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Impact of the COVID-19 pandemic on tourism: A systematic literature review

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Abstract

The COVID-19 pandemic has severely disrupted the global economy, particularly the tourism sector, thus making the interplay of pandemics and tourism a prominent topic of research. This paper aims to provide an overview of scientific research on the impact of the COVID-19 pandemic on tourism and determine future research directions.

The main research questions are:

1. Which research topics related to the impact of the pandemic on tourism have been addressed?
2. What are the bibliometric characteristics of published papers on these topics?
3. What are the directions for future research within this field?

A qualitative method was applied to obtain answers by analyzing the scientific papers published between March 2020 and March 2021. By applying the PRISMA protocol, a total of 33 relevant articles were identified, which were subjected to bibliometric analysis using VOSviewer and finally, content analysis was conducted. Thereby, the following key research areas were distinguished: the impacts and consequences of COVID-19 on tourism, the transformation of tourism and post-pandemic recovery strategies, the changes in behavior from the travelers' perspective, and the issues from the perspective of tourism enterprises. Based on the analysis, new research directions are proposed.

Keywords: COVID-19, pandemic, tourism, systematic literature review

1. Introduction

The continuous growth of global tourist activities was suddenly interrupted in 2020 due to an infectious disease caused by the SARS-CoV-2 virus, known as the coronavirus (COVID-19). The first recommendations for international travel were provided by the World Health Organization (WHO) on January 10, 2020 (WHO, 2020a) ^[42], while on March 11, the same year, WHO suggested that the disease could be considered a pandemic (WHO, 2020b) ^[43]. Due to this disease that emerged in China, travel restrictions all across the globe followed, and 27% of all destinations completely closed their borders for international tourism. Thereby, international tourism returned to the level of 30 years ago (United Nations World Tourism Organization [UNWTO], 2021) ^[41]. While there were 1.5 billion international tourist arrivals in 2019, this number dropped by 74% in 2022. To be exact, there were 381 million international arrivals in 2020, which is less than in 1990 (UNWTO, 2021) ^[41]. The pandemic resulted in the loss of 1 billion tourist arrivals and USD 2 trillion of global GDP (UNWTO, 2021) ^[41].

The pandemic has revealed the vulnerability of the global economy (Kukanja *et al.*, 2022) ^[20] and caused severe economic implications, particularly in tourism. Due to the sudden stagnation of tourist arrivals, numerous destinations, hotels, restaurants, theme parks, and other tourist attractions across the globe were left empty and without their revenues (Harchandani & Shome, 2021) ^[12]. All tourism stakeholders have suffered negative consequences, which has encouraged scholars to research the interplay of COVID-19 and tourism in more detail. As this pandemic eminently differs from previous crises (Schmude *et al.*, 2021) ^[35], it soon became a prominent topic among researchers. Hence, the purpose of this paper is to provide an overview of the scientific research on the impact of COVID-19 on tourism and to determine the future research directions within this field.

Therefore, the main research questions are:

1. Which research topics related to the impact of the pandemic on tourism have attracted the attention of scientists?
2. What are the bibliometric characteristics of published papers on the impact of the COVID-19 pandemic on tourism?

3. What are the directions for future research on the connection between the pandemic and tourism? After the introduction, the methodology is presented and is followed by research results. The last section provides the concluding remarks and directions for future research.

2. Methodology

To fulfill the research goal, qualitative research was conducted by analyzing the scientific articles addressing the influence of the COVID-19 pandemic on tourism. The first year of the pandemic was chosen as a time frame, thus including articles published between March 1, 2020 and March 1, 2021.

The research was conducted in four phases. Initially, in order to find relevant scientific articles, it was necessary to determine the keywords to be used for searching in databases. For that purpose, Google Trends and Google Scholar were used. The criteria for choosing keywords were based on the frequency of appearance of keywords in expert and scientific papers related to the topic. Preliminary screening resulted in identifying the following keywords as the most prominent ones: COVID-19 pandemic, COVID-19, coronavirus, sarscov-2, pandemic, disasters, crisis, travel restrictions, tourism demand, tourism, tourism industry, global change, public policy, crisis. After determining the keywords, the analysis was conducted using Google Trends and Google Scholar.

The second phase consisted of a systematic review of published papers. "A systematic review is a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review" (Moher *et al.*, 2009, p. 1006) [26]. The PRISMA protocol was applied to identify appropriate papers for the analysis (Moher *et al.*, 2009) [26]. PRISMA is an acronym for Preferred Reporting Items for Systematic Reviews and Meta-Analyses. It refers to guidelines for achieving the minimum set of items required for reporting in a systematic literature review and conducting a meta-analysis. This tool is intended to help authors, re-viewers and editors of a journal. The PRISMA flowchart provides an overview of the flow of information at different stages of a systematic literature review. Using the diagram, the number of identified, included, and excluded records is mapped, as well as the reasons why some records are excluded from the analysis (PRISMA Transparent reporting of systematic reviews and meta-analyses, n.d.). This process consists of four steps: search, verification, eligibility check, and analysis of the included records. The first step of the process and diagram-making refers to browsing the database and collecting articles relevant to the research. It included articles identified in the Scopus and Web of Science citation databases. The articles had to be already published, available in open access, written in English, published between March 2020 and March 2021 and related to tourism. For browsing articles, the following keywords were used: *covid*, *coronavirus*, *tourist*, *tourism*, and *travel*. This step was followed by the

verification phase consisting of duplicate identification. In the third step, the compliance of the articles with the criteria was checked. Upon checking the papers' eligibility, the final number of articles was obtained and included in the analysis.

After choosing relevant articles, a bibliometric analysis was performed in the third research phase using the *Visualizing scientific landscapes*-VOSviewer software. VOSviewer is a free tool used to develop, visualize, and analyze bibliometric networks that encompass authors of research, journals and other publications. Bibliometric networks are built on the citation, bibliographic data, keywords, and co-authorship relationships. Because of this tool, it is possible to construct and visualize the network of the most common terms from a large number of data or literature (Centre for Science and Technology Studies of Leiden University, n.d.). The last phase included a content analysis of papers that met the required criteria. Finally, a systematic review of the papers dealing with the interplay of COVID-19 and tourism was conducted. The results through the phases are presented in the following section.

3. Findings

3.1 Google trends

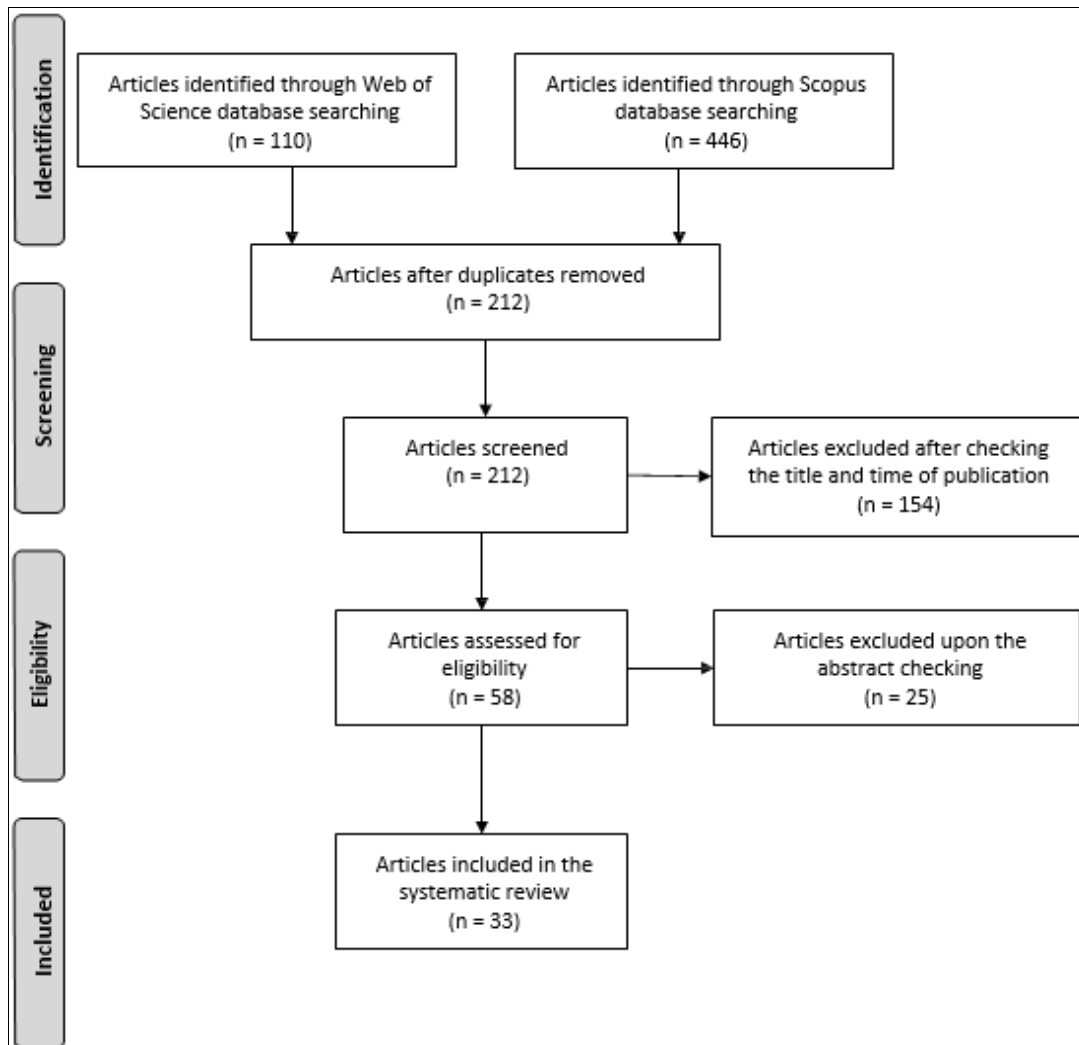
A Google Trends search was started by analyzing the frequency of the aforementioned keywords. It was found that the most frequently searched term is COVID, with its peak at the beginning of the pandemic when it reached the value of 100. Later there were slight oscillations in its popularity; however, its value kept varying between 50 and 100. There was also a notable interest in the term COVID during 2021, while less interest in the terms COVID 19 and COVID-19 was detected. The frequency of other terms related to tourism, such as *disasters*, *tourism industry*, *public policy*, *crisis*, and *global change*, was analyzed as well. However, their interrelationship with the word COVID and other words related to the pandemic was not recognized.

3.2 Google scholar

When browsing the term *COVID 19*, the Google Scholar search engine displayed a total of 3,680,000 results on April 16, 2021. By setting the time frame for publication between 2020 and 2021, a total of 294,000 search results were shown. When the advanced search settings were modified to filter the articles related to the keywords *coronavirus*, *pandemic*, *tourism*, and *travel*, the result was a total of 89,300 articles. Furthermore, when the settings were changed to display articles including all previously mentioned keywords, 19,700 articles were obtained. Additional filtering using the word *crisis* reduced the number of results to 15,000, while re-filtering the search by adding the word *vacation* resulted in 4,150 articles. This indicated a high interest of scientists in researching the connection between the COVID-19 pandemic and tourism.

3.3 Systematic literature review

The first step of the systematic literature review was applying the PRISMA protocol. The PRISMA flowchart is presented in Figure 1.



Source: Adapted from Moher *et al.* (2009) [26]

Fig 1: PRISMA flowchart

After browsing the Scopus and Web of Science databases, 556 potentially relevant articles were collected. In the second step, the number of duplicates was checked. A total of 344 duplicates were identified, resulting in 212 papers relevant to the analysis. In the following step of deciding on eligibility, a total of 154 papers were excluded from further analysis because they did not meet the set time framework since they were not published between March 1, 2020 and March 1, 2021. Furthermore, certain papers concerned some

other research areas, although they were related to one of the selected keywords. Therefore, at the end of this step, a total of 58 potentially relevant works were identified. The next step included re-reviewing the papers by analyzing the abstract to decide whether the articles fit the research objectives. In the last step, 25 papers were excluded due to unsuitable context, which resulted in the final list of 33 articles corresponding to the chosen research topic and other parameters (Table 1).

Table 1: Papers selected using the PRISMA protocol

No.	Author(s)	Title	Year	Journal	Location	Methodology	Purpose
1.	Hall <i>et al.</i>	Pandemics, transformations and tourism: Be careful what you wish for.	2020	Tourism Geographies	/	Conceptual research; literature review.	Contextualizing the impact of COVID-19 on tourism and identifying the factors that will affect tourism recovery.
2.	Kour <i>et al.</i>	Understanding the impact of airport service quality on passengers' revisit intentions amidst COVID-19 pandemic.	2020	Enlightening Tourism. A Path making Journal	India	Primary research; structured questionnaire; structural equation modeling (SEM).	Examining the influence of airport service quality on intention to revisit the destination, reuse the airport and spend at the airport during the COVID-19 pandemic.
3.	Qiu <i>et al.</i>	Social costs of tourism during the COVID-19 pandemic.	2020	Annals of Tourism Research	China	Primary research; structured questionnaire; contingent valuation method (CVM).	Examining how local residents perceive the risk of tourism activity during the pandemic and their willingness to pay to minimize the risk; assessing the social cost of tourism during the pandemic.
4.	Bartis <i>et al.</i>	The economic impact of the COVID-19 pandemic on the business events sub-sector in	2021	African Journal of Hospitality Tourism and	South Africa	Primary research; e-mail interview.	Exploring the negative impact of the COVID-19 pandemic on business events as a tourism subsector and possible

		South Africa: Mitigation strategies and innovations.		Leisure			strategies to overcome the challenges.
5.	Sharma <i>et al.</i>	Reviving tourism industry post-COVID-19: A resilience-based framework.	2021	Tourism Management Perspectives	/	Conceptual research; systematic review; keyword clustering.	Studying the relevant literature and observing the impact of the COVID-19 pandemic on tourism; suggesting a policy framework to cope with challenges during the pandemic.
6.	Pinos <i>et al.</i>	Spa tourism opportunities as strategic sector in aiding recovery from Covid-19: The Spanish model.	2021	Tourism and Hospitality Research	Spain	Conceptual research; literature review.	Examining the role and potential of spas in health tourism during pandemics; possibilities of spa tourism repositioning during and after pandemics.
7.	Moreno-Luna <i>et al.</i>	Tourism and sustainability in times of COVID-19: The case of Spain.	2021	International Journal of Environmental Research and Public Health	Spain	Secondary research; comparative analysis.	Examining the impact of COVID-19 pandemics on the economy and tourist flows across different regions in Spain.
8.	Khan <i>et al.</i>	COVID-19 and sectoral employment trends: Assessing resilience in the US leisure and hospitality industry.	2021	Current Issues in Tourism	USA	Secondary research; autoregressive distributed lag (ARDL) model.	Exploring the vulnerability and resilience of the leisure and hospitality sector in the USA based on employment data.
9.	Turnšek <i>et al.</i>	Perceived threat of COVID-19 and future travel avoidance: Results from an early convenient sample in Slovenia.	2020	Academica Turistica	Slovenia	Primary research; online questionnaire; correlation analysis.	Exploring the tourists' perception of threats of COVID-19 in the early days of lockdown with respect to their demography and past travel experience.
10.	Lapointe	Reconnecting tourism after COVID-19: The paradox of alterity in tourism areas.	2020	Tourism Geographies	Canada	Conceptual research; case study.	Identifying ongoing changes in Canada's tourism industry caused by COVID-19; exploring how survival strategies could become part of the long-term resilience strategy.
11.	Dedeoğlu & Boğan	The motivations of visiting upscale restaurants during the COVID-19 pandemic: The role of risk perception and trust in government.	2021	International Journal of Hospitality Management	Istanbul, Turkey	Primary research; online questionnaire; structural equation modeling (SEM) and multiple group analysis (MGA).	Examining the influence of dining out motivations on intention to visit upscale restaurants amidst the COVID-19 pandemic; examining the moderating effect of risk perception and trust in government.
12.	Pappas & Glyptou	Accommodation decision-making during the COVID-19 pandemic: Complexity insights from Greece.	2021	International Journal of Hospitality Management	Greece	Primary research; telephone survey; fuzzy-set qualitative comparative analysis (fsQCA) and necessary condition analysis (NCA).	Exploring the attributes of the decision-making process while purchasing accommodation during COVID-19 pandemics.
13.	Kaushal & Srivastava	Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India.	2021	International Journal of Hospitality Management	India	Primary research; e-mail interview.	Identifying the main challenges for the tourism and hospitality industry in the time of pandemic and key takeaways from this situation.
14.	Bhaskara & Filimonau	The COVID-19 pandemic and organisational learning for disaster planning and management: A perspective of tourism businesses from a destination prone to consecutive disasters.	2021	Journal of Hospitality and Tourism Management	Bali; Indonesia	Primary research; online interview.	Assessing the mechanisms of organizational learning in tourism enterprises in Bali as a disaster-prone destination; examining the resilience developed due to previous disasters.
15.	Luo & Lam	Travel anxiety, risk attitude and travel intentions towards "travel bubble" destinations in Hong Kong: Effect of the fear of COVID-19.	2020	International Journal of Environmental Research and Public Health	Hong Kong, China	Primary research; online questionnaire; structural equation modeling (SEM).	Examining the relationship between fear of COVID-19, travel anxiety, attitudes toward the risk and intention to visit the "travel bubble" destinations.
16.	Jiang & Wen	Effects of COVID-19 on hotel marketing and management: A perspective article.	2020	International Journal of Contemporary Hospitality	/	Conceptual research; literature review.	Discuss the impact of COVID-19 pandemic on hotel marketing and management and suggest future research agenda.
17.	Li <i>et al.</i>	Coronavirus impacts on post-pandemic planned travel behaviours.	2020	Annals of Tourism Research	China	Primary research; online questionnaire; CHAID analysis.	Analyzing the intra-pandemic perception and its relation to post-pandemic travel behavior.
18.	Han <i>et al.</i>	The post-coronavirus world in the international tourism industry: Application of the theory of planned behavior to safer destination choices in the case of US outbound tourism.	2020	International Journal of Environmental Research and Public Health	USA	Primary research; online questionnaire; structural equation modeling (SEM).	Building a framework to explain post-pandemic travel decision-making of US tourists by expanding the theory of planned behavior.
19.	Santos-	Sustainable tourism as a source	2020	International	Spain	Primary research;	Analyzing the variables that drive

	Roldán <i>et al.</i>	of healthy tourism.		Journal of Environmental Research and Public Health		face-to-face questionnaire; PLS-SEM.	sustainable tourism consumption regarding tourist awareness and the COVID-19 pandemic.
20.	Deb & Nafi	Impact of COVID-19 pandemic on tourism: Recovery proposal for future tourism.	2020	GeoJournal of Tourism and Geosites	/	Secondary research.	Exploring the consequences of the COVID-19 pandemic and developing a framework for tourism recovery.
21.	Nair & Sinha	COVID-19 and future travel perspectives: An empirical study on travel history and travel decision choices.	2020	Enlightening Tourism. A Pathmaking Journal	Unspecified	Primary research; online questionnaire; Kruskal-Wallis test.	Examining the current travel decisions and assessment of future travel intentions after the pandemic.
22.	Jiricka-Pürner <i>et al.</i>	City tourism pre- and post-covid-19 pandemic Messages to take home for climate change adaptation and mitigation?	2020	Journal of Outdoor Recreation and Tourism	Austria	Conceptual research; case study.	Describing the impacts of climate changes on city tourism in Austria in the wake of the COVID-19 pandemic.
23.	Seraphin	COVID-19: An opportunity to review existing grounded theories in event studies.	2021	Journal of Convention & Event Tourism	/	Conceptual research; bricolage approach.	Analyzing Getz's (2012) futurist propositions to understand how to revive the event industry in the time of the pandemic.
24.	Seyitoğlu & Ivanov	A conceptual framework of the service delivery system design for hospitality firms in the (post-) viral world: The role of service robots.	2020	International Journal of Hospitality Management	/	Conceptual research; literature review.	Developing a conceptual framework for the service delivery system of hospitality enterprises in the (post) viral world.
25.	Zoğal <i>et al.</i>	Stay at (which) home: Second homes during and after the COVID-19 pandemic.	2020	Journal of Tourism Futures	/	Conceptual research; literature review.	Exploring the role of second homes in tourism after the first COVID-19 outbreak and revealing possible effects which could make them the center of the tourism rental market.
26.	Milano & Koens	The paradox of tourism extremes. Excesses and restraints in times of COVID-19.	2021	Current Issues in Tourism	/	Conceptual research; literature review.	Understanding post-covid tourism transformation by analyzing tourism issues that have caused tourism extremes in terms of too much or too little tourism.
27.	Ribeiro <i>et al.</i>	Customer acceptance of autonomous vehicles in travel and tourism.	2021	Journal of Travel Research	USA	Primary research; online questionnaire; covariance-based structural equation modeling (CB-SEM).	Developing a model for autonomous vehicle acceptance by identifying attributes that determine travelers' intention to use them.
28.	Foroudi <i>et al.</i>	The gloom of the COVID-19 shock in the hospitality industry: A study of consumer risk perception and adaptive belief in the dark cloud of a pandemic.	2021	International Journal of Hospitality Management	London, UK	Primary research; online questionnaire; structural equation modeling (SEM).	Exploring the causal relationship between customers' perception of the shock of pandemics, their beliefs, their anticipated emotions, and their desire to visit restaurants in the future.
29.	Čorak <i>et al.</i>	Opportunities for tourism recovery and development during and after COVID-19: Views of tourism scholars versus tourism practitioners.	2020	Tourism: An International Interdisciplinary Journal	Croatia	Primary research; in-depth interview.	Comparison of attitudes towards short-term recovery strategies and long-term possibilities of transforming tourism in a more inclusive and sustainable way.
30.	Uğur & Akbiyik	Impacts of COVID-19 on global tourism industry: A cross-regional comparison.	2020	Tourism Management Perspectives	/	Secondary research; text mining.	Examining the effects of the COVID-19 pandemic in terms of travelers' reactions (comments) to user-generated media.
31.	Carr	COVID-19, indigenous peoples and tourism: A view from New Zealand.	2020	Tourism Geographies	New Zealand	Conceptual research; case study.	Examining the negative consequences of tourism income loss and positive responses of indigenous tourism operators in New Zealand.
32.	Brouder	Reset redux: Possible evolutionary pathways towards the transformation of tourism in a COVID-19 world.	2020	Tourism Geographies	/	Conceptual research; literature review.	Exploring potential evolutionary pathways to reset tourism based on takeaways from previous studies.
33.	Higgins-Desbiolles	Socialising tourism for social and ecological justice after COVID-19.	2020	Tourism Geographies	/	Conceptual research; literature review; case study.	Analyzing the issue of tourism in a neoliberal context and illustrating ecological and social injustices caused by false promises of responsible tourism.

The papers presented in Table 1 are analyzed using bibliometric analysis and content analysis.

3.3.1 Bibliometric analysis

The bibliometric analysis aimed to answer the first two research questions. The chosen articles were published in a total of 21 journals. Most of them were published in

Tourism Geographies and *International Journal of Hospitality Management* (5 articles each), *International Journal of Environmental Research and Public Health* (4 articles), *Current Issues in Tourism* (2 articles) and *Annals*

of *Tourism Research* (2 articles). The rest of the articles were published in the other 16 scientific journals. Out of the total number of papers, 21 papers present the results of empirical research, where data were collected by conducting interviews and using questionnaires, both in the field and online. Data were also obtained through reviews on certain websites, by monitoring statistics and indicators in selected reports, and by using relevant web pages with information on the daily number of infected people for a certain area, the number of unemployed people, income, and other relevant data at a given time. Other papers are theoretical, presenting the results of literature reviews, case studies, and a historical perspective, or they build new

theoretical models. In these articles, data were collected using secondary sources, such as statistics, reports, newspapers, and the Internet. Out of 33 relevant papers, 22 refer to a specific geographical area, and these are countries with highly developed tourism, namely Spain, China, USA, UK, Turkey, Canada, New Zealand, Slovenia, Austria, India, Indonesia, South Africa, Korea, and Croatia. A bibliographic network analysis was conducted to determine the key terms in the selected articles. Maps were built based on the distance between these terms using the VOSviewer software (Figures 2 and 3).

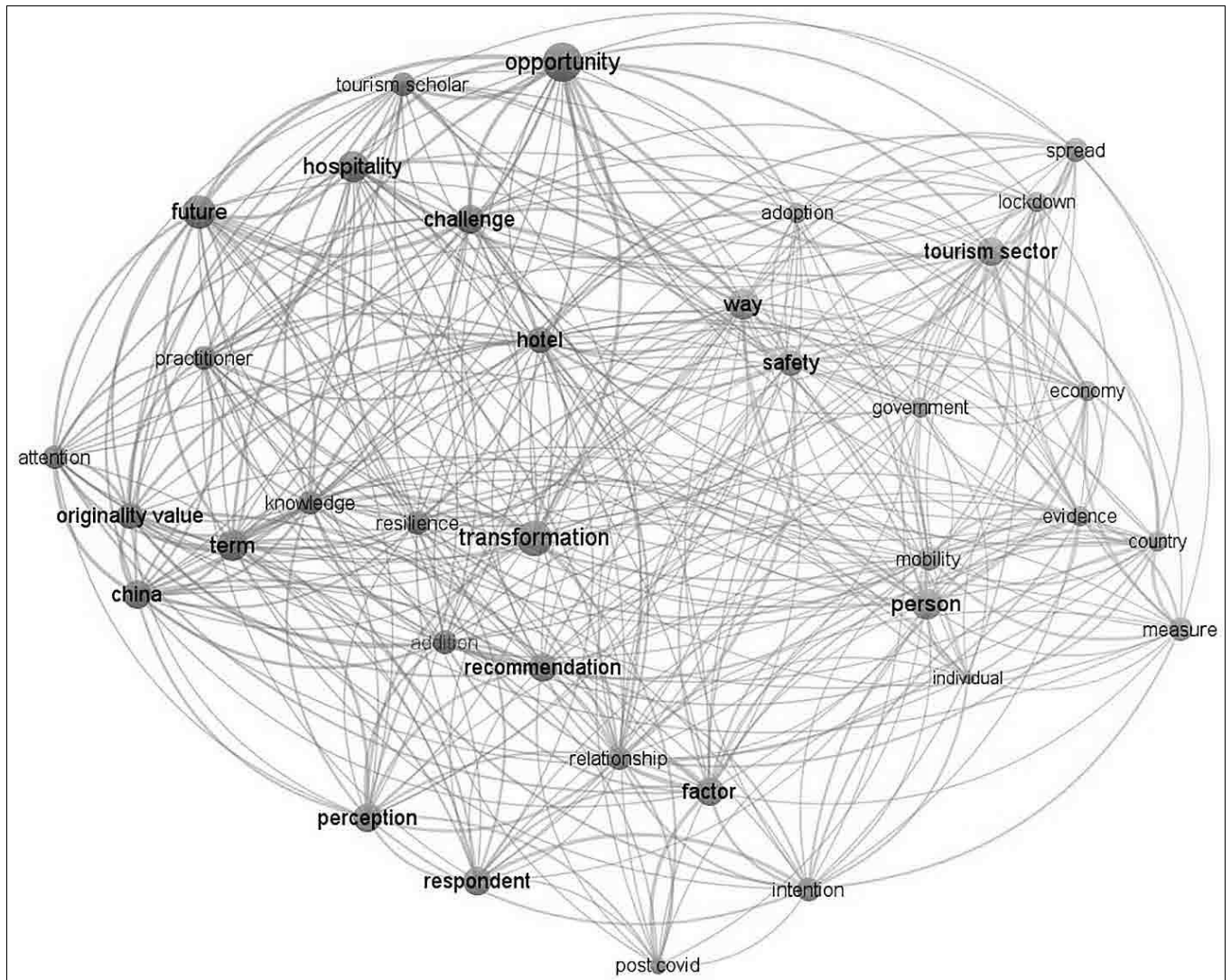


Fig 2: Bibliometric network of the most frequent terms from titles and keywords of articles in Web of Science database

Figure 2 presents the bibliographic network based on the data collected in the Web of Science database. It displays the data based on textual data co-occurrence. The analysis resulted in three clusters. The first (red) cluster includes terms such as *hospitality, opportunity, challenge, future, hotel, China, and resilience*. The second (green) cluster relates to the terms *tourism sector, safety, person, adoption, government, lockdown, and others*. In the third (blue)

cluster, there are terms such as *transformation, recommendation, factor, perception, respondent and post covid*. Hence, the dominance of certain topics can be observed, particularly those that relate COVID-19 pandemics with the challenges and consequences for the tourism and hospitality sector while addressing the need for tourism transformation.

2021) ^[17]. Since tourism cannot be separated from social welfare, another research direction relates to social impacts, particularly concerning local residents. According to Qiu *et al.* (2020) ^[32], tourism may generate considerable social costs during the pandemic, and local residents, younger ones in particular, appear to be willing to pay for their reduction. To mitigate these costs, scholars suggest a community-oriented tourism framework (Higgins-Desbiolles, 2020) ^[13] and a broader approach that does not focus solely on tourism recovery but also takes into consideration the potential positive impacts of the pandemic on tourism (Qiu *et al.*, 2020) ^[32].

A significant part of the existing literature deals with the *tourism transformation and recovery strategies* for tourism after the pandemic (Sharma *et al.*, 2021; Hall *et al.*, 2020; Lapointe, 2020; Deb & Nafi, 2020; Jiricka-Pürerrer *et al.*, 2020; Milano & Koens, 2021; Ćorak *et al.*, 2020; Brouder, 2020; Higgins-Desbiolles, 2020) ^[38, 10, 21, 7, 15, 25, 6, 3, 13]. Unlike the previous superficial changes in tourism, the pandemic has provided an opportunity for complete transformation, which would require significant changes on both supply and demand sides (Brouder, 2020) ^[3]. Since COVID-19 has negatively influenced all tourism stakeholders, scholars emphasize the necessity of joint efforts for tourism recovery (Deb & Nafi, 2020; Bartis *et al.*, 2021) ^[7, 1]. Most studies addressing this issue are conceptual, and few frameworks for resilience building and tourism recovery are proposed. Several scholars have emphasized the role of government (Sharma *et al.*, 2021; Dedeoğlu & Boğan, 2021; Carr, 2020) ^[38, 8, 4], technological advancements (Sharma *et al.*, 2021; Bartis *et al.*, 2021) ^[38, 1], local community (Higgins-Desbiolles, 2020; Qiu *et al.*, 2020) ^[13, 32] and tourism enterprises (Deb & Nafi, 2020; Lapointe, 2020) ^[7, 21] as key starting points for tourism transformation. However, the regenerative power of tourism could be considerably diminished due to disparities in the perception of key stakeholders. While the attitudes of tourism scholars and practitioners appear to be similar regarding the short-term tourism recovery strategies, long-term transformation possibilities reveal certain discrepancies (Ćorak *et al.*, 2020) ^[6]. As the current situation could boost positive attitudes towards sustainability (Santos-Roldán *et al.*, 2020) ^[34], most scholars see the pandemic as an opportunity to re-start tourism in a more sustainable way (Santos-Roldán *et al.*, 2020; Jiricka-Pürerrer *et al.*, 2020) ^[34, 15]. Although the transformation of tourism requires a global approach, Hall *et al.* (2020) ^[10] warn that changes will be unequal. They argue that while some destinations will focus on sustainable tourism development, many others will continue to strive for quantitative growth, thereby limiting tourism's transformative possibilities. To achieve balanced and inclusive tourism, it is crucial to focus on all aspects of sustainability. According to Lapointe (2020) ^[21], the survival strategy of connecting tourism with the needs of the local population, in the long run, could be the foundation of the resilience strategy. Some scholars have also recognized the potential of alternative forms of tourism, such as spa tourism (Pinos Navarette & Shaw, 2021; Jiricka-Pürerrer *et al.*, 2020) ^[30, 15]. They consider this an appropriate time to open new horizons, reach out to new customers, and highlight the healing attributes of the spas while adapting to a safety protocol against COVID-19 (Pinos Navarette & Shaw, 2021) ^[30].

Another extensive group of studies observes the issue from the *travelers' perspective* by researching travel risk perception, anxiety, and future travel avoidance (Turnšek *et al.*, 2020; Luo & Lam, 2020) ^[39, 24], post-pandemic travel behavior (Li *et al.*, 2020; Han *et al.*, 2020; Nair & Sinha, 2020) ^[22, 11, 28], perceived risk of dining in restaurants (Dedeoğlu, & Boğan, 2021; Foroudi *et al.*, 2021) ^[8, 9], decision-making attributes in accommodation choice (Pappas & Glyptou, 2021) ^[29], and behavior on user-generated media (Uğur & Akbiyik, 2020) ^[40]. Scholars agree that considerable travel behavior changes have derived from the COVID-19 pandemic despite different research settings. However, these changes do not affect all travelers equally. Li *et al.* (2020) ^[22] distinguished between crisis-resistant and crisis-sensitive tourists, and the intra-pandemic perception appeared to be positively related to planned travel behavior only for the crisis-sensitive group. Other studies that differentiate tourists based on their travel experience have discovered that people with less travel experience were more concerned about the COVID-19 incidents (Nair & Sinha, 2020) ^[28] and more prone to avoid traveling during the pandemic (Turnšek *et al.*, 2020) ^[39]. Furthermore, Han *et al.* (2020) ^[11] identified two new determinants of post-covid travel behavior, which refer to perceived knowledge of COVID-19 and psychological risk. When observing the decision-making attributes of travelers, health safety, security, hygiene, and insurance policies are seen as the main concerns of travelers and, thereby, priorities for tourism enterprises (Pappas & Glyptou, 2021; Lapointe, 2020; Uğur & Akbiyik, 2020) ^[29, 21, 40].

Studies addressing the challenges from the *perspective of tourism enterprises*, particularly in hospitality, are present in a considerably smaller scope (Kaushal & Srivastava, 2021; Jiang & Wien, 2020; Seyitoğlu & Iva-nov, 2020; Bhaskara & Filimonau, 2021) ^[21, 14, 37, 2] yet they represent a key link in resilience strategy development. The pandemic revealed the unpreparedness of the hotel industry for a crisis of this magnitude. Moreover, Bhaskara and Filimonau (2021) ^[2] have confirmed that even the tourism enterprises in destinations prone to various disasters do not necessarily develop resilience for such events because of insufficient resources. Since the physical presence, as the key feature of tourism service, is limited, hoteliers are faced with various new challenges. Due to tourist preferences and travel limitations, P2P accommodation has empowered and could become the center of tourist activities (Zoğal *et al.*, 2020) ^[44]. Hence, Kaushal and Srivastava (2021) ^[16] underpin the need for better preparedness and multitasking of hotel employees, an increased sense of hygiene, sanitation and related SOPs, the need for optimism, and the considerable role of media. In addition to the typical aspects of hotel cleanliness and safety, scholars suggest using the benefits of technology (Bartis *et al.*, 2021; Sharma *et al.*, 2021; Jiang & Wen, 2020; Seyitoğlu & Ivanov, 2020; Ribeiro *et al.*, 2021) ^[1, 38, 14, 37, 33]. Using new technologies as a response to the pandemic is encouraged in all aspects of the tourism business, particularly when it comes to events (Seraphin, 2021; Bartis *et al.*, 2021) ^[36, 1] and hotel service delivery (Seyitoğlu & Ivanov, 2020) ^[37]. In the (post-)viral world, providing technology-assisted services enables hotels to use human employees and service robots simultaneously, compensating, thereby, their advantages and disadvantages (Seyitoğlu & Ivanov, 2020) ^[37].

4. Conclusions and future research directions

This study aimed to provide an overview of scientific research on the impact of the COVID-19 pandemic on tourism and to determine the direction for future research within this field. Therefore, this research contributes to the body of knowledge by identifying critical research areas and determining the directions for future research regarding the impact of the COVID-19 pandemic on tourism.

The analysis shows that scientists have focused on four key areas of research in their studies-namely,

1. The impacts and consequences of COVID-19 on tourism.
2. Tourism transformation and post-pandemic recovery strategies.
3. Changes in behavior from the travelers' perspectives.
4. Issues from the perspective of tourism enterprises.

These studies are mostly based on empirical research conducted in various countries across the world.

Future research could focus on topics from different areas, observing both the macro and the micro-levels. One group of research questions derives from the impact of the pandemic on the tourism system, and it may include examples of successful tourism policies and post-pandemic recovery strategies. Examples of good practices could be presented by researching how destination management organizations at different levels, from national to local, responded to the crisis caused by the COVID-19 pandemic. It would also be relevant to research the time needed for the recovery of tourist destinations and tourism enterprises. Furthermore, a prosperous area of research refers to the qualitative changes in the transformation of the tourism system that have already occurred and those expected to occur in the long run. Researchers assume that while the COVID-19 pandemic is an opportunity to steer tourism development towards sustainability, there is also the possibility of a relapse.

Another group of studies could investigate the success of business strategies and models applied by companies in the hospitality industry, event industry, or transportation. Research has shown that the pandemic was a catalyst for change in terms of business digitalization. Hence, it would be advisable to research to what extent the companies applied these innovations and whether there were any changes in marketing strategies.

The third group of future research directions relates to changes in tourist behavior. It has been established that travelers value safety more and are more concerned about hygiene measures in destinations and accommodation facilities. They also use information and communication technologies and value staying in nature and visiting less-crowded destinations. The question is whether these changes will be sustained in the long run or will tourists return to the old patterns of behavior. Empirical research would be needed to answer this question and provide the basis for market segmentation and the development of marketing strategies.

This study has some limitations that could stimulate further research. An important limitation derives from the time framework and database coverage. Papers for the analysis were selected from two databases, Web of Science and Scopus. Hence, it is advised for future studies to consider papers from other databases as well. It should also be noted that the analyzed papers were published during the first year

of the pandemic. However, many new papers covering topics related to COVID-19 and tourism have been published in the meantime, thus indicating the need for further analysis with a wider time framework. Furthermore, the bibliometric analysis focused on a limited number of categories, thus omitting some categories, such as paper categorization or the number of citations. Future bibliometric analysis should therefore be more detailed to provide more information. Additionally, a meta-analysis of papers researching the influence of COVID-19 on tourism would be useful to enable a deeper understanding of their interrelation. Apart from that, the COVID-19 pandemic, which has caused a number of consequences for global tourism, also provides vast opportunities for researchers to analyze the impacts on tourism compared to previous crises and conduct longitudinal research.

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