. However, it's plausible to speculate that concerns related to health and safety played a role in this decline.

Another noteworthy observation is the substantial 18% drop in the motivation for business trips. This decline can be attributed to various factors, including the accelerated adoption of digital technology, which enabled remote work and reduced the necessity for physical presence at business meetings. Additionally, increasing travel costs and the risks associated with health and safety concerns, along with changing financial circumstances for companies, likely contributed to this decrease. The latter may stem from apprehensions or uncertainties related to changes in a company's financial stability, which can impact travel budgets and plans.

In summary, Table 4 offers a comprehensive view of how travel purposes and intentions have shifted in response to the challenges posed by the coronavirus crisis. It highlights the resilience of outdoor and family-focused activities, the profound impact on leisure and entertainment travel, and the transformation of business travel in light of digital advancements and economic uncertainties. These findings provide valuable insights into the complex dynamics shaping the travel landscape during this unprecedented period.

Table 4: Travel purposes in the 3 years before the COVID-19 crisis and the subsequent year (n=736)

Typical purposes of your travels in the 3 years before the COVID-19 crisis and typical purposes of your travels in the 1 year after (considering both domestic and foreign, one-day and multi-day trips)? Please select the top three that apply to you!

Travel purpose	In the 3 years before the Covid-19	1 year after the Covid-19	Percentage change
Vacation, holiday	573	551	-3.9%
Sightseeing, touring	362	348	-3.9%
Hiking, trekking	309	333	+7.7%
Recreation, health or wellness	254	254	0%
Visiting relatives and friends	212	228	+7.5%
Concert, sports event, exhibition visit	84	65	-22.7%
Sports (e.g., skiing, diving, mountain climbing)	56	60	+7.1%
Business trip	55	45	-18.2%
Other[1]	18	14	-22.3%
Religious purpose	10	6	-40%
I do not plan to travel	there was no such option	11	-

Note. Self-edit[5].

In our online questionnaire survey, we asked participants about the online tourism services they have employed in the past three years and since the outbreak of the

[5] In the three years before the COVID-19 crisis and the year following it (with the same responses): I met my partner, attended weddings, and visited our own holiday home.

coronavirus. The results, presented in Table 5, offer a comprehensive perspective on the evolving patterns of engagement with online tourism.

One of the most noteworthy findings in the data is the substantial rise in virtual visits to museums and exhibitions, which experienced a remarkable increase of 36.4 percentage points. This significant upturn highlights how individuals adjusted to travel restrictions and social distancing measures. Faced with limited physical access to cultural institutions, virtual platforms emerged as a practical alternative, allowing enthusiasts to explore art and history safely and conveniently from their homes. This trend represents a dynamic shift towards online cultural experiences, influenced by both necessity and convenience.

Conversely, not all online tourism services enjoyed a notable increase in popularity following the pandemic. For instance, watching travel films saw a decline in popularity, with a decrease of 7.8 percentage points. This decline may be attributed to various factors, including changing priorities during the crisis, reduced leisure time, or a shift in preferences towards more interactive and immersive forms of virtual travel experiences.

In essence, Table 5 reveals the subtle shifts in online tourism consumption habits brought about by the pandemic. It highlights the resilience of the tourism industry in adapting to the digital landscape, while also recognizing that certain forms of virtual travel engagement may decline in popularity as travelers explore new and captivating ways to satisfy their profound passion for travel in an evolving global context. These findings provide valuable insights into the changing dynamics of the tourism sector in response to unprecedented challenges.

Table 5: Online tourism services used in the last 3 years and since the outbreak of the coronavirus (n=736)

Which of the following online tourism services have you used in the last 3 years and since the outbreak of the coronavirus? You can mark more!

Tourism services requested	In the last 3 years	Since the coronavirus outbreak	Percentage change
I didn't use such services	380	396	+4.2%
Watching travel films	244	225	-7.8%
Virtual tours at a tourist location	101	118	+16.8%

Virtual visits to museums and exhibitions	96	131	+36.4%
Online culinary workshops, webinars	54	57	+5.5%
Other[6]	11	11	0%
Virtual wine tasting	10	13	+30%
Watching VR videos with a VR headset	5	6	+20%

Note. Self-edit.

Following this, participants in the survey were questioned about their intentions regarding the use of online tourism services like those mentioned during the COVID-19 crisis, especially when traditional travel options remain limited. The insights derived from these queries are illustrated in Figure 20, offering a glimpse into the attitudes and preferences of the respondents.

A significant majority, comprising 52.5% of the participants, indicated that they do not intend to use such services in the future. Their reasoning is rooted in the belief that virtual experiences do not truly substitute for actual participation. Instead, they express a preference for patiently awaiting the opportunity to engage physically once again in these activities. This response mirrors the sentiment held by many who highly value the authenticity of real-world travel experiences and are willing to abstain from digital alternatives until travel conditions return to normal.

This finding underscores the lasting attraction of physical travel experiences and the intrinsic value that individuals associate with the tangible and engrossing aspects of exploration. It also suggests that while online tourism services have found a niche in response to the constraints of the pandemic, they may not entirely supplant the desire for in-person travel experiences among a substantial portion of travelers.

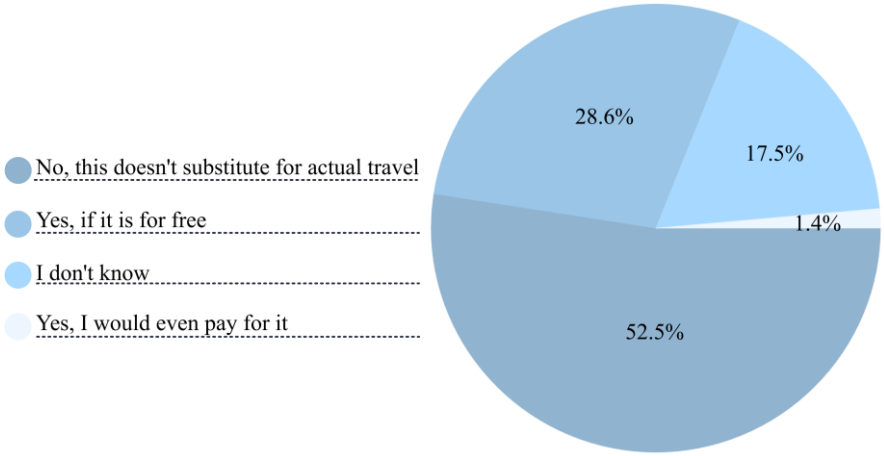
In summary, Figure 20 provides valuable insights into the complex interplay between digital and physical travel experiences, with a significant segment of respondents

[6] Other in the past three years included: using Google Earth, reading articles, following bloggers, planning and booking travel, attending OLO webinars, and watching YouTube videos.

expressing a strong preference for the latter. It highlights the enduring appeal of traditional travel and the eager anticipation of a return to pre-pandemic travel conditions, providing insight into the deep connection individuals have with genuine travel adventures.

Figure 20: Use of online tourism services during the coronavirus crisis (n=702)

Do you plan to use online tourism services, such as the above-mentioned, during the coronavirus crisis while your travel options are limited? Please, select the statement that best applies to you at the moment.

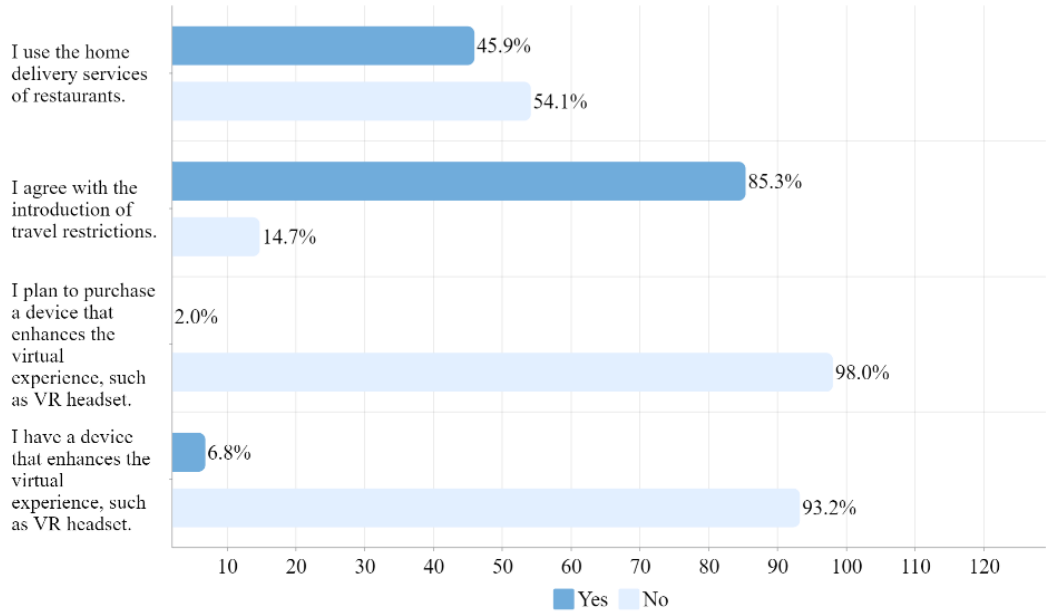


Note. Self-edit.

In the questions that followed, we aimed to gain insight into the respondents' perspectives on the current situation. Respondents were presented with binary options of "Yes" or "No," and the results are depicted graphically in Figure 21. These results reveal a clear majority of individuals supporting the implementation of travel restrictions. However, it is noteworthy that only a small minority either currently own or plan to acquire devices aimed at enhancing the virtual travel experience. This aligns with our earlier findings, which indicate that virtual solutions are not perceived as a complete substitute for traditional travel experiences.

Figure 21: The ratio of yes/no responses to the statements (n=702)

Do you agree with the following statements?



Note. Self-edit.

Respondents were then asked to indicate the degree to which they could relate to the statements. They were provided with a scale of 1 to 5, where 1 represented strong disagreement and 5 represented strong agreement. The results of this evaluation are summarized in Figure 22.

A noteworthy discovery is a substantial agreement among respondents in their consistent efforts to stay informed about travel restrictions through national press sources or the websites of tourism providers and destinations. This heightened awareness aligns with the increased emphasis on safety and regulations during the pandemic, underscoring the significance of staying up-to-date on travel-related information.

In contrast, responses showed a lower level of agreement with the statement indicating increased interest in virtual/digital tourism opportunities in the currently changing landscape. This finding is consistent with previous questions and suggests that although virtual solutions play a role in overcoming travel barriers, they have not entirely replaced the appeal of traditional travel experiences for a significant proportion of respondents.

As can be seen in Figure 22, respondents' attitudes and behaviors related to travel and lifestyle have been significantly impacted by the COVID-19 pandemic and associated restrictions.

The majority of respondents (26.9%) strongly agree (rated 5) with the statement that they are interested in visiting nearby recreational and relaxation destinations more after the pandemic. A substantial portion of respondents (22.3%) also agree (rated 4).

A significant number of respondents (26.9%) strongly agree (rated 5) that they feel their lives have become dull because of travel restrictions. Another substantial portion (20.9%) agree (rated 4).

A majority (34.2%) strongly agree (rated 5) that confinement has strengthened their belief that travel is an essential part of their quality of life. About 22.7% agree (rated 4).

The statement regarding being more conscious of spending during this time received mixed responses, with respondents distributed across various ratings.

A significant portion (36.4%) strongly agrees (rated 5) that they regularly check national press and tourism websites for travel restrictions. Others also showed awareness (19.3% agree - rated 4).

Respondents expressed a desire for restaurant visits after the pandemic, with 24.0% strongly agreeing (rated 5) that they miss visiting such establishments.

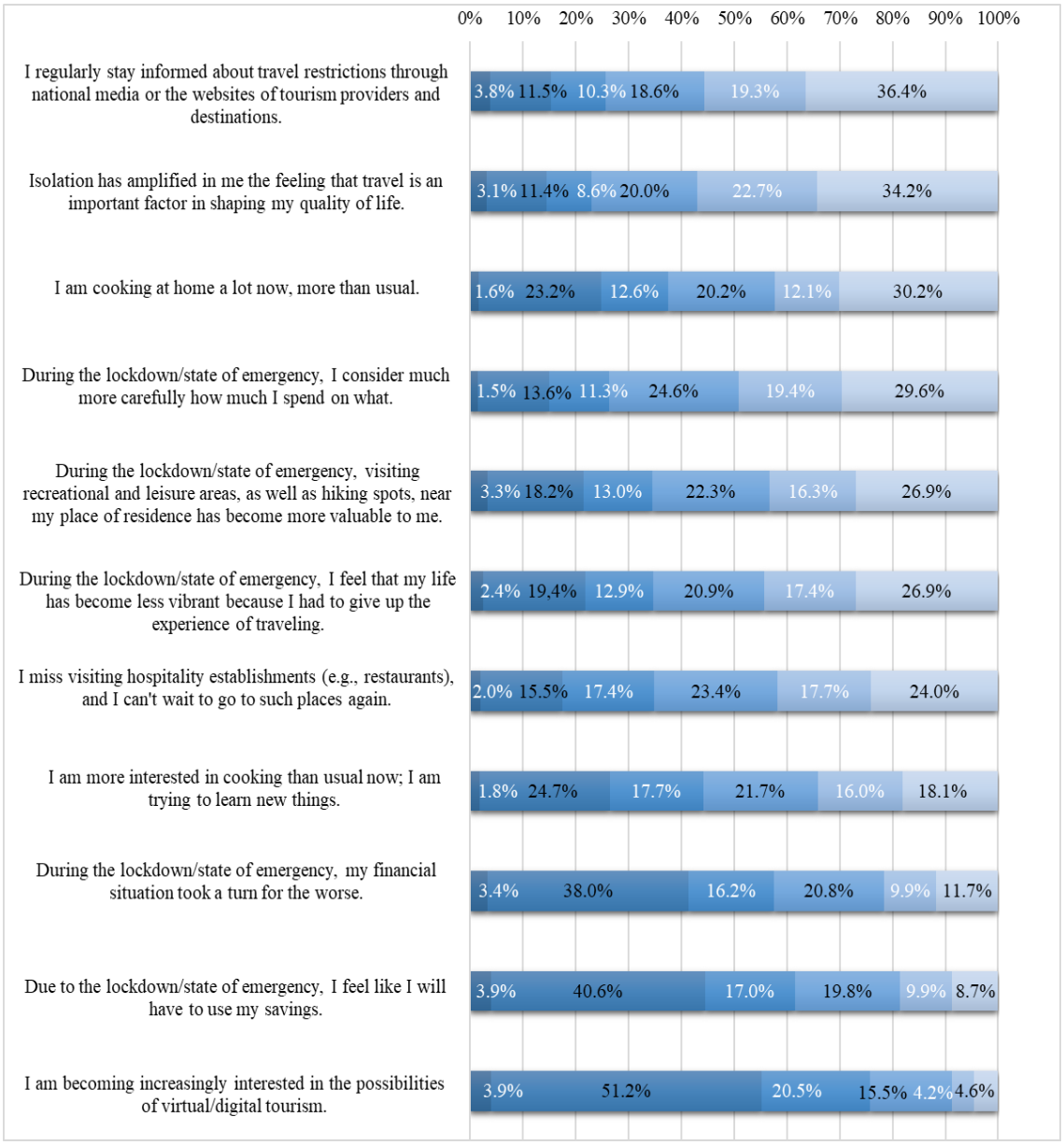
A substantial number (30.2%) strongly agree (rated 5) that they are cooking at home more than usual during the pandemic. Many respondents (24.7%) strongly agree (rated 5) that they are now more interested in cooking and trying to learn new things.

These responses collectively indicate that the pandemic has led to various shifts in behavior and attitudes toward travel, leisure activities, and daily routines. While some individuals are eager to resume travel and dining out, others have become more focused on home-based activities like cooking.

Additionally, financial consciousness and awareness of travel restrictions have increased among respondents. These findings reflect the diverse impacts of the pandemic on individuals' lifestyles and preferences.

Figure 22: To what extent can the respondents identify with the statements (part 1, scale 1-5, n=736)

How applicable are the following statements to you? Please rate them on a 5-point scale, where 1 indicates strong disagreement and 5 indicates strong agreement.

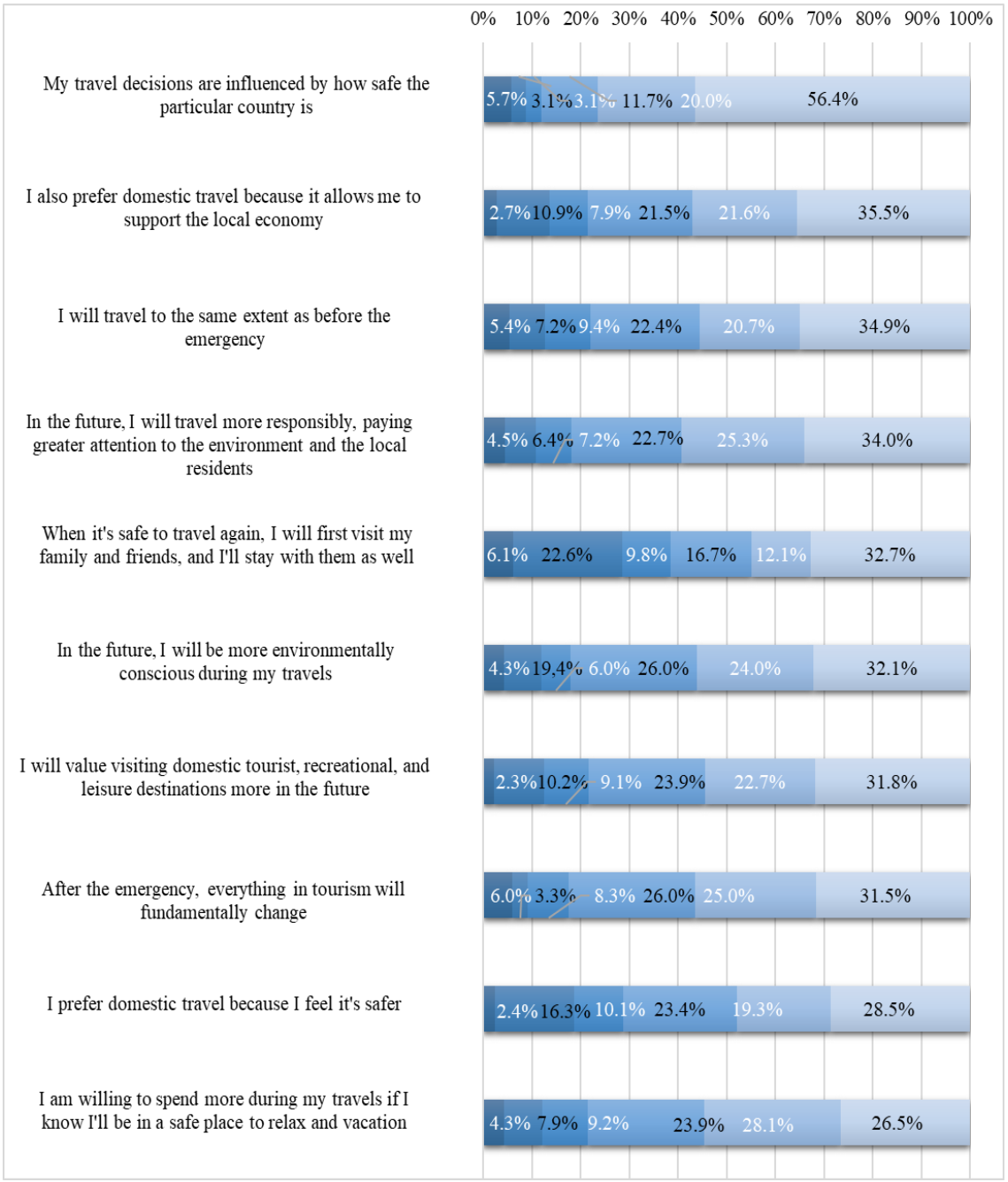


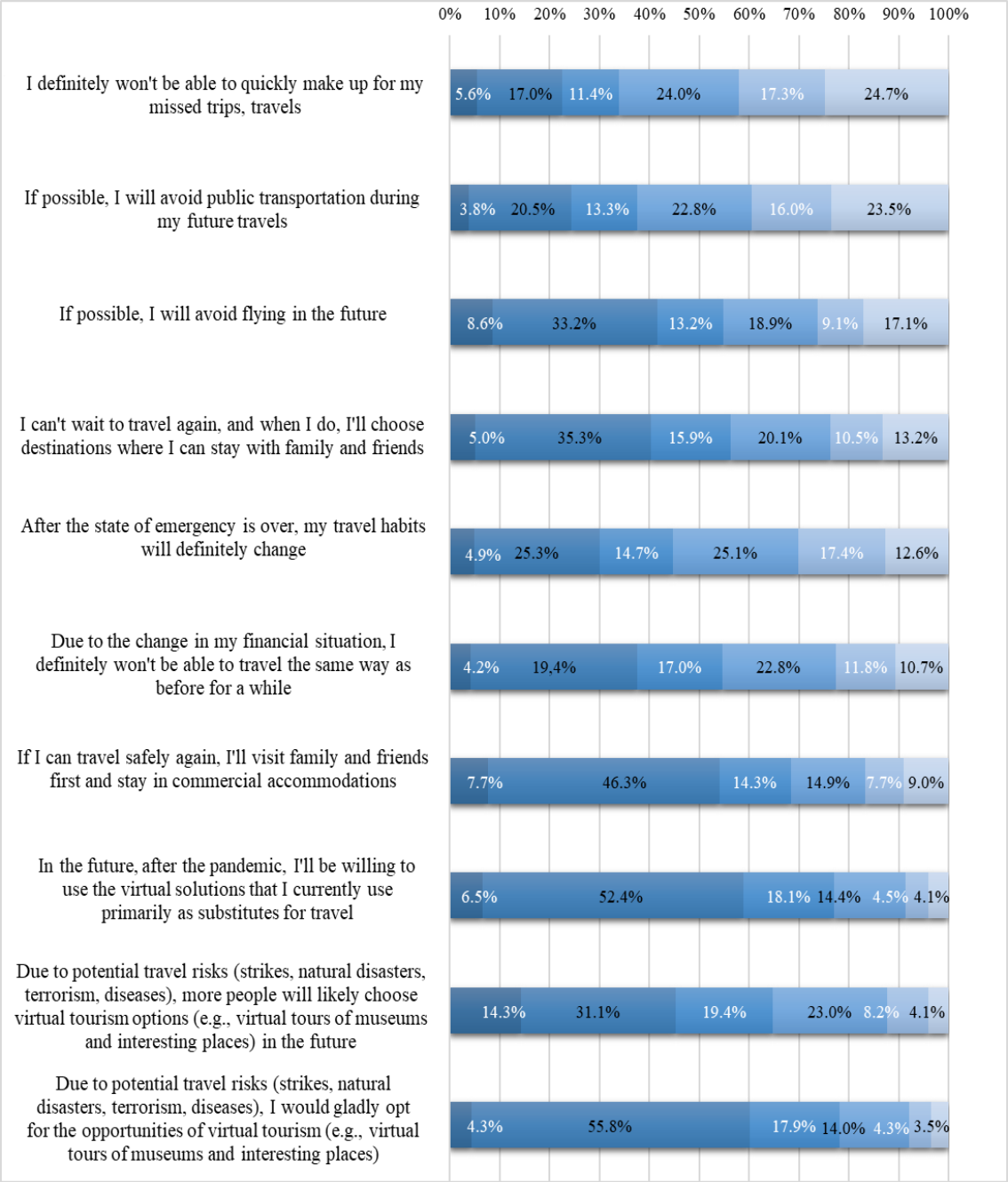
Note. Self-edit.

The next question aimed to assess the level of optimism among participants in the online questionnaire survey regarding the period following the crisis. The results are illustrated in Figure 23.

Figure 23: To what extent can the respondent identify with the statements (part 2, scale 1-5, n=736)

Let's assume that the current emergency ends and everything goes back to normal. To what extent do the following statements apply to you? Please indicate on a scale of 5, where 1 means you strongly disagree and 5 means you strongly agree.





Note. Self-edit.

The responses showed a significant financial concern among respondents. Over one-third (33.4%) strongly agreed that their financial situation would affect their ability to travel as they did before. This suggested that economic considerations would play a pivotal role in shaping travel decisions in the post-pandemic world.

A considerable number of respondents (24.7%) strongly agreed that they wouldn't be able to quickly make up for missed travel experiences. This highlighted the realization that

catching up on missed travel may not have been as straightforward as one would hope, indicating potential long-term changes in travel patterns.

Approximately one-quarter (25.3%) of respondents strongly agreed that their travel habits would change after the emergency ended. This suggested that a substantial portion of the population expected long-lasting impacts on their travel behavior as a result of the pandemic.

When it came to avoiding certain modes of travel, the majority of respondents expressed a desire to reduce air travel. Nearly one-third (33.2%) strongly agreed with this statement. Similarly, a significant number (23.5%) strongly agreed intending to avoid public transportation. These findings indicated potential challenges for the aviation and public transport industries in the post-pandemic era.

Environmental awareness appeared to have been on the rise among respondents. Over one-third (32.1%) strongly agreed that they would be more environmentally conscious in their future travels. This shift might have influenced travel choices and contributed to sustainable tourism practices.

A substantial majority (35.5%) strongly agreed that they preferred domestic travel to support their local economy and tourism industry. This highlighted a sense of responsibility and a willingness to contribute to the recovery of the domestic tourism sector.

Safety remained a critical factor in travel choices. More than half (56.4%) of respondents strongly agreed that the safety of a destination significantly influenced their travel choices. This underscored the importance of clear safety measures and communication for the tourism industry.

The majority (28.1%) strongly agreed that they were willing to spend more on accommodations if they were assured of safety. This suggested that travelers prioritized safety and were willing to invest in it.

A significant number of respondents (52.4%) strongly agreed that they were interested in using virtual solutions for tourism purposes. This indicated a growing interest in virtual tourism experiences, particularly for exploring museums and interesting places virtually.

A notable portion (31.5%) strongly agreed that they expected fundamental changes in the tourism industry post-emergency. This expectation reflected the recognition of a potential paradigm shift in the travel and tourism sector.

Around one-third (32.7%) strongly agreed that they preferred staying with family and friends during travel to reduce costs. This suggested a practical approach to cost-saving while maintaining social connections during trips.

In summary, these analyses of Likert-scale responses revealed that respondents were highly sensitive to financial considerations and safety concerns. Many anticipated lasting changes in their travel habits and expressed a strong interest in supporting domestic tourism and sustainable travel practices. Additionally, the potential growth of virtual tourism experiences underscored the need for the tourism industry to adapt to evolving consumer preferences.

3.1.3. Understanding travel behavior in early 2020: a factor analysis of COVID-19's first wave impact

While an overview of the above statements (Figure 22-23.) can be obtained using means and variances, grouping these variables into categories would greatly simplify the analysis. Due to the focus of the current research on examining the impact of the COVID-19 pandemic on travel habits, statements related to hospitality and home cooking were excluded from the factor analysis. Consequently, the research continued with the analysis of 28 variables.

I first examined whether our sample met the prerequisites for factor analysis. According to Sajtos & Mitev (2007), a minimum sample size of 50–100 units is required, and our sample of 736 respondents met this criterion. The literature suggests that the number of respondents should be five to ten times greater than the number of variables. Since I included 28 variables in this research, this condition is also met. Another necessary condition for factor analysis is the use of metric variables, which is also satisfied in our case, as we measured our variables on a five-point Likert scale (Sajtos & Mitev, 2007). Since the goal of factor analysis was to reduce the number of variables with minimal information loss, I conducted a principal component analysis with varimax rotation.

The varimax rotation maximizes the variance explained by the factors, which serves to simplify the factor matrix. In other words, it looks for variable-factor pairs that are either highly correlated or not correlated at all. According to the literature, varimax rotation is

more stable and better separates factors compared to other procedures, which aids in the interpretation of the factors (Sajtos & Mitev, 2007). The Kaiser-Meyer-Oklin (KMO) and Bartlett's Test is used to test the suitability of data for factor analysis. KMO value was 0.819 exceeding the recommended value of 0.70 which can be considered adequate (Kaiser & Rice, 1974) while Bartlett's Test of sphericity reached statistical significance (Approx. chi-square 4090.80, df 378 and Sig .000) which signifies the data is good for conducting factor analysis (see Table 6).

Table 6: KMO and Bartlett's test for the 2020 research

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.819
Bartlett's Test of Sphericity	Approx. Chi-Square	4090.80
	df	378
	Sig.	.000

Note. Self-edit.

Following the exploratory factor analysis, I removed variables one by one from the analysis: those with very low factor loadings (below 0.5) and those with high cross-loadings, where the secondary factor loading reached at least half of the primary factor loading (Hair et al., 2014). Finally, I obtained a factor structure consisting of 7 factors and 18 items, with Eigen values exceeding 1. The total percentage of variance is 72.44, representing a very good result. Factors 1, 2, and 3 cumulatively explain 46.04% of the variance, factors 4 and 5 explain 8.24%, and factors 6 and 7 explain 26.99% for a total of 72.44% explained variance. I illustrated the factor loadings of the individual statements in Table 7.

Table 7: Factor loadings of the individual statements for the 2020 research

Statement	Factor 1.	Factor 2.	Factor 3.	Factor 4.	Factor 5.	Factor 6.	Factor 7.
In the future, after the pandemic, I'll be willing to use the virtual solutions that I currently use primarily as	0.874						

substitutes for travel.							
Due to potential travel risks (strikes, natural disasters, terrorism, diseases), I would gladly opt for the opportunities of virtual tourism (e.g., virtual tours of museums and interesting places).	0.833						
I am becoming increasingly interested in the possibilities of virtual/digital tourism.	0.785						
Due to potential travel risks (strikes, natural disasters, terrorism, diseases), more people will likely choose virtual tourism options (e.g., virtual tours of museums and interesting places) in the future.	0.741						
During the lockdown/state of emergency, my financial situation took a turn for the worse.		0.885					
Due to the lockdown/state of emergency, I feel like I will have to use my savings.		0.837					
Due to the change in my financial situation, I definitely won't be		0.776					

able to travel the same way as before for a while.							
Isolation has amplified in me the feeling that travel is an important factor in shaping my quality of life.			0.821				
During the lockdown/state of emergency, I feel that my life has become more barren because I had to give up the experience of traveling.			0.786				
I regularly stay informed about travel restrictions through national media or the websites of tourism providers and destinations.			0.706				
I also prefer domestic travel because it allows me to support the local economy.				0.882			
I will value visiting domestic tourist, recreational, and leisure destinations more in the future.				0.844			
In the future, I will travel more responsibly, paying greater attention to the environment and the residents.					0.866		
In the future, I will be more environmentally					0.841		

conscious during my travels.							
When it's safe to travel again, I will first visit my family and friends, and I'll stay with them as well.						0.845	
I can't wait to travel again, and when I do, I'll choose destinations where I can stay with family and friends to save money.						0.766	
If possible, I will avoid public transportation during my future travels.							0.830
If possible, I will avoid flying in the future.							0.756

Note. Self-edit.

Checking the internal reliability of the factors, I used three indicators: Cronbach's alpha, the composite reliability, and the average variance extracted (see Table 8). For Cronbach's alpha and the composite reliability, the expected minimum value was 0.70, while for the average variance extracted, the same threshold of 0.50 was applied (Hair et al., 2014).

Analyzing the composition of the factors, the content of the factors is as follows:

Factor 1: Attitude towards virtual solutions

This factor represents the inclination to explore virtual or digital tourism. Variables such as "Interest in virtual/digital tourism" and "Preference for virtual tourism due to potential travel risks" strongly load on this factor. Individuals who score high on this factor are likely open to exploring digital travel alternatives and have concerns about travel risks.

Factor 2: Concerns related to the financial situation

This factor is associated with the financial impact of the COVID-19 pandemic. Variables like "Negative change in financial situation during lockdown" and "Expectation of

diminishing savings during lockdown" have high loadings. People with high scores on this factor feel that their financial situation was negatively affected by the pandemic and are concerned about diminishing their savings.

Factor 3: The impact of travel on subjective quality of life

This factor is linked to how individuals perceive travel as an essential contributor to their life quality. Variables like "Travel as a determinant of life quality" strongly load on this factor. People with higher scores on this factor consider travel a crucial aspect of their life quality.

Factor 4: Local patriotism (preference for domestic travel)

Factor 4 relates to future travel intentions and preferences. Variables like "Traveling domestically to support the local economy" and "Visiting family and friends post-pandemic" are key indicators. Those scoring high on this factor are likely to prioritize domestic travel to support their local economy and plan to visit family and friends.

Factor 5: Sustainability

This factor represents adaptability to changes in travel behaviors. It's influenced by variables such as "Being more environmentally conscious while traveling" and "Traveling more responsibly." People with high scores on this factor are inclined to adopt more responsible and environmentally friendly travel practices.

Factor 6: Visiting family and friends as a travel motivation

This factor is related to the anticipation of travel post-pandemic. Variables like "Excitement about future travel" and "Preferring accommodation with friends or family for cost savings" are significant here. Those with higher scores on this factor look forward to traveling in the future and seeking cost-effective accommodation options.

Factor 7: Willingness to use public transportation

Factor 7 represents individuals who score high on this factor and express a willingness to avoid public transportation as well as air travel during their future travels.

Table 8: Internal reliability of the created factors for the 2020 research

Factor	Cronbach alfa	Composite reliability (CR)	Average variance extracted (AVE)
Attitude toward virtual solutions	0.84	0.88	0.65
Concerns related to the financial situation	0.80	0.87	0.69
The impact of travel on subjective quality of life	0.66	0.81	0.59
Local patriotism (preference for domestic travel)	0.74	0.85	0.74
Sustainability	0.78	0.84	0.72
Visiting family and friends as a travel motivation	0.60	0.78	0.64
Willingness to use public transportation	0.54	0.77	0.62

Note. Self-edit.

While in the case of factor 3 (the impact of travel on subjective quality of life), factor 6 (visiting family and friends as a travel motivation), and factor 7 (willingness to use public transportation) the value of Cronbach's alpha is lower than the acceptable threshold of 0.7. However, Cronbach's alpha is highly sensitive to the number of variables included, so the reliability indicators, composite reliability (CR), and average variance extracted (AVE) are considered more reliable (Christmann & Aelst, 2006, cited in Csóka, 2021).

3.1.4. Identifying distinct consumer groups in the wake of COVID-19 through cluster analysis

In this subchapter, I am testing the following hypothesis related to the first research question:

Hypothesis 1: The COVID-19 pandemic has led to significant variations in consumer groups about travel behavior.

The k-means cluster analysis method proved to be the most effective solution for examining the impact of the COVID-19 pandemic on travel behavior and forming distinct consumer groups when considering the sample size (Hair et al., 2014). However, before that, a hierarchical cluster analysis was conducted to determine the ideal number of groups. The dendrogram inspection allowed me to identify that the biggest increase in the distance between clusters existed between clusters 4 and 5, thus highlighting that the five cluster-based solution was able to create homogeneous groups. An ANOVA test (p-value < 0.000) confirmed this finding. Factors 3, 4, 6, and 7 did not have much discriminatory power when it came to clustering. In other words, they failed to effectively differentiate data points into distinct clusters.

Therefore, by including the following three factors, the consumer groups were determined:

- Attitudes towards virtual solutions
- Concerns related to the financial situation
- Sustainability

Respondents who did not respond promptly (n=260) were excluded from the sample to avoid bias. A series of chi-square tests ($\chi 2$) were conducted. to compare observed results with expected results (Franke et al., 2011).

$$\chi 2 = \sum(Oi - Ei)2/Ei$$

Where:

- $\chi 2$ is the chi-square test statistic
- Σ is the summation operator (it means “take the sum of”)
- O is the observed frequency

- E is the expected frequency

Pearson's chi-square test may be an appropriate option if:

- You want to test a hypothesis about one or more categorical variables[7].
- The sample was randomly selected from the population.
- There are a minimum of five observations expected in each group or combination of groups.

In this case, all three conditions are met, therefore the use of Pearson's chi-square tests is justified. Significant differences were reported (p-value < 0.05) to exist among clusters based on gender, age categories, education level, and income (See Table 9).

Table 9: Chi-squared tests for the 2020 research

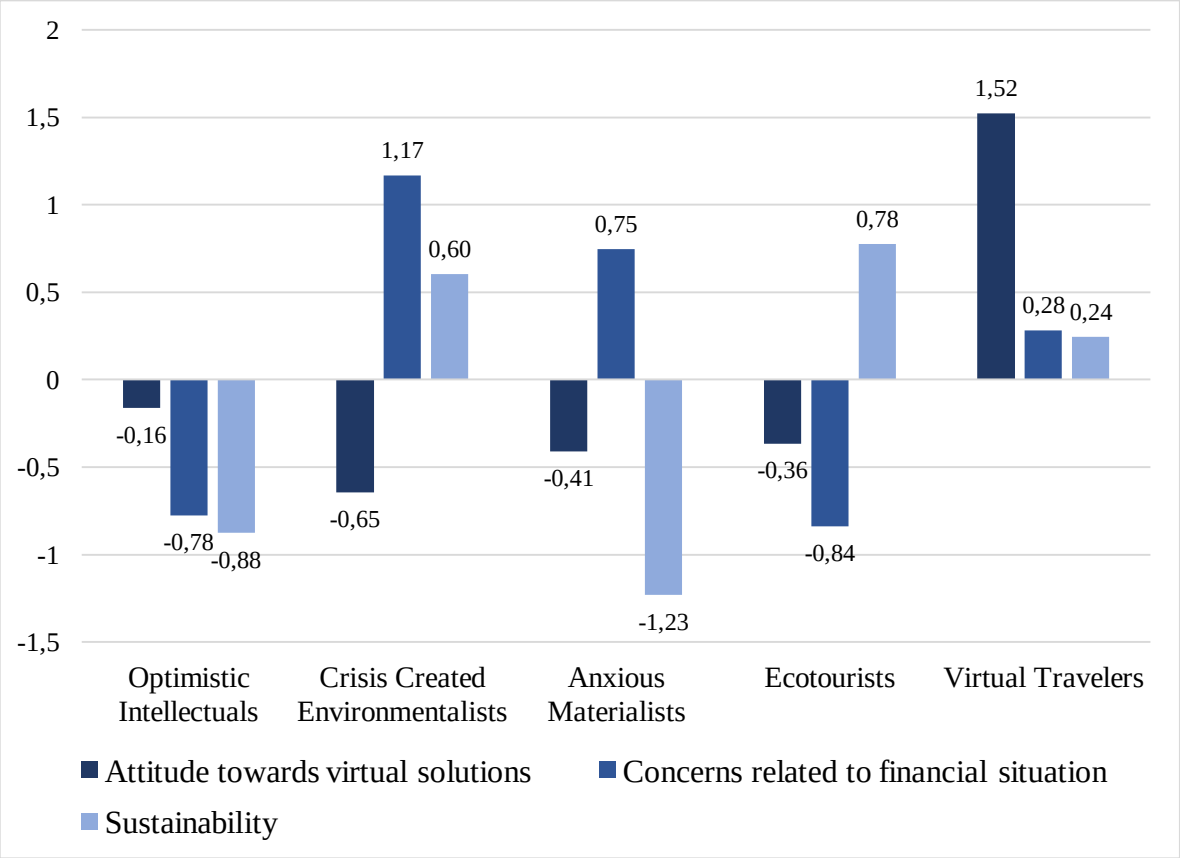
	Chi-squared	**p-value**
Gender	14.041	0.007
Age categories	33.407	0.030
Education level	42.401	0.040
Financial situation	52.514	0.000

Note. Self-edit.

I named the formed groups based on their characteristics and illustrated them in Figure 24.

[7] Categorical variables represent types of data which may be divided into groups. Examples of categorical variables are race, gender, age group, educational level or financial situation.

Figure 24: Homogeneous groups formed through cluster analysis 2020



Note. Self-edit.

Optimistic Intellectuals (21.6%)

In this cluster, characterized as "Optimistic Intellectuals," we find a diverse mix of individuals. This group displays a relatively smaller rejection of virtual solutions as a means of replacing traditional travel. Notably, they report no significant concerns regarding their financial situation during the pandemic. This group has the highest proportion of men, with a higher percentage holding higher education degrees and earning an average or above-average income. Members of this cluster represent various generational backgrounds. While they are less resistant to virtual solutions, they still maintain a degree of skepticism concerning sustainability.

Crisis-created Environmentalist (18.9%)

The "Crisis-created Environmentalist" cluster exhibits the strongest rejection of virtual solutions for travel, viewing them as less favorable replacements. These individuals express substantial concerns about their financial situation during the pandemic, characterized by high financial anxiety. This group is predominantly feminine, with a

higher proportion holding secondary education degrees and earning lower-than-average incomes. Members of this cluster primarily belong to the middle and older generations and demonstrate strong support for sustainability measures.

Anxious Materialists (13.8%)

The "Anxious Materialists" cluster consists of individuals with a moderate rejection of virtual solutions for travel, indicating a degree of hesitance but not complete aversion. They express moderate concerns about their financial situation during the pandemic. The proportion of men is high in this group, with a higher percentage having university degrees, earning average incomes, and belonging to the middle generation. Members of this cluster also display resistance toward sustainability measures.

Ecotourists (25.4%)

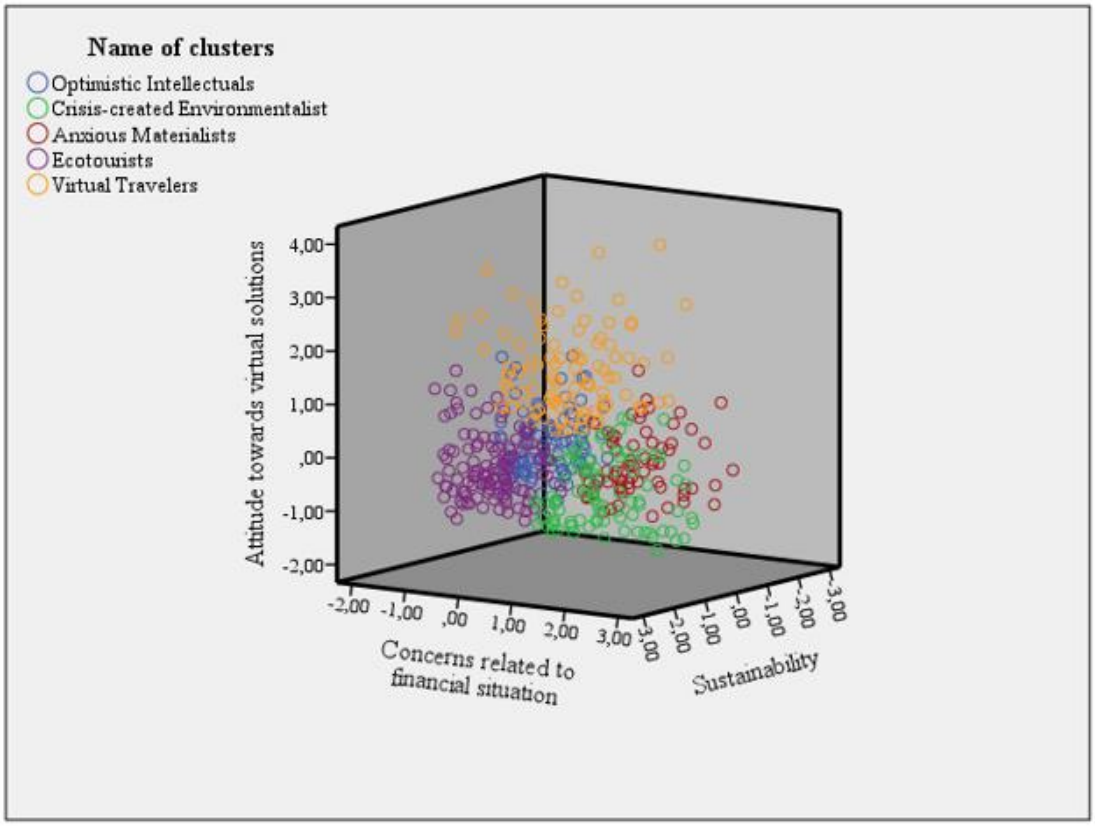
In the "Ecotourists" cluster, I find individuals with a moderate rejection of virtual travel solutions. However, they report no significant concerns about their financial situation during the pandemic. Predominantly composed of females with the highest proportion of individuals holding university degrees and earning above-average incomes, this group primarily represents younger and middle-aged generations. Members of this cluster are notably supportive of sustainability measures and practices.

Virtual Travelers (20.1%)

The "Virtual Travelers" cluster exhibits a positive attitude toward virtual travel solutions, considering them as viable and even preferable options. These individuals express only slight concerns about their financial situation during the pandemic. This cluster is mainly feminine, and the highest educational level in the group is quite diverse, with the majority having a university degree, a higher proportion of average or below-average incomes, and a higher representation of the older generation. Members of this cluster are also supportive of sustainability initiatives.

Each cluster is named based on their predominant characteristics and behaviors regarding attitudes toward virtual solutions, concerns about financial situations, and their stance on sustainability (see Figure 25).

Figure 25: 3D representation of the clusters (2020)



Note. Self-edit using SPSS.

3.1.5. Assessing post-pandemic travel plans: the role of financial concerns and quality of life in domestic and international trips

In this subchapter, I am testing the following hypotheses related to the second research question:

Hypothesis 2.1: There is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.

Hypothesis 2.2: There is a significant relationship between the number of international trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.

I used multiple regression to test these hypotheses. This statistical method attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data.

Ordinal logistic regression may be an appropriate option if:

- the dependent variable measured on a continuous scale,
- two or more independent variables, which can be either continuous or categorical,
- we should have independence of observations,
- there needs to be a linear relationship between the dependent variable and each of the independent variables,
- the data needs to show homoscedasticity,
- there is no multicollinearity,
- there are no significant outliers, high leverage points or highly influential points,
- the residuals (errors) are approximately normally distributed.

The multiple regression model can be defined as:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \ldots + \beta_p x_{ip} + \epsilon$$

where, for i=n observations: y_i represents the dependent variable, x_i denotes the explanatory variables, β_0 is the y-intercept (constant term), β_p are the slope coefficients for each explanatory variable, and ϵ represents the model's error term (also known as the residuals) (Uyanık & Güler, 2013).

3.1.5.1. Domestic travel insights

The multiple regression model was developed to predict the dependent variable (Y), which is the number of domestic trips planned for 2021, using the independent variables X_1 = concerns related to the financial situation and X_2= the impact of travel on subjective quality of life. The significance of the regression coefficients is tested using t-test. The results are presented in Table 10.

Table 10: T-test results for partial regression coefficients in domestic travel model

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Standard error			
Constant	4.578	0.115		39.669	0.000
X1	-0.030	0.116	-0.012	-0.261	0.794
X2	0.275	0.117	0.110	2.348	0.019

Note. Self-edit.

The model explains only 1.2% of the variance in the number of expected trips (R^2 = 0.012), indicating a weak explanatory power. The Durbin-Watson statistic (1.750) suggests that there is no significant autocorrelation in the residuals of the model (Table 11).

Table 11: Model summary for domestic travel regression

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	0.111	0.012	0.008	2.45128	1.750

Note. Self-edit.

The regression model is not statistically significant (p = 0.063), implying that the predictors together do not explain a significant amount of variance in the number of expected trips post-pandemic (Table 12).

Table 12: One-way ANOVA results for domestic travel model

Model	Sum of squares	df	Mean square	F	Sig.
Regression	33.516	2	16.758	2.789	0.063
Residual	2697.944	449	6.009		
Total	2731.460	451			

Note. Self-edit.

Concerns related to the financial situation (X_1) do not significantly affect the number of expected trips (B = -0.030, p = 0.794). This indicates that financial concerns, possibly exacerbated by the pandemic, are not a significant determinant in domestic travel plans for 2021.

The impact of travel on subjective quality of life (X_2) has a positive and significant effect (B = 0.275, p = 0.019). This suggests that individuals who perceive travel as significantly enhancing their quality of life are more likely to plan domestic trips, even in the context of the pandemic recovery.

The pandemic's impact on financial concerns does not significantly deter people from planning trips domestically, suggesting that other factors, such as a desire to return to

normalcy or the perceived importance of travel for well-being, might play more critical roles.

The significant positive impact of travel on quality of life highlights that, after the pandemic, individuals who value travel for their well-being are keen to resume their travel plans.

Overall, while financial worries due to COVID-19 might be prevalent, they do not significantly influence travel intentions. Instead, the perceived positive effects of travel on personal well-being drive travel expectations post-pandemic.

3.1.5.2. International travel insights

The multiple regression model was developed to predict the dependent variable (Y), which is the number of international trips planned for 2021, using the independent variables X_1 = concerns related to the financial situation and X_2= the impact of travel on subjective quality of life.

The significance of the regression coefficients is tested using t-test. The results are presented in Table 13.

Table 13: Results of t test for partial regression coefficients in international travel model

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Standard error			
Constant	2.980	0.105		28.436	0.000
X1	-0.251	0.105	-0.110	-2.385	0.018
X2	0.367	0.106	0.160	3.448	0.001

Note. Self-edit.

The model explains 3.8% of the variance in the number of expected international trips ($R^2 = 0.038$), which indicates a weak relationship, though slightly stronger than the domestic travel model. The Durbin-Watson statistic (1.936) suggests that there is no significant autocorrelation in the residuals of the model (Table 14).

Table 14: Model summary for international travel regression

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	0.194	0.038	0.033	2.22573	1.936

Note. Self-edit.

The regression model is statistically significant ($p < 0.001$), implying that the predictors explain a significant amount of variance in the number of expected trips post-pandemic (Table 15).

Table 15: One-way ANOVA results for international travel model

Model	Sum of squares	df	Mean square	F	Sig.
Regression	86.700	2	43.350	8.751	0.000
Residual	2224.297	449	4.954		
Total	2310.998	451			

Note. Self-edit.

Concerns related to the financial situation has a negative and significant effect on the number of expected trips ($B = -0.251$, $p = 0.018$). This indicates that financial concerns, likely heightened by the pandemic, significantly decrease the likelihood of planning international trips.

Impact of travel on subjective quality of life has a positive and significant effect on the number of expected trips ($B = 0.367$, $p = 0.001$). This suggests that individuals who perceive travel as significantly enhancing their quality of life are more likely to plan international trips, despite the financial uncertainties brought by the pandemic.

The predicted values and residuals indicate variability in individual travel expectations, but the model's overall fit is better compared to the domestic travel model, as reflected by a lower standard deviation of residuals (2.22079) compared to the standard error of the estimate (2.22573).

Financial concerns due to COVID-19 play a significant role in reducing the number of anticipated international trips. This reflects the broader economic impact of the pandemic, where people might prioritize financial stability over travel.

Despite these financial concerns, the perceived positive impact of travel on quality of life significantly encourages people to plan international trips. This highlights a strong desire to resume normal activities and the psychological benefits associated with travel.

Overall, while COVID-19 has introduced significant financial concerns that deter international travel plans, the importance of travel for well-being motivates individuals to consider international trips once the pandemic is over.

3.1.6. Summary of the impact of financial factors and quality of life on post-pandemic travel plans

Both models have low R^2 values, indicating that the independent variables explain only a small portion of the variance in travel plans. This suggests other factors, possibly including health concerns, travel restrictions, and vaccine availability, also play crucial roles. The significant positive impact of travel on quality of life in both models underscores a common theme: the pandemic has heightened the importance of leisure and well-being activities. People are eager to resume travel to reclaim a sense of normalcy and enhance their quality of life. Financial concerns significantly deter international travel but not domestic travel. This distinction might be due to the higher costs and perceived risks associated with international trips, leading individuals to prefer closer and more manageable destinations in uncertain economic times. In summary, the COVID-19 pandemic has reshaped travel intentions, with financial concerns playing a more substantial role in international travel plans while the pursuit of well-being significantly influences both domestic and international travel decisions. The nuanced differences in the impact of financial concerns highlight the varying levels of risk and cost considerations associated with domestic versus international travel in the post-pandemic era.

3.2. Online questionnaire survey conducted during the fifth wave of the coronavirus pandemic

In the following, I present the results of a 1000-participant online survey. The survey was conducted in March 2022 to assess the actual impact of the coronavirus pandemic on travel behaviors, unlike the 2020 study that provided a comprehensive view only regarding future travel plans. This current research was supported by the EFOP-3.6.3-VEKOP-16-2017-00007 'Young Researcher from Talent - Activities Supporting Research Careers in Higher Education' project. Within this framework, participants were extensively questioned about various topics, including their opinions on investment products and home office-related attitudes, limiting the number of questions related to travel habits that could be included in the survey. Nonetheless, the results obtained are, in my opinion, worth presenting. The applied questionnaire is presented in Appendix 5.

3.2.1. Main demographic characteristics of respondents to the online survey 2022

Among the 1000 respondents, the gender split was 47.0% male and 53.0% female. Demographically, the respondents' age distribution was notable, with 46 individuals (4.6%) falling under the -24-age bracket, and the largest percentage being in the 65+ age category at 21.0%.

The majority were married (50.8%), while singles accounted for 17.8%, with an additional 18% in relationships and 8.1% divorced. About 40.8% lived in two-person households, followed by 23.3% in three-person households.

The highest education levels included 23.4% holding a university diploma and an equivalent percentage (22.8%) having a college degree. Almost half (45.0%) indicated that they could live on their income but couldn't save much, while 26.2% found it just sufficient for daily needs.

Respondents engaged in intellectual work were the highest at 39.4%, followed by 23.5% retired individuals and 20.0% in physically demanding jobs.

The distribution across various regions was diverse, with 30.0% in Central Hungary and the rest distributed across other regions.

3.2.2. Travel motivations in the aftermath of the global pandemic

The data presents a comprehensive view of how the COVID-19 pandemic has impacted travel behavior among respondents.

Firstly, observing the overall travel trends, approximately 65.6% of participants engaged in travel—whether domestically or internationally—for at least one night since the onset of the pandemic. This shows a considerable portion of the population remained active in travel despite the pandemic's challenges.

Looking closer at domestic travel patterns, it becomes evident that certain motivations stood out prominently. Vacationing and leisure activities were the most common reasons for domestic travel, with 56.2% of respondents engaging in such trips. Visiting relatives and friends followed as the second most popular motivation at 34.0%, emphasizing the importance of social connections and personal relationships even amidst pandemic-

related travel constraints. Additionally, nature exploration and hiking, at 28.8%, also held significant importance for domestic travel (see Table 16).

Table 16: Domestic travel purposes since the outbreak of the COVID-19 pandemic (n=656)

Typically, what are your primary purposes for traveling within the country (staying a minimum of one night) since the outbreak of the COVID-19 pandemic? Please select the top three that most apply to you!

Domestic travel purpose	**In the year following the COVID-19 pandemic (n = 656)**	**Percentage**
Vacation, holiday	369	56.2%
Visiting relatives and friends	223	34.0%
Hiking, trekking	189	28.8%
Sightseeing, touring	149	22.7%
Recreation, health or wellness	139	21.1%
Business trip	39	5.9%
Concert, sports event, exhibition visit	37	5.6%
Sports (e.g., skiing, diving, mountain climbing)	23	3.5%
Did not travel within the country unrelated to COVID-19	16	2.4%
Did not travel due to COVID-19	12	1.8%
Religious purpose	4	0.6%

Note. Self-edit.

In contrast, international travel motivations displayed a somewhat similar trend, but with notable differences. Vacationing and leisure remained the primary reasons, though with a slightly lower percentage at 28.7%. Sightseeing and city tours were the next most frequent motivations at 17.8%. However, visiting relatives and friends showed a considerable

decline in international travel, indicating possible restrictions and concerns over long-distance travel during the pandemic (see Table 17).

Table 17: International travel purposes since the outbreak of the COVID-19 pandemic (n=656)

What are your primary purposes for traveling abroad (staying a minimum of one night) since the outbreak of the COVID-19 pandemic? Please select the top three that most apply to you!

International travel purpose	In the year following the COVID-19 pandemic (n = 656)	Percentage
Vacation, holiday	188	28.7%
Sightseeing, touring	117	17.8%
Visiting relatives and friends	71	10.8%
Hiking, trekking	57	8.7%
Business trip	32	4.9%
Sports (e.g., skiing, diving, mountain climbing)	23	3.5%
Recreation, health or wellness	18	2.7%
Concert, sports event, exhibition visit	8	1.2%
Religious purpose	4	0.6%
Did not travel due to COVID-19	174	26.5%
Did not travel within the country unrelated to COVID	176	26.8%

Note. Self-edit.

It's important to note the significant portion of individuals, 26.5%, who refrained from international travel due to the pandemic. Equally notable is the 26.8% who didn't travel internationally, irrespective of the pandemic. This highlights a cautious approach or other external factors impacting international travel plans beyond the influence of the pandemic.

The data collectively suggests that despite the disruptions caused by the pandemic, travel for leisure, social connections, and exploration remained significant drivers for individuals' domestic and international trips. However, there was a noticeable decline in travel for business or cultural purposes. The hesitance towards international travel due to the pandemic, or even independently from it, indicates a more conservative approach or potentially other underlying factors affecting travel decisions.

These insights reflect the shifting priorities and preferences in travel behavior during the pandemic, highlighting the resilience of certain travel motivations like leisure and social connections, while also indicating the impact of external factors on travel decisions.

3.2.3. Age-related patterns in intention to use online tourism services during COVID-19

In this subchapter, I am testing the following hypothesis related to the second research question:

Hypothesis 3: The younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic.

I used ordinal logistic regression to test the hypothesis. This statistical method is used to predict an ordinal dependent variable given one or more independent variables.

Ordinal logistic regression may be an appropriate option if:

- the dependent variable measured at the ordinal level,
- one or more independent variables that are continuous, ordinal, or categorical (including dichotomous variables),
- there is no multicollinearity,
- we have proportional odds.

The ordinal logistic regression model can be defined as:

$$logit[P(Y \leq j)] = \log\left[\frac{P(Y \leq j)}{P(Y > j)}\right] = \alpha_j - \beta X, \quad j \in [1, J-1]$$

where j ∈ [1, J − 1] are the levels of the ordinal outcome variable Y. The proportional odds model assumes there is a common set of slope parameters β for the predictors. The

ordinal outcomes are distinguished by the J − 1 intercepts α j. The benchmark level is J (Bilder & Loughin, 2014).

I asked respondents how much they agreed with the following statement:

„I am increasingly interested in the possibilities of virtual/digital tourism."

Respondents rated it on a 5-point scale, with 1 indicating strong disagreement and 5 indicating strong agreement. These ordered responses were the categories of the dependent variable (Y).

The independent variables included the participants' age, while gender, highest completed level of education and personal perception of financial situation were added as additional control variables to the model. The purpose of including control variables in a logistic regression is to eliminate alternative explanations.

Table 18: Model fitting information for age-related interest in virtual tourism

Model	**-2 Log Likelihood**	**Chi-squared**	**df**	**Sig.**
Intercept Only	1446.331			
Final	1422.588	23.742	12	0.022

Note. Self-edit.

The statistically significant chi-square statistic ($p < 0.05$) indicates that the Final model gives a significant improvement over the baseline intercept-only model. This shows that the model gives better predictions than just guessing based on the marginal probabilities for the outcome categories (Table 18).

Both the Pearson Chi-Square and Deviance goodness-of-fit tests indicate that the logistic regression model fits the data well, with p-values much greater than 0.05, showing no significant lack of fit (Table 19).

Table 19: Goodness-of-fit tests for the age and virtual tourism engagement model

	Chi-Squared	df	Sig.
Pearson	1742.262	1824	0.914
Deviance	1199.800	1824	1.000

Note. Self-edit.

The pseudo R2 values (Cox and Shell 3.3%, Nagelkerke 3.6%, and McFadden 1.4%) indicate that the model explains only a small portion of the variability in the outcome variable. These low values suggest that the predictors included in the model have limited explanatory power (Table 20).

Table 20: Pseudo r-square values explaining age-related interest in virtual tourism

Cox and Shell	0.033
Nagelkerke	0.036
McFadden	0.014

Note. Self-edit.

An increase in age (expressed in years) was associated with a slight increase in the odds of considering interest in virtual/digital tourism, with an odds ratio of approximately 1.015 (95% CI, 1.005 to 1.025), Wald $\chi^2(1) = 8.158$, $p < 0.05$.

The results showed that age explains a relatively small proportion of the variation between the interest in virtual /digital tourism. The results were the opposite of what I expected; as age increased, interest in virtual/digital tourism increased, albeit slightly, rather than decreased. Gender, highest completed level of education and personal perception of financial situation did not have a significant effect on the likelihood of considering virtual tourism.

Another possible research direction could be to identify additional independent variables to build a stronger explanatory model. Unfortunately, the limited number of questions in the current research does not allow this.

3.3. Online structured in-depth interviews conducted after the fifth wave of the coronavirus pandemic

My qualitative research was motivated by the need for a deeper understanding of the results of the online survey on changes in tourism habits associated with the first wave of the coronavirus pandemic. The respondents were identified through my network, supplemented by snowball sampling. A total of 35 structured interviews were conducted between June and December 2022. These interviews took place at pre-arranged times and were conducted online using the Zoom Video Conferencing Platform, each with an average duration of 30 minutes. The questions used in the interviews were based on the online questionnaire survey conducted in 2020. Interviews were conducted, transcribed, and analyzed using thematic analysis. Data analysis started with full data transcription, followed by data familiarization, code identification, searching, reviewing, and defining themes, and generation of results. Coding was performed manually, through repeated reading of and making notes on interview transcripts. It is important to emphasize that the sample is not representative and cannot be considered comprehensive for the entire population. The results can only offer general guidelines and may help define future research directions. The guiding framework for the open-ended questions of the structured interview is presented in Appendix 6.

3.3.1. Main demographic characteristics of respondents to the structured in-depth interviews

Among the 35 interviewees, there was a distribution of 31.4% males and 68.6% females, indicating a significant female majority within the sample. The age distribution within the sample is quite diverse, ranging from 21 to 68 years old.

The most common marital status within the sample is marriage, accounting for 51.4%. A smaller but significant group, 8.6%, has experienced divorce. Living in domestic partnerships applies to 14.3%, while 25.7% are single.

In terms of education, 25.7% have high school diplomas, signifying a portion of the sample with a lower level of formal education. College degrees are held by 37.1%, making this the most common education level. Another 37.1% have university degrees, indicating a significant portion of the sample has achieved higher levels of education.

Regarding income, 31.4% of the interviewees report above-average incomes, while 40% have average incomes, and 28.6% have below-average incomes.

Professionally, 31.4% of interviewees are engaged in intellectual professions, reflecting a significant presence of knowledge workers. Family-related occupations are diverse, with 20% on maternity or parental leave. Physically demanding labor roles apply to 22.9% of the sample. Students constitute 11.4%, and 14.3% are retired, contributing to the sample's occupational diversity.

In terms of residence, 28.6% live in the capital city, suggesting a considerable urban representation, while 45.7% reside in other cities, and 25.7% live in rural areas.

The data reveals that 74.3% of interviewees have received the COVID-19 vaccine, while 25.7% have not taken the vaccine. Among the interviewees, 42.9% have reported chronic illnesses, whereas 57.1% are free from such ailments.

3.3.2. Vacation habits before the COVID-19 pandemic

As an introductory question, I first asked the interviewees to talk a bit about their vacation habits and what generally characterized them before the COVID-19 pandemic. Based on the responses, I was able to identify six categories of travel habits, which, in addition to demographic data, provide a slightly more nuanced picture of the respondents (see Figure 26).

Occasional Domestic Travelers

- Travel once a year, mostly domestically.
- Prefer shorter trips, such as weekends.

Family-Oriented Domestic Travelers

- Prioritize domestic travel, especially with family.
- Previously traveled abroad, often by plane.

Diverse Travelers

- Travel both domestically and internationally.
- Enjoy various types of vacations, from city tours to beach holidays.

Wellness and Cultural Travelers

- Focus on wellness trips and cultural tourism.
- Balancing domestic and international destinations.

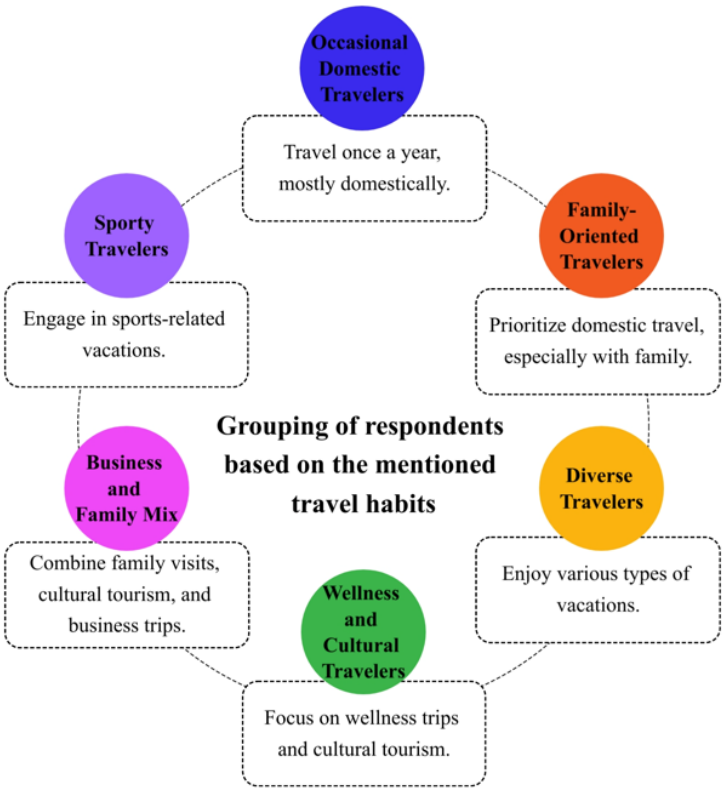
Business and Family Mix

- Combine family visits, cultural tourism, and business trips.
- Engage in both domestic and international travel.

Sporty Travelers

- Engage in sports-related vacations, including skiing and surfing.
- Prefer a mix of domestic and international destinations

Figure 26: Grouping of respondents based on the mentioned travel habits



Note. Self-edit.

3.3.3. Influences on travel destination choices

Following this, I asked the interviewees about how they chose their travel destinations and what influenced them the most in making this decision.

It became evident from the answers of the interviewees that one respondent can typically belong to multiple categories, depending on who they are traveling with and the purpose of their trip (see Figure 27).

When it comes to travel choices, there's a variety of influences that guide our decisions. Recommendations from friends, family, and online platforms such as social media, Google, or booking sites significantly impact where we choose to go. These suggestions are often our first window into exciting destinations, offering insights into hidden gems and remarkable experiences.

For many, family-oriented choices take precedence, often driven by children's preferences and requirements. The search for historical landmarks or cultural sites becomes a primary decision factor, serving as an educational and enlightening experience for both adults and kids.

The quest for cost-effective or discounted travel options is a common theme, allowing more opportunities to explore diverse places without straining the budget. But beyond the monetary aspect, personal experiences and sentimental attachments play a powerful role. Nostalgic connections to certain destinations from childhood or past trips hold a special place in our hearts and become a compelling reason to revisit these locations.

Some travelers seek destinations suited for sports, outdoor activities, or adventures, catering to their passions. Inspirations from various online sources, including blogs, forums, or travel guides, also spark curiosity and interest in places previously unexplored.

There's a notable group drawn to remote or secluded locations and off-the-beaten-path destinations, looking for unique and exclusive experiences away from the usual tourist circuits. Others might find their choices heavily influenced by specific interests or hobbies, such as attending scientific conferences or participating in niche activities like kitesurfing or competitive events.

In the world of travel decisions, improvisation and recommendations remain integral. Spontaneity often leads to incredible discoveries, and the shared experiences and firsthand advice from fellow travelers serve as guideposts, enriching our journeys and ensuring delightful experiences at every turn.

Figure 27: Influences on travel destination choices

Note. Self-edit.

3.3.4. Impact of COVID-19 on travel destination choices

I then asked the interviewees if there had been any changes due to the coronavirus pandemic in terms of how they chose their travel destinations. I have categorized the answers as follows:

No Significant Change: Most respondents (approx. 70%) mentioned that there was no change in how they choose travel destinations.

Fewer Family Visits: Some respondents (approx. 10%) mentioned visiting family members less frequently since the pandemic began.

Off-Peak Travel: A few respondents (approx. 5%) mentioned avoiding peak travel seasons and trying to steer clear of crowded destinations.

Less Frequent Travel: Some respondents (approx. 12%) indicated that they are traveling much less frequently.

Avoiding Elderly Relatives: A small percentage of respondents (approx. 3%) mentioned avoiding visiting elderly relatives due to health concerns.

3.3.5. Travel habits and experiences since the onset of the COVID-19 pandemic

The following general observations were found while examining the responses regarding the trips taken between the onset of the COVID-19 pandemic and the interview.

Cancellations and uncertainty

Many interviewees had to cancel or postpone their travel plans due to the unpredictable and changing nature of the pandemic. Concerns about the safety of travel, border closures, and restrictions played a significant role in these decisions.

Domestic focus

A noticeable trend was a shift towards domestic travel. With international travel being uncertain and risky, many individuals opt to explore their own countries or local areas.

Impact on events

Numerous interviewees had to cancel or alter plans related to events, such as family gatherings, conferences, or special occasions. These cancellations were often disappointing and challenging.

Mixed experiences at tourist destinations

For those who did travel, experiences varied. Some reported that domestic tourist destinations were overcrowded, with inconsistent mask-wearing and social distancing. Others mentioned taking precautions and following COVID guidelines during their trips.

Spontaneous travel

A few interviewees engaged in spontaneous trips or changed their destinations at the last minute due to cancellations or changing circumstances.

Mental and emotional impact

The pandemic not only affected travel plans but also took a toll on individuals' mental health and well-being. Some interviewees cited concerns about mental health as a reason for not traveling, indicating the broader impact of the pandemic on personal lives.

Altered perceptions of risk

The uncertainty and risks associated with the pandemic caused many individuals to re-evaluate their willingness to visit specific locations. Countries with high infection rates became less appealing, while some opted for areas with fewer COVID-19 cases.

Resilience and adaptability

Despite the challenges posed by the pandemic, it is notable that several interviewees found ways to adapt and engage in safe travel, often within their home countries. This resilience and adaptability are indicative of the human capacity to adjust to changing circumstances.

3.3.6. Recalling the spring of 2020: Initial thoughts on the global pandemic

Following this, I asked the interviewees to recall the spring of 2020 when the coronavirus disease developed into a global pandemic and what their first thoughts were about it. The word cloud generated from the opinions is visible in Figure 28.

Figure 28: Please, recall the spring of 2020 when the coronavirus disease became a global pandemic. What is the first thing that comes to your mind about this period? - Responses from participants in qualitative research

Note. Self-edit.

The survey results make it clear that negative experiences played a central role in guiding the respondents' perceptions of the pandemic's impact. They were primarily influenced by a pervasive sense of uncertainty and confronted with numerous challenges, particularly in the realm of online education. The upheaval caused by the global pandemic led many to grapple with unprecedented shifts in their daily routines, especially when it came to educational endeavors. This uncertainty, coupled with the need to adapt rapidly, created a profound impact on the respondents' overall experiences and memories of that time.

3.3.7. Initial thoughts on the global pandemic in the summer of 2022

Approximately 77.1% of the interviewees had received the COVID-19 vaccine, indicating a general willingness to be vaccinated. In terms of health status, around 48.6% did not have chronic health conditions, while 25.7% did.

About 54.3% of the interviewees continued to take precautions such as wearing masks and practicing social distancing. Around 40% had adapted to living with the virus as part of their daily lives, while 11.4% expressed concerns about the unpredictability of the situation.

A smaller group, approximately 5.7%, believed the virus was no longer a major concern and may have been overblown. Similarly, 11.4% showed a lack of interest in the virus or felt it had no impact on their lives. Some interviewees (8.6%) expressed concern for the safety of their family members, particularly children and grandparents, as a result of the pandemic. A few (5.7%) acknowledged the virus’s impact on mental health and well-being.

Respondents in their 20s and 30s were generally more relaxed and felt the virus had become a part of life, reducing their fear of it. Older respondents in their 50s and 60s were more cautious and concerned, especially for their family members.

3.3.8. Exploring the perception of online tourism services amid the pandemic

At the onset of the pandemic, we initially assumed that virtual tourism would become more prominent. As a result, a significant portion of my interviews focused on this subject. In this section, I'll explore the findings in detail.

The data on the usage of online tourism services shows a high level of engagement, with 33 participants (94.3%) reporting that they had used these platforms. Despite this, only 14 participants (40%) expressed confidence in the future of online tourism services, indicating a certain level of skepticism regarding the long-term sustainability of such offerings, even though they are widely used.

When it comes to preferences between physical visits and online experiences, the results suggest that 20 participants (57.1%) preferred traditional, in-person visits to museums and cultural sites. This demonstrates a strong attachment to real-life cultural experiences, despite the growing presence of online alternatives.

In terms of the role of online services for research and planning, 12 participants (34.3%) recognized them as valuable tools. This indicates an acknowledgment of the informational benefits these services provide.

Regarding the willingness to use well-executed online tourism services, only 7 participants (20%) said they would consider them, suggesting reservations about the quality of current offerings.

Similarly, during periods of travel restrictions, 7 participants (20%) found online tourism services appealing, reflecting a moderate interest in such services when traditional travel was not possible. These findings suggest that while there is some level of engagement with virtual tourism, it remains primarily supplementary to physical experiences, with room for improvement in execution and quality to increase wider acceptance.

3.3.7.1. Consumer segmentation: Attitudes and preferences in virtual and traditional experiences amidst COVID-19

The outcomes of the in-depth interview research unveiled distinctive characteristics associated with age and preferences for traditional versus online experiences (Csapó et al. 2023).

Traditional Experience Enthusiasts

Individuals within the 50s and 60s age range are inclined towards authentic experiences, such as rural getaways. This group generally lacks or has minimal exposure to online tourism services, finding them uninteresting or unhelpful. For instance, a 68-year-old female respondent expressed, *"I haven't heard of virtual tourism. I'm old, and I'm clumsy with such tools. I stick to old, familiar things."*

Virtual Experience Enthusiasts

Younger individuals in their 20s and 30s, who are digitally savvy, exhibit interest in online tourism services and embrace new experiences. They actively use online accessible virtual experiences, like Google Maps or 3D tours. A 31-year-old female participant noted, *"Yes, I know about online tourism services, and I've heard about virtual tourism too. I find these services useful for trip planning."*

Offline-Online Consumers

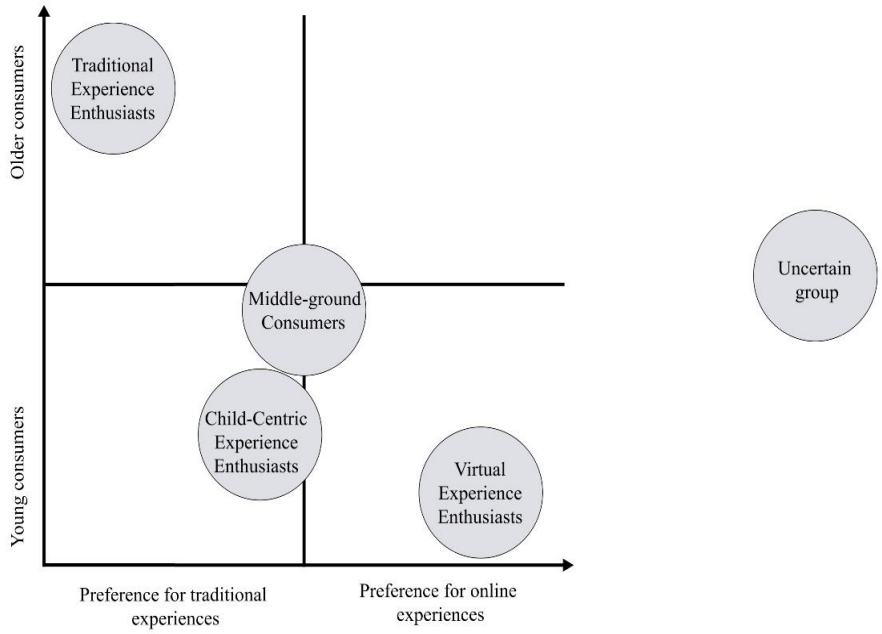
Mainly found in their 30s and 40s, this group has experience with online tourism services but doesn't consistently opt for this type of experience. Members carefully evaluate the pros and cons of both online and real travel. A 37-year-old female respondent elaborated, *"For example, I would not choose virtual tours because I need the smell of the forest, the breeze. But an exhibition especially interests me; I would even pay for it because I can't personally touch the pictures."*

Child-Centric Experience Enthusiasts

Parents who use online tourism services to entertain their children. However, virtual experiences may not always influence their actual travel decisions. A 29-year-old female participant shared, *"We participated in an online concert and also browsed the zoo during the quarantine when we couldn't go anywhere else. The kids enjoyed it, but there were frequent issues with poor quality, and sometimes the provider's internet connection was lost."*

Additionally, there exists an "Uncertain" group, comprising individuals from various age ranges (20s to 60s). Some are unfamiliar with online tourism services, while others are uncertain about using them. Despite lacking a clear preference, members of this group display openness to online experiences, rendering them a potentially valuable target audience from a marketing perspective.

Figure 29: Preferences and use of traditional and virtual experiences based on age and digital literacy



Note. Self-edit.

The unconventional approach of the in-depth interview research allowed us to illustrate the positioning of different segments based on the two mentioned criteria. The sizes of these segments heavily depend on the age of the participants in the sample; therefore, within the scope of this research, it is not feasible to distinctly separate these groups. The analysis suggests that age and digital proficiency play a significant role in shaping the usage and preferences of tourism services. It is essential to highlight that the number of participants in the interviews was limited, and thus, the observations may not be fully representative of the entire Hungarian population. Additionally, the information gathered during the interviews could be subjective depending on the interviewee's perspective. To validate and refine these findings, future research should involve the collection of additional quantitative data.

3.4. Online questionnaire survey conducted in 2023

In this subchapter, I am testing the following hypothesis related to the second research question:

Hypothesis 4: The composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics.

In June 2023, I conducted another online survey to assess the actual impact of the pandemic and compare the results with the research conducted at the start of the outbreak in 2020. The questions consisted of Likert-scaled items on the following factors: attitude towards virtual solutions, concerns related to the financial situation, and sustainability (see previous research, Table 7). The online queries were conducted using the Ipsos Instant Research service. This online questionnaire survey is part of project No. 142571 project, which was funded by the Ministry of Innovation and Technology with support from the National Research Development and Innovation Fund under the 'OTKA' K_22 call program. A total of 648 people participated in the survey. The sample is similar in terms of gender, age categories, financial situation, and highest level of education to the sample of the survey in 2020 (see Appendix 7). Therefore, it is feasible to make a comparison between the two samples.

The aim was to see how the size and composition of different consumer groups had changed since the outbreak. To achieve this, I first examined the factors used for clustering. Checking the internal reliability of the factors, I used three indicators: Cronbach's alpha, the composite reliability, and the average variance extracted (see Table 21). For Cronbach's alpha and the composite reliability, the expected minimum value was 0.70, while for the average variance extracted, the same threshold of 0.50 was applied (Hair et al., 2014). All three factors were found to be appropriate for cluster analysis.

Table 21: Internal reliability of the created factors for the 2023 research

Factor	Cronbach alfa	Composite reliability (CR)	Average variance extracted (AVE)
Attitude toward virtual solutions	0.870	0.88	0.53

Concerns related to the financial situation	0.872	0.90	0.75
Sustainability	0.857	0.88	0.79

Note. Self-edit.

I conducted a K-means cluster analysis by transporting initial cluster centers, as illustrated in Figure 30. A series of chi-square tests ($\chi 2$) were conducted and significant differences were reported (p-value < 0.05) to exist among clusters based on age categories, education level, and income (See Table 22).

Table 22: Chi-squared tests for the 2023 research

	Chi-squared	**p-value**
Gender	3.455	0.485
Age categories	36.799	0.012
Education level	49.498	0.000
Income	26.124	0.010

Note. Self-edit.

Optimistic Intellectuals (20.8%)

The size of the group decreased by 0.8 percentage points. Rejection of virtual solutions has increased compared to the initial period of the pandemic, while concerns about financial situations continue to be absent. The majority have a university degree and mainly average income. Members of this cluster represent various generational backgrounds, with the smallest proportion being those aged 65 and older. They still maintain a degree of skepticism concerning sustainability.

Crisis-created Environmentalist (18.9%)

The size of the group increased by 0.4 percentage points. This cluster exhibits the strongest rejection of virtual solutions for travel, and this rejection has further increased since the beginning of the pandemic. Concerns about the financial situation, although moderating, are the second highest of the five segments, after anxious materialists. A higher proportion of the group holding secondary education degrees and earning average

or lower-than-average incomes. Members of this cluster primarily belong to the middle and older generations and still demonstrate strong support for sustainability measures.

Anxious Materialists (13.8%)

The size of the group decreased by 3.7 percentage points. The rejection of both virtual solutions and concerns about their financial situation has increased significantly. The highest educational level in the group is quite diverse, with the majority having a college degree earning average or below-average incomes, and belonging to the middle generation. Members of this cluster also display resistance toward sustainability measures.

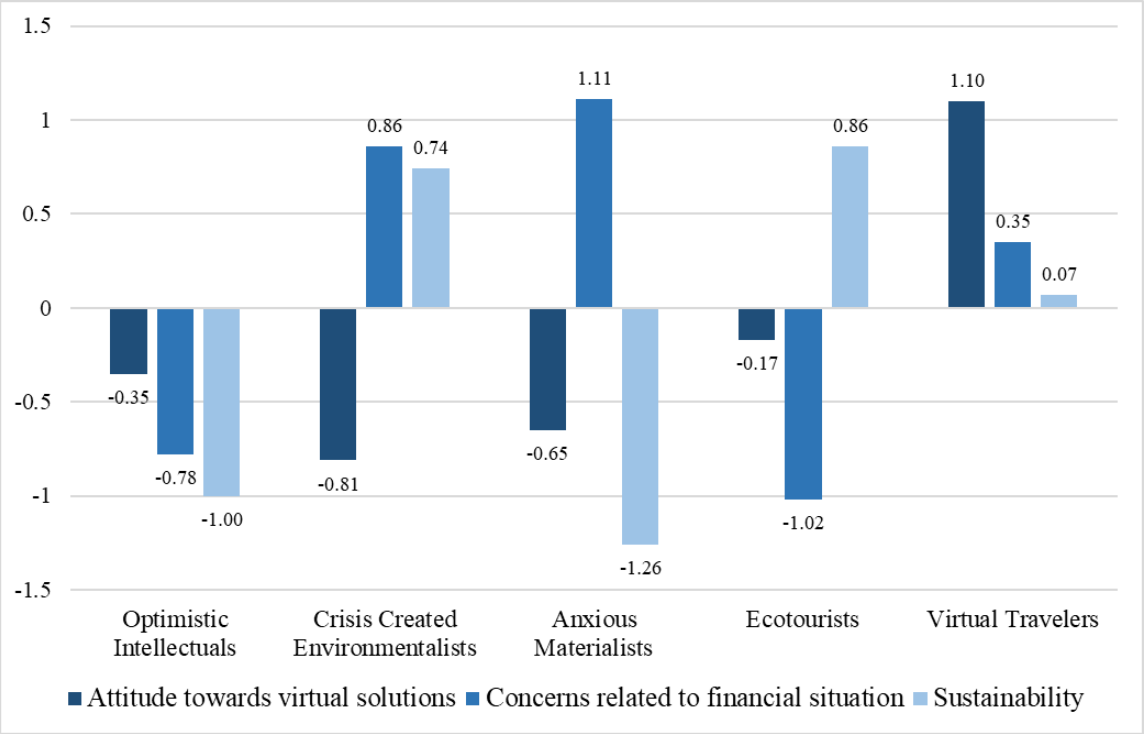
Ecotourists (25.4%)

The size of the group decreased by 4.5 percentage points. The rejection of virtual solutions shows a sharp decline. Concerns about the financial situation are still absent in the case of this group. A high proportion of individuals holding university degrees and earning above-average incomes, this group primarily represents middle-aged generations. Members of this cluster are notably supportive of sustainability measures and practices.

Virtual Travelers (20.1%)

The size of the group increased by 9.3 percentage points. The cluster still represents a relatively high acceptance of virtual travel solutions. These individuals still express only slight concerns about their financial situation. The highest educational level in the group is quite diverse, with the majority having a secondary degree a higher proportion of average or below-average incomes, and a higher representation of the younger generation. Members of this cluster show modest support for sustainability.

Figure 30: Homogeneous groups formed through cluster analysis 2023



Note. Self-edit.

Summary of shifts in the composition and size of the clusters

No significant differences were found among clusters based on gender (see Table 13). There might be various explanations for this phenomenon such as variations in the way men and women perceive risks (Isaac & Van den Bedem, 2020; Zheng et al., 2021b; Ertas & Kirlar-Can, 2022; Shahabi Sorman Abadi et al., 2021; Brida et al., 2022), which could have diminished for women over time during the pandemic. The changes in group distribution reveal a shift to 20.8% for *optimistic intellectuals*, 18.5% for *crisis-created environmentalists*, 10.1% for *anxious materialists*, 20.9% for *ecotourists*, and 29.4% for *virtual travelers* (see Figure 29). While the exact reasons behind the changing distribution of groups cannot be established within the scope of this research, the following general findings are based on general trends in consumer behavior.

Optimistic Intellectuals

Moderate decrease in size with a slightly increased rejection of virtual solutions, maintaining financial optimism. There have been no changes in the demographic composition. Members of this cluster represent various generational backgrounds, predominantly holding a university degree and earning an average income.

Crisis-created environmentalist

A slight increase in size is observed, maintaining a continued strong rejection of virtual solutions and persistent financial concerns. There have been no changes in the demographic composition, primarily comprising middle and older generations with secondary education degrees. The majority of individuals in this cluster continue to earn lower-than-average incomes.

Anxious Materialists

A significant decrease in size is observed with an increase in the rejection of virtual solutions and financial concerns. There have been no changes in the demographic composition. The highest educational level in the group is quite diverse, with the majority holding a college degree earning average or below-average incomes, and belonging to the middle generation.

Ecotourists

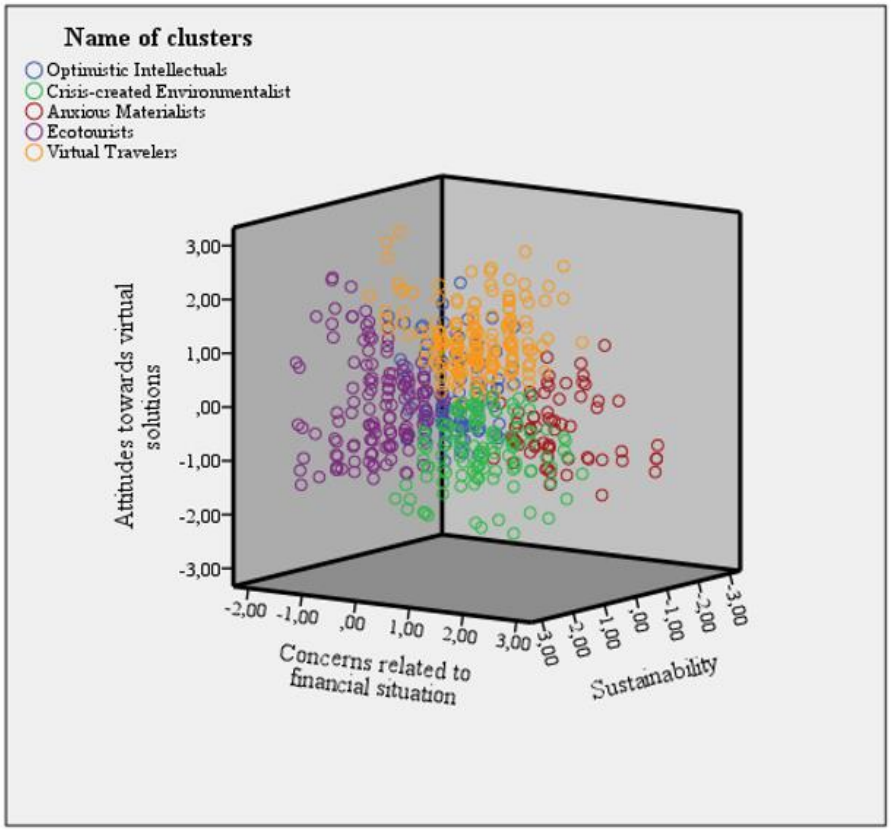
A significant decrease in size is observed with a sharp decline in the rejection of virtual solutions, possibly indicative of changing preferences and increased acceptance of virtual solutions. There have been no changes in the demographic composition. The majority holds university degrees, and the group primarily represents middle-aged generations, with a high proportion earning above-average incomes. While natural places gained appreciation during the coronavirus pandemic, after the lifting of restrictions, this preference may transform, potentially resulting in a relative decline in the segment focused on eco-friendly travel, causing a decrease in the percentage of ecotourists from 25.4% to 20.9%.

Virtual Travelers

A significant increase in size is observed with sustained high acceptance of virtual solutions and slight concerns about financial situations. The increase in virtual travelers (from 20.1% to 29.4%) may indicate a greater acceptance and adoption of virtual solutions after the pandemic. As technology becomes more integrated into daily life, more individuals may prefer virtual travel options for convenience or safety, contributing to the growth of this segment. Initially, there was a higher representation of the older generation; after COVID, there is now a higher representation of the younger generation. The majority holds secondary degrees, with a diverse mix of individuals having average or

below-average incomes. The relatively high representation of the older generation in this group during the pandemic may have been more out of necessity, due to health and safety concerns, than preference.

Figure 31: 3D representation of the clusters (2023)



Note. Self-edit with SPSS.

4. SUMMARY OF RESEARCH RESULTS

4.1. The results of the hypotheses and their practical use

The primary objective of the dissertation was to investigate the impact of the coronavirus pandemic on consumer behavior in tourism among the Hungarian population. In my research, I sought answers to four different research questions, using a total of five hypotheses. Throughout my investigations, I applied a diverse methodology, with a significant role assigned to cluster analysis. In this chapter, I summarize the findings of my research, presenting in detail the conclusions drawn from the examination of hypotheses. In doing so, I also highlight the theoretical and practical significance of each result. The hypotheses related to the research questions and their outcomes are summarized in Table 23.

Table 23: Results of the research hypotheses

Research question	Hypothesis	Research methodology	Methodology used for hypothesis testing	Test results
RQ1	Hypothesis 1: The COVID-19 pandemic has led to significant variations in consumer groups about travel behavior.	Quantitative research - Online questionnaire survey conducted in 2020	• Exploratory factor analysis • Hierarchical cluster analysis • K-means cluster analysis	**Accepted**
RQ2	Hypothesis 2.1: There is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.	Quantitative research - Online questionnaire survey conducted in 2020	• Multiple linear regression with factor scores	**Rejected**
	Hypothesis 2.2: There is a significant			**Accepted**

	relationship between the number of international trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life, assuming the COVID-19 pandemic is over.			
RQ3	Hypothesis 3: The younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic.	Quantitative research - Online questionnaire survey conducted in 2022	• Ordinal logistic regression	**Rejected**
RQ4	Hypothesis 4: The composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics.	Quantitative research - Online questionnaire survey conducted in 2023	• K-means cluster analysis by transporting initial cluster centers	**Partly accepted**

Note. Self-edit.

My first research question aimed to identify the distinct consumer groups that have emerged in terms of travel as a consequence of the coronavirus pandemic (RQ1). At the outset of the crisis, our research team, led by Prof. Dr. Mária Törőcsik, assumed that the primary changes could be identified in relation to certain factors. These factors included attitudes towards virtual solutions, concerns about financial situations, the perceived impact of travel on quality of life, local patriotism (preference for domestic travel), sustainability considerations, visiting family and friends as travel motivations, and willingness to use public transportation. We hypothesized that changes in these areas contributed to the development of different consumer groups as a result of the COVID-19 crisis. To empirically support this, I formulated the following hypothesis:

Hypothesis 1: The COVID-19 pandemic has led to significant variations in consumer groups regarding travel behavior.

To test this hypothesis, I first conducted exploratory factor analysis, followed by hierarchical cluster analysis to determine the exact number of clusters, and then k-means cluster analysis. The practical significance of this hypothesis lies in highlighting that the COVID-19 pandemic has brought significant changes to consumers' travel habits. Among our initial assumptions, attitudes towards virtual solutions, concerns about financial situations, and sustainability emerged as key clustering factors.

The Hungarian literature reflects these shifts in travel behavior. Csapó & Lőrincz (2020) emphasize the rise in domestic tourism and nature-based activities, as travelers sought shorter trips accessible by car due to pandemic restrictions. This trend aligns with the observed local patriotism in my research, where a preference for domestic travel became evident. Similarly, Palkovics (2022) highlights how safety concerns in tourism gained prominence, supporting the formation of new consumer groups based on health and safety concerns, which were also relevant in my analysis.

This finding allows professionals in the tourism sector to adapt to new circumstances and develop strategies accordingly. Based on the revealed results, the *first hypothesis*—that the COVID-19 pandemic has led to significant variations in consumer groups regarding travel behavior—*is accepted*.

My second research question sought to explore the relationship between financial concerns, the perceived impact of travel on subjective quality of life, and consumer travel behavior in 2021 (RQ2). Specifically, the research focused on whether these factors influenced the number of domestic and international trips planned for the year, with the following hypotheses:

Hypothesis 2.1: There is a significant relationship between the number of domestic trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life.

Hypothesis 2.2: There is a significant relationship between the number of international trips planned in 2021 and concerns related to the financial situation, as well as the perceived impact of travel on subjective quality of life.

To test these hypotheses, I conducted multiple regression analyses. The hypothesis concerning *domestic travel* was *rejected*, whereas the hypothesis regarding *international travel* was *accepted*. The analysis revealed that financial concerns did not significantly impact domestic travel plans, indicating that economic worries were not a primary deterrent for those considering trips within their own country. However, the perceived positive impact of travel on quality of life was a motivating factor for those planning domestic travel, suggesting that individuals still valued travel as a means to enhance their well-being, even in uncertain times.

This trend toward domestic travel is reinforced by Hungarian literature, which highlights the importance of domestic tourism during the pandemic. Boros and Kovalcsik (2021) note that international travel to destinations such as Budapest sharply declined, reflecting the trend of reduced international travel found in my study. Furthermore, Raffay (2020) suggests that the pandemic has elevated the importance of domestic tourism, with this shift potentially having long-lasting effects—a notion consistent with my conclusion that domestic travel remains resilient even amid financial uncertainty.

In contrast, the findings for international travel showed a significant relationship between financial concerns and travel plans, with economic uncertainties leading many to reconsider or postpone international trips. However, for those who viewed travel as essential to their quality of life, the desire to resume international travel remained strong, indicating that the psychological benefits of travel continued to drive planning decisions, even amid financial concerns.

The practical usage of these results lies in assisting travel industry stakeholders, such as tourism agencies, travel companies, and policymakers, to refine their strategies in a post-pandemic environment. For domestic travel, the findings suggest that promoting the well-being benefits of travel could be effective in encouraging more people to take trips within their own country, even in the face of economic uncertainty. This could lead to targeted marketing campaigns that emphasize the mental and emotional rewards of domestic travel.

For international travel, understanding that financial concerns significantly impact decision-making can allow industry players to develop flexible and budget-friendly options, such as installment payment plans or discounted travel packages. Additionally, highlighting the importance of travel for quality of life could resonate with travelers who

are eager to resume international trips, making it a key message in post-pandemic marketing efforts.

My third research question sought to answer how demographic and socioeconomic characteristics have influenced travel preferences and virtual tourism participation during the COVID-19 pandemic (RQ3).

My third hypothesis is grounded in the experience of the rapid growth of online solutions, suggesting potential impacts on the tourism sector, particularly in terms of virtual tourism. I propose that younger generations are more likely to participate as they are familiar with digital technologies. Based on this assumption, the following hypothesis was developed:

Hypothesis 3: The younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic.

The COVID-19 pandemic has accelerated the spread of technological solutions in the tourism sector as well. Virtual tourism may open up new opportunities for travelers, serving as a potential substitute for actual travel or enhancing on-site experiences. It is crucial to understand how the technological proficiency of different generations is reflected in the use of virtual solutions. With this knowledge, it becomes possible to develop appropriate communication and marketing strategies to promote these services effectively. To test this hypothesis ordinal logistic regression was conducted. Based on the revealed result, the third hypothesis, stating that *the younger generation is more likely to actively engage in virtual tourism during the COVID-19 pandemic,* was *rejected*. The results showed that age explains a relatively small proportion of the variation between the interest in virtual /digital tourism. The results were the opposite of what I expected; as age increased, interest in virtual/digital tourism increased, albeit slightly, rather than decreased. Further research would be necessary to gain a better understanding of the results. However, as indicated by the cluster analysis, although the majority of individuals interested in virtual/digital tourism were older, this trend reversed after the pandemic in favor of younger people. One possible explanation for this could be that the older generation primarily viewed virtual/digital tourism as a substitute, but once the crisis subsided, they reverted to their preference for traditional travel.

Hungarian literature does not directly address virtual tourism, but the emphasis on traditional forms of travel, such as domestic tourism and nature-based travel (Csapó & Lőrincz, 2020), suggests that virtual tourism may not have been a widespread substitute.

The shift in older generations' attitudes towards virtual tourism following the outbreak of the coronavirus is consistent with the broader observation in the literature that traditional travel preferences still prevail post-outbreak (Kupi & Szemerédi, 2022).

My fourth research question sought to answer how the composition of various consumer groups has changed since the outbreak (RQ4).

According to research by Bronner & Hoog (2012), who investigated the impact of the 2008 economic crisis on travel habits, there is a significant difference between planned and actual travel behavior. Based on these findings, I have hypothesized that there may be a discrepancy between planned and actual travel behavior in the context of COVID-19, leading to changes in the size and characteristics of segments identified through research conducted at the onset of the pandemic. The uncertainties and evolving circumstances surrounding the pandemic are likely to have influenced individuals' travel plans, potentially causing a divergence between their intentions and actual actions. To prove this empirically, I formulated the following hypothesis:

Hypothesis 4: The composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics.

To test this hypothesis, I performed a K-means cluster analysis by transporting initial cluster centers. The results revealed that only virtual travelers exhibited a change in demographic composition. The relatively high representation of the older generation in this group during the pandemic may have been more out of necessity, due to health and safety concerns, than preference, with a subsequent shift to a higher representation of the younger generation after COVID. Regarding size and preferences the *optimistic intellectuals* cluster experienced a moderate decrease in size alongside a slightly increased rejection of virtual solutions, all while maintaining financial optimism. In contrast, the *crisis-created environmentalist* cluster saw a slight increase in size, maintaining a strong rejection of virtual solutions and persistent financial concerns. *Anxious materialists* witnessed a significant decrease in size, coupled with an increased rejection of virtual solutions and financial concerns. The *ecotourists* cluster experienced a notable decrease in size alongside a sharp decline in the rejection of virtual solutions, possibly indicative of changing preferences and increased acceptance of virtual solutions.

In terms of sustainability, my findings indicated that sustainability considerations shaped certain consumer groups. The Hungarian literature, while acknowledging the increased attention toward sustainability, observed that traditional travel habits, such as the use of private vehicles and demand for luxury accommodations, continued to dominate (Kupi & Szemerédi, 2022). This suggests that while sustainability is an important factor, its impact on travel behavior may not have been as widespread as initially expected.

I could only partially accept the third hypothesis, stating that *the composition of consumer groups has undergone substantial changes since the outbreak, encompassing alterations in the size of segments and their demographic characteristics,* since some clusters have not changed at all in terms of demographic composition and have only experienced slight changes in size too.

The practical benefit of these results lies in their implications for targeted marketing and resource allocation in the tourism industry. By understanding how different demographic groups respond to virtual/digital tourism and how their preferences and cluster sizes change over time, tourism businesses can tailor their offerings and strategies accordingly. For example, they can adjust marketing campaigns to better target specific demographic segments or allocate resources to develop virtual/digital tourism products that cater to changing preferences.

4.2. Research limitations and possible future research directions

During my research, I encountered several limitations, the presentation of which, I believe, is essential to interpreting the results and ensuring the completeness of my work. One limitation of my study is that the research conducted at the beginning of the COVID-19 pandemic used a non-validated questionnaire. Although a 3-member expert committee formulated the questions, comparing the results with the international literature is therefore challenging. Unfortunately, due to a lack of financial resources, the survey is not representative and is only suitable for presenting pilot results.

Another limitation is that the tourism sector has faced numerous crises in recent years, making it difficult to isolate the effects solely caused by the COVID-19 pandemic. However, the constraints of my dissertation in terms of length and time did not allow for an in-depth analysis of impacts, such as the Russian-Ukrainian conflict or the energy crisis. It is also important to highlight that, although I also conducted qualitative research to gain a deeper understanding of the quantitative results, the number of interview

participants was limited, so the observations may not be fully representative of the entire Hungarian population. Additionally, the information gathered during the interviews could be subjective, depending on the interviewee's perspective.

One potential direction for future research could involve creating a validated questionnaire that could effectively assess and compare the impact of various risks on travel choices, utilizing findings from existing international literature. Additionally, conducting a comprehensive qualitative study with a representative sample would provide a more precise understanding of individual perspectives and considerations when making travel decisions.

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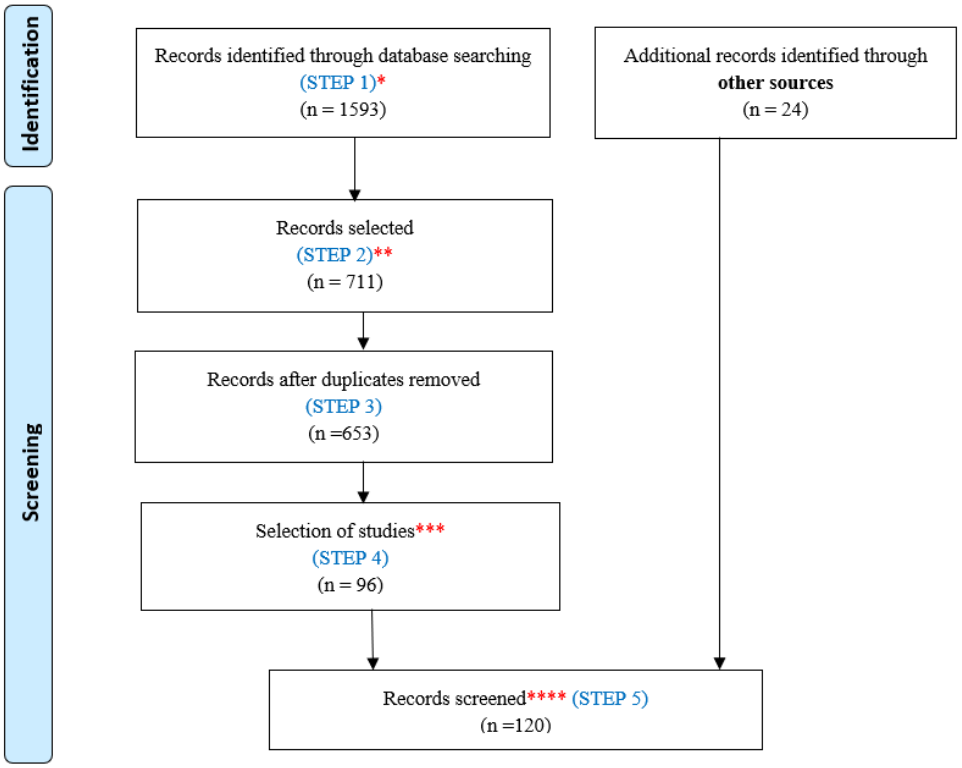
APPENDIX

Appendix 1: List of main concepts and alternative terms from research question

Concept 1 Sample	Concept 2 Phenomenon of Interest	Concept 3 Design	Concept 4 Evaluation	Concept 5 Research Type
tourist* travel* visitor* vacationist*	"financial cris*" "economic cris*" recession* disaster* "natural disaster*" pandemic* epidemic outbreak war terror*	interview* "focus group" "case stud*" "literature review*" synthesis observation* survey*	react* act* behav* perform*	qualitative quantitative mixed-methods

Appendix 2: PRISMA flow diagram



Notes:

* The number indicates all records derived from WoS, Scopus, EconLit with Full Text and Academic Search Complete.

** Records selected based on inclusion and exclusion criterias.

*** Primary research list.

**** Selection based on only relevant articles that related to the research question based on SPIDER elements.

Appendix 3: Overview of the waves of the COVID-19 pandemic in Hungary based on reports from the National Public Health Center

1. First Wave (March - June 2020)

The first confirmed cases were reported in early March 2020. A strict lockdown was implemented in mid-March, including school closures, bans on gatherings, and non-essential business closures. The first wave peaked in late April, with daily cases decreasing significantly by June.

2. Second Wave (September - December 2020)

Cases began to rise again in late September, coinciding with the return to school and colder weather. New measures were introduced in November, including curfews and restrictions on hospitality and events. This wave peaked in late November/early December, leading to a high number of cases and deaths.

3. Third Wave (March - June 2021)

The third wave started in early March 2021, but the vaccination campaign was ramped up. This wave was marked by a significant rise in cases and hospitalizations, with healthcare systems under pressure. The peak occurred in April, with daily cases declining by early June as vaccinations increased.

4. Fourth Wave (October 2021 - February 2022)

The emergence of the Delta variant contributed to the resurgence of cases. Restrictions were reintroduced, particularly in late 2021, to curb rising infections. The peak occurred in late November 2021, with cases gradually decreasing into early 2022.

5. Fifth Wave (December 2021 - March 2022)

The spread of the Omicron variant led to another wave, characterized by a sharp increase in cases but generally milder symptoms. While cases rose significantly, there were fewer severe cases and hospitalizations compared to previous waves due to vaccinations. The wave peaked in early January 2022, followed by a decline.

6. Subsequent Waves (2022 - Present)

Throughout 2022 and into 2023, Hungary experienced fluctuations in cases with new variants, including BA.4 and BA.5. The government continued to promote vaccinations and booster shots to manage outbreaks. As of 2024, Hungary is focusing on managing COVID-19 as an endemic virus, with periodic surges in cases.

Appendix 4: Questions for the online survey in 2020

Dear Sir/Madam,

The research team of the Institute of Marketing and Tourism at the Faculty of Economics, University of Pécs, would like to gain a better understanding of the changes occurring in travel behavior caused by the coronavirus pandemic. This is in the context of recent transformations that have significantly impacted our everyday lives. We are conducting an anonymous questionnaire survey to gather valuable insights.

In this regard, we kindly request you to complete the following questionnaire, which should take approximately 15 minutes of your time.

1. Did you have plans to travel within your own country or internationally in 2020 before the outbreak of the coronavirus? (Planning does not necessarily mean making reservations!)

- yes, only for domestic
- yes, only for international
- yes, both domestic and international
- not planned

2. If you planned to travel domestically, where?

3. If you planned to travel internationally, where?

4. If you planned to travel internationally, who would you most typically travel with (please choose one answer that best describes you)?

- with a group organized by someone else (e.g. a travel agency)
- with your family
- with friends, colleagues
- with my partner
- alone
- other
- I have no plans to travel abroad

5. If you planned to travel domestically, who would you most typically travel with (please choose one answer that best describes you)?

- with a group organized by someone else (e.g. a travel agency)
- with your family
- with friends, colleagues
- with my partner
- alone
- other
- I have no plans to travel abroad

6. Have you already made a specific booking (either domestic or international)?

- yes
- no

7. If you have had a reservation(s) (either domestic or international), what did you do with it (them)?

- nothing, I still plan to go
- I cancelled
- postponed
- other

8. What are the main reasons why you postponed your booking (whether for domestic or international travel)?

Please choose one!

- I came to this decision on my own
- As a result of the "Don't cancel, rebook" campaign
- At the request or suggestion of the accommodation provider
- Other, namely:

9. Typically, how far in advance do you book your accommodation (either domestic or international)?

- At least six months before the trip
- 3-6 months before the trip
- 1-3 months before the trip
- A few days before the trip

- I don't usually book

10. In 2019, how often did you take a domestic trip of more than 1 day?

11. How many times do you think you will take a domestic trip of more than one day this year (assuming the situation stabilizes by mid-summer)?

12. In 2021 (if the pandemic is completely over), how often do you think you will take a domestic trip longer than one day?

13. In 2019, how often did you take an international trip of more than 1 day?

14. How many times do you think you will take an international trip of more than one day this year (assuming the situation stabilizes by mid-summer)?

15. In 2021 (if the pandemic is completely over), how often do you think you will take an international trip longer than one day?

16. Approximately how much do you or your household spend on leisure activities (holidays/vacation) per person?

Please give your answer in HUF.

- in 2019 (HUF/person) …..
- expected in 2020 (HUF/person) …..
- expected in 2021 (HUF/person) …..

17. When do you expect the current situation to return to normal?

18. What was your typical purpose of travel (overall, both domestic and international, day trips and multi-day trips) in the 3 years before the COVID-19 crisis?

Please select the three options that were most typical for you!

- Vacation, holiday
- Sightseeing, touring
- Hiking, trekking
- Recreation, health or wellness
- Visiting relatives and friends
- Concert, sports event, exhibition visit

- Sports (e.g., skiing, diving, mountain climbing)
- Business trip
- Religious purpose
- Other

19. Typical purpose of your travel plans in the year following the COVID-19 crisis (overall, both domestic and international, one-day and multi-day)?

Please select the three options that were most typical for you!

- Vacation, holiday
- Sightseeing, touring
- Hiking, trekking
- Recreation, health or wellness
- Visiting relatives and friends
- Concert, sports event, exhibition visit
- Sports (e.g., skiing, diving, mountain climbing)
- Business trip
- Religious purpose
- Other
- I do not plan to travel

20. Which of the following online tourism services have you used in the last 3 years? You can select more than one.

- Watching travel films
- Virtual tours at a tourist location
- Virtual visits to museums and exhibitions
- Online culinary workshops, webinars
- Virtual wine tasting
- Watching VR videos with a VR headset
- Other
- I didn't use such services

21. Which of the following online tourism services have you used since the coronavirus outbreak? You can select more than one.

- Watching travel films
- Virtual tours at a tourist location
- Virtual visits to museums and exhibitions
- Online culinary workshops, webinars
- Virtual wine tasting
- Watching VR videos with a VR headset
- Other
- I didn't use such services

22. Do you plan to use online tourism services, such as those mentioned above, during the COVID-19 pandemic?

- no, it's not a substitute for real activities
- I'd rather wait until I can physically participate
- yes, if it's free
- yes, I would even pay for it
- I don't know

23. Do you agree with the following statements? Please choose yes or no!

- I have a device that makes the virtual experience more enjoyable, such as VR glasses
- I plan to buy a device that will make the virtual experience more enjoyable
- I agree with the introduction of travel restrictions
- I use the home delivery services of restaurants

24. To what extent do the following statements apply to you? Please rate on a 5-point scale, where 1 indicates strong disagreement, and 5 indicates strong agreement.

- I regularly stay informed about travel restrictions through national media or the websites of tourism providers and destinations.
- Isolation has amplified in me the feeling that travel is an important factor in shaping my quality of life.
- I am cooking at home a lot now, more than usual.
- During the lockdown/state of emergency, I consider much more carefully how much I spend on what.

- During the lockdown/state of emergency, visiting recreational and leisure areas, as well as hiking spots, near my place of residence has become more valuable to me.
- During the lockdown/state of emergency, I feel that my life has become less vibrant because I had to give up the experience of traveling.
- I miss visiting hospitality establishments (e.g., restaurants), and I can't wait to go to such places again.
- I am more interested in cooking than usual now; I am trying to learn new things.
- During the lockdown/state of emergency, my financial situation took a turn for the worse.

25. Assume that the current emergency is over and things return to normal. To what extent do the following statements apply to you? Please rate on a 5-point scale, where 1 indicates strong disagreement, and 5 indicates strong agreement.

- My travel decisions are influenced by how safe the particular country is.
- I also prefer domestic travel because it allows me to support the local economy.
- I will travel to the same extent as before the emergency.
- In the future, I will travel more responsibly, paying greater attention to the environment and the residents.
- When it's safe to travel again, I will first visit my family and friends, and I'll stay with them as well.
- In the future, I will be more environmentally conscious during my travels.
- I will value visiting domestic tourist, recreational, and leisure destinations more in the future.
- After the emergency, everything in tourism will fundamentally change.
- I prefer domestic travel because I feel it's safer.
- I am willing to spend more during my travels if I know I'll be in a safe place to relax and vacation.

- I regularly inform myself about travel restrictions in the national press or on the websites of tourism service providers and destinations.
- The confinement has reinforced in me the feeling that travel is an important. contributor to my quality of life.
- I cook at home a lot now, more than usual.
- During the lockdown or emergency situation, I am much more careful about how much I spend and what I spend it on.
- During the lockdown or emergency situation, I have come to appreciate visiting recreational, relaxation, and hiking spots near my place of residence.
- During the lockdown or emergency situation, I feel that my life has become duller because I had to give up the experience of traveling.
- I miss visiting hospitality establishments (e.g., restaurants), and I can't wait to go to such places again.
- I am more interested in cooking than usual right now, and I'm trying to learn new things.
- My financial situation has taken a turn for the worse during the lockdown/emergency situation.
- Due to the lockdown/emergency situation, I feel like I will use up my savings.
- I am increasingly interested in the possibilities of virtual/digital tourism.

26. What is your gender?
    - man
    - woman
27. How old are you?
28. What is your marital status?
    - single/unmarried
    - married
    - divorced
    - widow

- civil partnership

29. How many people live in your household including you?

30. What is your highest completed level of education?

- Up to 8 grade
- Vocational school
- Vocational high school
- General high school diploma
- Advanced technical college
- Bachelor’s degree
- Master’s degree
- No answer provided

31. How would you classify your or your family's monthly net income?

- rather below average
- average
- rather above average
- no answer provided

32. Based on economic activity, how would you classify yourself? Please, choose one!

- manual worker
- intellectual worker
- on parental leave
- stay-at-home parent
- student
- retired
- unemployed
- other inactive worker
- uncertain/no answer provided

33. What type of settlement do you live in? Please, choose one!

- Budapest
- county-level city
- other city

- village/municipality
- homestead/dispersed settlement

Appendix 5: Questions for the online survey in 2022

1. What was your typical purpose of travel (overall, both domestic and international, day trips and multi-day trips) in the 3 years before the COVID-19 crisis?

Please select the three options that were most typical for you!

- Vacation, holiday
- Sightseeing, touring
- Hiking, trekking
- Recreation, health or wellness
- Visiting relatives and friends
- Concert, sports event, exhibition visit
- Sports (e.g., skiing, diving, mountain climbing)
- Business trip
- Religious purpose
- Other

2. Have you travelled since the outbreak of COVID-19 (overall, both domestic and international, day trips and multi-day trips)?

3. Typical purpose of your travel plans in the year following the COVID-19 crisis (overall, both domestic and international, one-day and multi-day)?

Please select the three options that were most typical for you!

- Vacation, holiday
- Sightseeing, touring
- Hiking, trekking
- Recreation, health or wellness
- Visiting relatives and friends
- Concert, sports event, exhibition visit
- Sports (e.g., skiing, diving, mountain climbing)
- Business trip
- Religious purpose
- Other

- I do not plan to travel

4. Do you plan to use online tourism services, such as virtual tours, virtual visits to museums and exhibitions, virtual wine tasting etc. after the COVID-19 pandemic?

- no, it's not a substitute for real activities
- I'd rather wait until I can physically participate
- yes, if it's free
- yes, I would even pay for it
- I don't know

5. To what extent do the following statements apply to you? Please rate on a 5-point scale, where 1 indicates strong disagreement, and 5 indicates strong agreement.

- When I travel, I now opt for destinations closer to home than I did before the coronavirus outbreak.
- I choose more budget-friendly accommodation than I did before the pandemic.
- Since the onset of the coronavirus outbreak, I have been vacationing and relaxing in more secluded (more remote, less crowded, less visited) places than before.
- I now spend less when I travel than I did before the pandemic.
- I carefully assess the hygiene measures of a place before selecting accommodation.
- Due to the coronavirus pandemic, I now prefer private accommodation.
- I am increasingly interested in the possibilities of virtual/digital tourism.

6. What is your gender?

- man
- woman

7. How old are you?

8. What is your marital status?

- single/unmarried
- married
- divorced
- widow

- civil partnership

9. How many people live in your household including you?

10. What is your highest completed level of education?

- Up to 8 grades
- Vocational school
- Vocational high school
- General high school diploma
- Advanced technical college
- Bachelor’s degree
- Master’s degree
- No answer provided

11. How would you classify your or your family's monthly net income?

- rather below average
- average
- rather above average
- no answer provided

12. Based on economic activity, how would you classify yourself? Please, choose one!

- manual worker
- intellectual worker
- on parental leave
- stay-at-home parent
- student
- retired
- unemployed
- other inactive worker
- uncertain/no answer provided

13. What type of settlement do you live in? Please, choose one!

- Budapest
- county-level city
- other city
- village/municipality

- homestead/dispersed settlement

Appendix 6: The questionnaire used in the in-depth interviews in 2023

Introduction:

Please share some information about yourself, specifically about your holiday habits before the coronavirus outbreak. Do you typically go on holiday, and if so, do you prefer to travel domestically or internationally? How have these preferences evolved over the past decade?

Section 1: Travel Influences

When you travel, what are the primary factors influencing your choice of destination? Have these considerations changed in light of the coronavirus?

Section 2: Travel Purposes and Motivations

What is your primary purpose for traveling (e.g., hiking, wellness, visiting family or friends)? Has your motivation for travel changed due to the pandemic?

Section 3: Reflections on Spring 2020

Remember back to the spring of 2020 when the coronavirus turned into a global pandemic. What is the first thing that comes to your mind about this period?

Section 4: Impact on Travel Plans

When planning a trip for 2020, did you already have a booking when the outbreak occurred? If yes, what happened to your booking, and what influenced your decision?

Section 5: Future Travel Plans

Where did you travel to in 2021 and 2022 with at least one night's stay?

Section 6: Booking Practices

How far in advance do you typically book your holidays, and has this changed since the coronavirus outbreak?

Section 7: Online Tourism Services

Have you ever used online tourism services such as virtual tours, virtual museum visits, or online wine tastings? Do you foresee a future for these services?

Section 8: Impact of Coronavirus on Travel Habits

To what extent do the following statements apply to you? Please rate on a 5-point scale, where 1 indicates strong disagreement, and 5 indicates strong agreement.

- When I travel, I now opt for destinations closer to home than I did before the coronavirus outbreak.
- I choose more budget-friendly accommodation than I did before the pandemic.
- Since the onset of the coronavirus outbreak, I have been vacationing and relaxing in more secluded (more remote, less crowded, less visited) places than before.
- I now spend less when I travel than I did before the pandemic.
- I carefully assess the hygiene measures of a place before selecting accommodation.
- Due to the coronavirus pandemic, I now prefer private accommodation.

Section 9: Virtual Reality Solutions

To what extent do the following statements apply to you? Please rate on a 5-point scale, where 1 indicates strong disagreement, and 5 indicates strong agreement.

- I use virtual reality (VR) solutions (e.g. 3D virtual walking) to choose my accommodation and destination before I travel.
- During my travels, I use virtual reality (VR) solutions (e.g. VR glasses) where possible to enhance the experience.
- Because of the potential risks of traveling (strikes, natural disasters, terrorism, diseases), I would prefer to choose virtual tourism.
- A virtual reality travel experience is more exciting than a real trip.
- Not interested in virtual solutions for travel

Section 10: Demographic Questions

Gender

- man
- woman

Age

Marital status

- single/unmarried
- married

- divorced
- widow
- civil partnership

How many people live in your household including you?

What is your highest completed level of education?

- Up to 8 grade
- Vocational school
- Vocational high school
- General high school diploma
- Advanced technical college
- Bachelor’s degree
- Master’s degree
- No answer provided

How would you classify your or your family's monthly net income?

- rather below average
- average
- rather above average
- no answer provided

Based on economic activity, how would you classify yourself? Please, choose one!

- manual worker
- intellectual worker
- on parental leave
- stay-at-home parent
- student
- retired
- unemployed
- other inactive worker
- uncertain/no answer provided

What type of settlement do you live in? Please, choose one!

- Budapest

- county-level city
- other city
- village/municipality
- homestead/dispersed settlement

Appendix 7: Main demographic characteristics of respondents to the online survey 2023

Gender		
	main	% (n=648)
Men	151	23.3%
Women	497	76.7%
Σ	648	100%

Highest completed level of education		
	main	% (n=648)
Up to 8th grade	7	1.1%
Vocational school	112	17.3%
General high school diploma	177	27.3%
College or university degree	352	54.3%
Σ	648	100%

Settlement type of residence		
	main	% (n=648)
Budapest	104	16,0%
County-level city	101	15,6%
Other city	230	35,5%
Village, municipality	213	32,9%
Σ	648	100%

Age categories		
	main	% (n=648)
- 24	47	7.3%
25-34	75	11.6%
35-44	152	23.6%
45-54	138	21.1%
55-64	123	19.0%
65+	113	17.4%
Σ	648	100%

Monthly net family income		
	main	% (n=648)
Below average	84	13.0%
Average	388	59.9%
Above average	158	24.4%
No answer provided	18	2.8%
Σ	648	100%