



The impact of COVID-19 on the accommodation sector in tourism – a bibliometric analysis

Mariela Nekova 

“St. Cyril and St. Methodius” University of Veliko Tarnovo, Veliko Tarnovo, Bulgaria

Corresponding author: m.nekova@ts.uni-vt.bg

ABSTRACT

Key words:

pandemic, hospitality industry,
peer-to-peer accommodation,
tourist, impact, hotel

The significance of review articles has been proved. This type of articles is especially necessary now, when immediate actions to save an important economic sector must be taken. The present research aims to determine the impacts of the COVID-19 pandemic on one of the most important elements of tourism – the accommodation facilities, through bibliometric analysis. In order to achieve this goal, the VOSviewer software was used, and data from one of the world's largest databases of scientific production – the Web of Science, was collected. The bibliographic coupling approach was used in the bibliometric analysis. The bibliometric analysis was followed by content analysis of the most cited studies from each cluster. The effects of COVID-19 on the accommodation facilities are summarized and classified by groups.

Article processing

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1. Introduction

The review of previous studies is an important part of the development of scientific knowledge (Webster and Watson 2002). Bacq et al. note that review articles play a critical role in the scholarly domain (Bacq et al. 2021). According to Rogerson and Rogerson the advantages of review articles are related to the identification of trends and potential gaps in scientific research (Rogerson and Rogerson 2021). The attempts for systematization of knowledge relevant to the review articles prove their significance (Torraco 2016; Snyder 2019; Post et al. 2020; Blümel and Schniederermann 2020; Patriotta 2020; Donthu et al. 2021; Paul et al. 2021; Balon 2022). Review articles have been made in different directions of tourism (Wang et al. 2017; Rashid 2018; McCabe and Qiao 2020; Fakfare et al. 2022; Wang et al. 2022).

COVID-19 provoked an avalanche of publications by the international tourism scholarly community about its influence on the tourism and hospitality industry. The pandemic changed research direction and topics (Brouder 2020; Kock et al. 2020; Rogerson and Baum 2020; Zenker and Kock 2020; Assaf et al. 2021; Mattei et al. 2021; Persson-Fischer and Liu 2021, as cited in Rogerson and Rogerson 2021). For scholars in the field of tourism, COVID-19 represents a critical challenge because “research that contributes to industry practice will need to reorient the focus of studies, given that the industry will undoubtedly change with new normal practices in place” (Kwok and Koh 2021, as cited in Rogerson and Rogerson 2021).

Tourism is a sensitive industry in terms of external impacts such as pandemics, wars, political instability, terrorism, natural disasters etc. (Sonmez 1998; Hall et al. 2004; Fyall et al. 2006; Fernando et al. 2012; Butler and Suntikul 2013; Uğur and Akbıyık 2020; Jayasinghe et al. 2021) They influence people's decision to travel, especially for entertainment and recreation. World tourism is going through its biggest crisis after World War II (Catalin Cretu et al. 2020).

Pandemics and their impact on tourism are not something new. The short literature review done by Karabulut et al. shows the negative influence exerted on tourism by the spread of different infectious diseases before the emergence of COVID-19 (Karabulut et al. 2020). For instance, Zeng et al. (2005) studied the effects on tourism caused by the SARS (Severe Acute Respiratory Syndrome) epidemic in 2003 in China. Blake et al. (2003), on the other hand, demonstrate that the FMD (Foot-and Mouth Disease) affects not only agriculture but also other sectors of the UK economy, including tourism. Kuo et al. (2008) studied the effects of two diseases: bird flu and SARS, on tourists arriving in Asia. They show that tourist arrivals in countries affected by SARS have significantly decreased, while no effect has been observed in bird flu affected countries. Similarly, McAleer et al. (2010) analyzed the impact of the same two diseases, finding out that the effect of SARS on tourist arrivals is stronger compared to the one of bird flu. Rosselló et al. (2017) focus on malaria, yellow fever, dengue and Ebola, studying their influence on tourists arriving in the affected countries. By using fictive variables, these diseases are shown to cause significant decrease in the number of tourist arrivals. Specifically, the risk of malaria in a given country accounts for 47% fewer tourists arriving. Yang et al. (2020) developed a dynamic stochastic general equilibrium (DSGE) model in order to understand the effect of the pandemic on tourism. The application of the model to the COVID-19 case shows that tourism demand declines with the increase in health risk. Hall et al. (2020) present a comprehensive review of pandemics from the beginning of XX century to today and their impact on tourism. The authors emphasize the fact that coronaviruses are not the only pandemic threat: they studied some of the major pandemics and outbreaks of disease in the 20th and 21st century (Spanish flu 1918-1920, Asian flu 1957-1958, Hong Kong flu 1968-1969, HIV/AIDS from 1960 to today, cholera from 1961 to today, severe acute respiratory syndrome SARS 2002-2003, swine flu 2009, Ebola in West Africa from 2014 to today etc). One of the conclusions reached by the authors is that the changes in tourism caused by COVID-19 will be uneven in time and space (Hall et al. 2020).

The review articles which make bibliometric analyses and systematic reviews of literature in the sphere of tourism in the past nearly two years treat a wide range of topics. Among them are such, relevant to the revolution in hospitality (Osei et al. 2020), the influence of COVID-19 on the hospitality industry as a whole (Davahli et al. 2020), studies of the impact of COVID-19 on business, tourism in particular (Alshater et al. 2022), through the eyes of the “sharing economy” (Mody et al. 2021), management of risk and crises in tourism, including in the context of the pandemic (Leta and Chan 2021; Wut et al. 2021; Ritchie and Jiang 2021; Park et al. 2022a), internships and training in tourism (Zopiatis et al. 2021a; Menon et al. 2022), burnout syndrome among employees (Ayachit and Chitta 2022), the summarizing of studies of hospitality and tourism and COVID-19 (Zopiatis et al. 2021b; Utkarsh and Sigala 2021), from the point of view of sustainability, including the life cycle of tourism industry (Arzoumanidis et al. 2021; Elkhwesky et al. 2022), travel behavior of tourists during the period of the COVID-19 pandemic and after it (Ahmad et al. 2022), robots in tourism industry (Belias and Vasiliadis 2022), research of studies based on “live streaming” technology – or, in other words, “intercommunication technology allowing real-time interaction – which is widely accepted by tourists and tourism business operators” (Lin et al. 2022), bibliometric analyses related to the environment and tourism (Martínez-Martínez et al. 2022), smart tourism (Borges-Tiago et al. 2022; Chen et al. 2022) etc (Pocinho et al. 2021; Bilal et al. 2022; Işık et al. 2022, and others).

Purpose of the research is to specify, generalize and classify the effects of the pandemic caused by COVID-19 on one of the

basic elements of tourism – the accommodation sector, through bibliometric analysis of publications. The research tasks relevant to the achievement of the purpose are: 1) examination and selection of the articles (by title and abstract) according to chosen criteria; 2) clusterization of the articles which are object of the analysis by means of the VOSviewer software; 3) content analysis of the most cited open access articles by clusters; 4) classification of the effects on the accommodation sector. The research period includes articles published from the beginning of 2020, i.e. the start of the pandemic, up to July 2022. The main research problems are: What are the effects of the pandemic? What is their character of manifestation according to their continuance?

2. Research Methodology

In order to perform the bibliometric analysis, the present study uses the VOSviewer software. Data were collected from one of the largest world databases of scientific production – the Web of Science. The following keywords were used to find articles related to the topic of the study: “tourism”, “COVID-19”, “hotel” or “accommodation”. The search was conducted by title, abstract and keywords. As a result, 304 articles were generated, including ones with early access, accessed 28.07.2022. The next step of the research was to make a precise analysis of the titles and abstracts. Two main criteria were used to include articles in the present research: 1) the studies had to be made after the outbreak of the pandemic; 2) the studies had to focus on the hospitality industry in particular the accommodation sector. Eventually, 159 publications were identified corresponding to the specified criteria. 155 articles were included in the final analyses as four of the publications did not meet the requirement for bibliographic coupling and were excluded by the VOSviewer software.

The bibliographic coupling approach is used in bibliometric analysis. The approach itself consists of three steps: 1) identification of a set of recent documents, 2) calculation of the similarity between the pairs of documents by means of counters for bibliographic linking, and 3) distribution of the cited documents in clusters with the help of the similarity values (Fig. 1). The grey field in Fig.1 represents the documents in the data set. Documents W, X, Y and Z are documents out of the set, but there are references to them from documents in the set. The solid arrows represent citations within the set. The dashed arrows are citations of documents out of the set (Boyack and Klavans 2010).

The VOSviewer software provides several options for analysis and formation of the clusters. We chose the LinLog method, because due to it we got reasonable result. It is based on the techniques for arrangement and clusterization of Newman (2004) and Noack (2007, 2009). The LinLog method was used for isolating the clusters. Initially 9 clusters were formed with volumes varying from 3 to 34 articles included in each of the clusters. A requirement for a minimum number of articles participating in every single cluster was introduced in order for the number of clusters to be optimized. Thus four clusters were isolated and they are graphically represented in Fig. 2.

The bibliometric analysis was followed by content analysis of the most cited articles from each cluster with the open access articles included in the analysis (Suppl. material 1). The structure of this method usually includes an analysis of the hypothesis/hypotheses and/or the purpose/purposes of a given research, of the applied methodology and the methods used, of the obtained results and inferences drawn, and, in conclusion, of future studies. With a view to the purpose of the present research, the emphasis was placed on the achieved results, inferences, and future studies.

The content analysis was done by hand. The main advantage of using a manual analysis is that it provides an interpretive approach

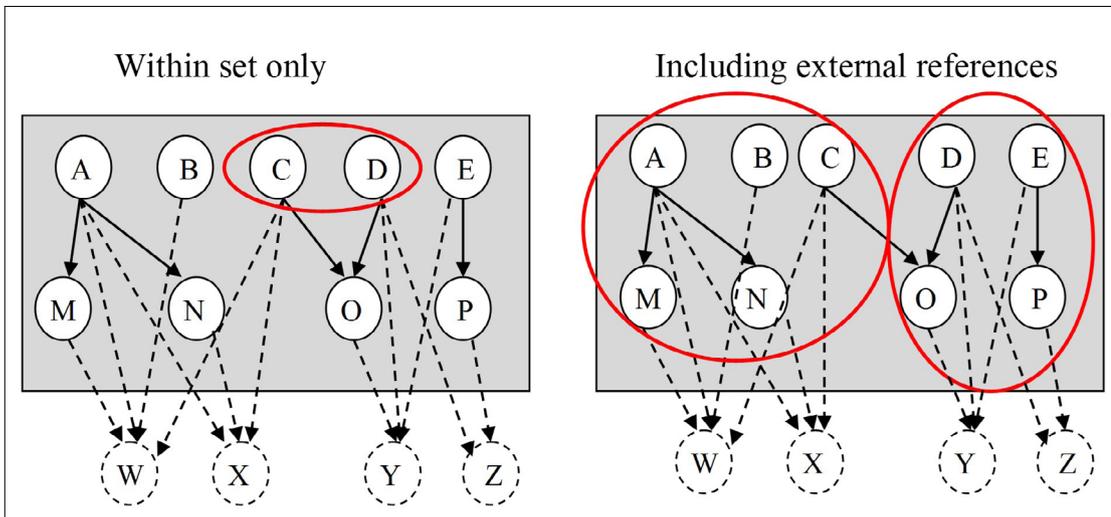


Figure 1. Grouping of publications using the bibliographic coupling approach according to Boyack and Klavans (2010)

and allows for the researcher to be immersed in the analysis process (Goh and Baum 2021).

3. Results

It is accepted in scientific literature that bibliographic coupling is the relevant approach for grouping of very recent publications – as is the case with the literature dedicated to COVID-19 – while grouping based on co-citation works best for articles written over a much longer period of time (Zopiatis et al. 2021b). Therefore, bibliographic coupling is the approach adopted in the present research. The result

from its application is graphically represented in Fig. 2 and Fig. 3. The figures show the network of 155 coupled articles grouped in 4 clusters, with the pie charts in Fig. 2 showing the number of citations, while the ones in Fig. 3 – the total link strength. The number of citation “measures” the scientific value of the articles, therefore the bigger the circle, the more significant the article is. In Suppl. material 1 in descending series are presented the most cited articles form each cluster. Most cited are the articles by: Hao et al. (2020), Shin and Kang (2020), Hossain (2021), Filimonau et al. (2020), Mao et al. (2021), Lai and Wong (2020), and others (Suppl. material 1).

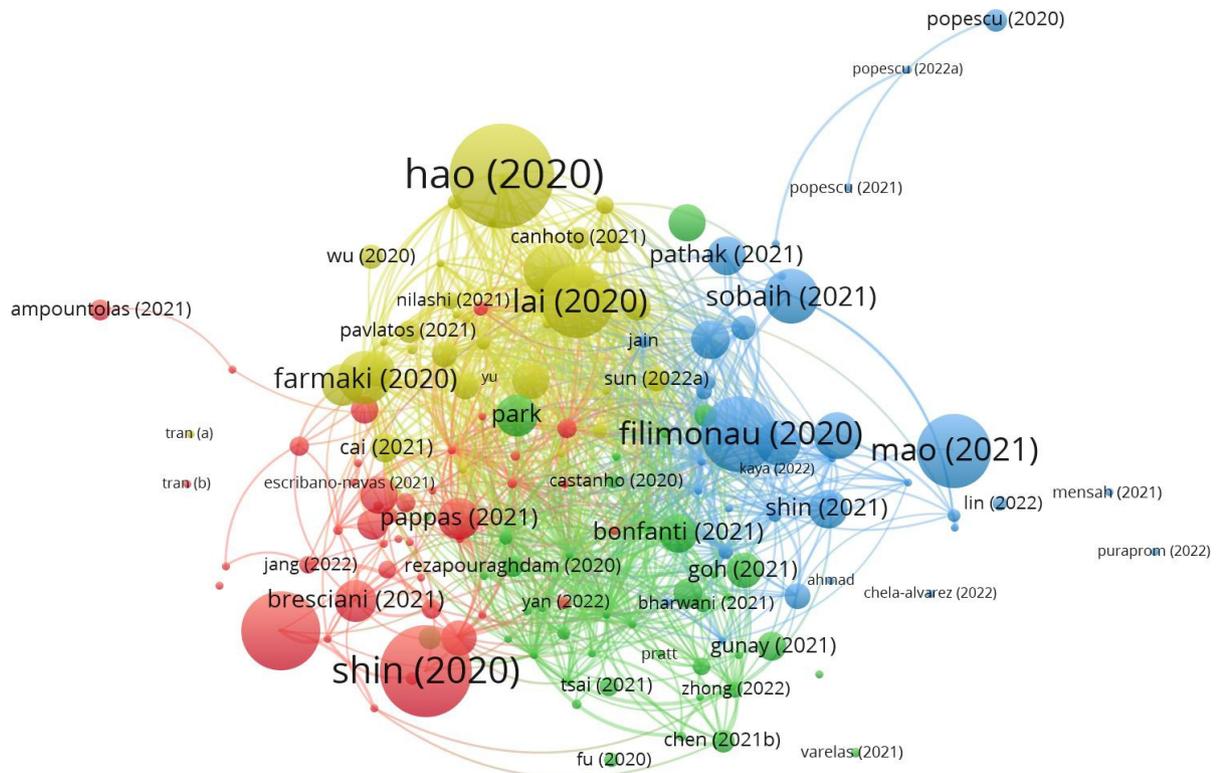


Figure 2. Network map of bibliographic coupling of the publications (number of citations)

A network of the publications may be presented in a similar way (Fig. 3) if the applied criterion is the total link strength. In this case the pie shows the value of total link strength. The more co-cited publications the articles have, the stronger is the link among them. The articles with the greatest value of total link strength are: Garrido-Moreno et al. (2021), Del Chiappa et al. (2022), Dileep et al. (2022), Waller and Abbasian (2022), Apaolaza et al. (2022), Kenny and Dutt (2022), and others.

The terms used at the beginning of the pandemic are related to the perceptions of consumers, disaster resilience, health risk. At the next stage attention is paid to the so called “burnout” of the employees, i.e. mental health of employees, their satisfaction with the job, preservation of the environment, strategies are searched for coping with the consequences of the pandemic and the economic crisis caused by Covid-19, as well as corporative social responsibility. Some positively charged terms appeared, such as hope, optimism, perspectives. The ideas about “the new normal” and about robotization of hotel business have been pushed. Travel intentions and the standards of hygiene in hotels required by tourists are analyzed at the end of the studied period. Special attention is paid to competitiveness and confidence in the brand as means of attracting customers. A considerable problem that is explored is job insecurity which creates conditions for mental instability of employees (Fig. 4).

The results obtained in the content analysis of the most cited articles are summarized by clusters.

Cluster 1

The articles in cluster 1 found that, within the context of the perceived health risk, customer’s expectations for interaction with the employees of the hotel and the level of hotel cleanliness are inversely

proportional in the first case, and directly proportional in the second one respectively. In other words, the higher the expectations of future customers of the hotel that they will be in direct contact with employees are, the lower the probability for reservation is, and vice versa, the higher the expectations that the standard of cleanliness will be adequate enough are, the bigger the probability for reservation is (Shin and Kang 2020). The conclusion is reached that it is necessary to use effective and adequate communication channels both with potential customers and the other participants in the accommodation sector. (Shin and Kang 2020; Hossain 2021). Attention is drawn to the fact that the long-term consequences from COVID-19 are not known yet (Hossain 2021). A change in attitudes towards different types of accommodation is found. For example, before the COVID-19 pandemic tourists mostly preferred to stay in hotel rooms and shared houses/apartments. Because of the pandemic, however, travellers choose the “full flat” model (renting of a whole apartment/house instead of a separate room) more and more, that is to say a transition from one model to another is observed (Bresciani et al. 2021).

There are differences visible in the consumption of the so called peer-to-peer accommodation according to the type of tourists – business tourists or tourists travelling for entertainment, and according to the type of destination – urban or rural. A larger decrease is observed in the consumption of accommodation services by tourists travelling for entertainment compared to business tourists. In terms of the spread of COVID-19, urban areas pose a higher risk to tourists compared to rural areas. Greater comfort and convenience can be provided to compensate for this negative effect (Jang et al. 2021).

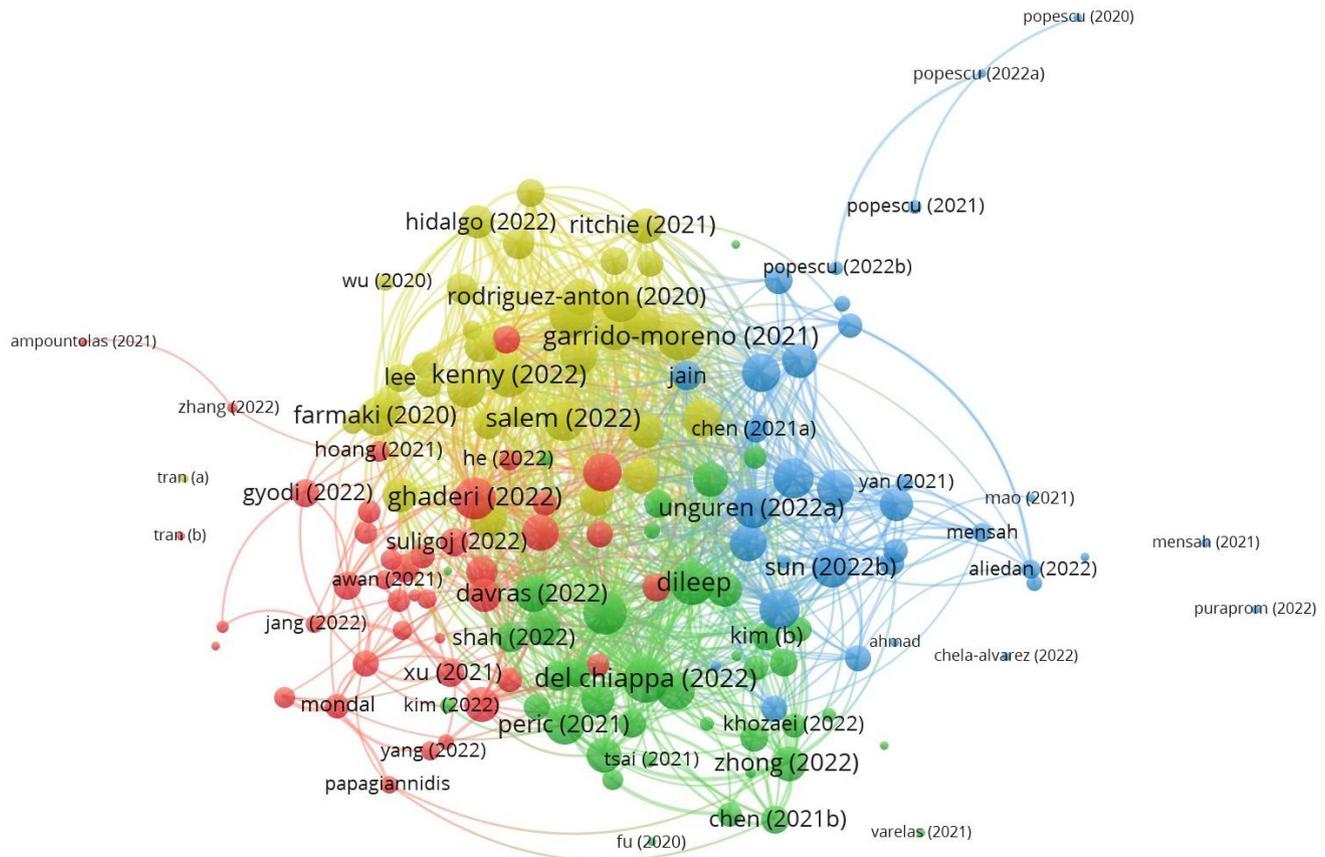


Figure 3. Network map of bibliographic coupling of the publications (total link strength)

and fines, reduction of interest rate etc) and non-financial support (various trainings, guidelines for sterilization and disinfection, online marketing campaigns etc) (Salem et al. 2022). Studying the impact of COVID-19 on the customer evaluation of hotel services reveals a probably lasting change in their expectations and demands of hotels (Hu et al. 2021).

Following this content analysis, the main conclusion which can be drawn is that there are three main axes of the research topics of publications that can be outlined: one is exploring personnel in different categories (state of health, including mental health, safety and security in the workplace), another one – the adopted and implemented strategies for survival of the accommodation services business, including through introduction of new technologies and new working practices, and the third one – the change in the behavior of tourists and the change in the accommodation model.

4. Discussion and Conclusions

In summary, the impact of COVID-19 on the accommodation sector is as follows:

- Of paramount importance are safety and health (including mental health) of tourists and employees, because of which various measures are taken (Bonfanti et al. 2021; Mao et al. 2021; Yan et al. 2021; Kim and Liu 2022);
- New working practices related to automatization and robotization as well as advanced cleaning practices are introduced, i.e. the pandemic helped for faster technological development of the accommodation sector (Shin and Kang 2020; Bonfanti et al. 2020; Salem et al. 2022);
- A change in the accommodation model is found (for example renting of shared apartments/houses and hotel rooms is replaced by renting of an entire apartment/house) (Hong et al. 2020; Bresciani et al. 2021) as well as in the purpose of second homes (Zoğal et al. 2022);
- Urban tourist destinations are found to pose higher health risk to tourists compared to rural destinations. Urban tourist destinations can attract business tourists who prefer the amenities and comfort provided by urban areas. In rural destinations social distancing can easily be organized because of the comparatively lower density of tourist sites. Tourists travelling for entertainment and recreation can be directed to them (Jang et al. 2021);
- New services can be developed for the survival of the hotel industry, such as paid quarantine service (Hoang et al. 2021), organizing online conferences (Lau 2020), charitable donation of rooms to healthcare workers for the purpose of deriving future benefits (Shin et al. 2021);
- Smaller companies in the accommodation sector are more affected by the COVID crisis (Gunay and Kurtulmuş 2020; Sobaih et al. 2021);
- Change in tourists' expectations and demands of the places of accommodation (Hu et al. 2021);
- Sharp decline in employment and income (Hao et al. 2020; Farmaki et al. 2020).

As a final result of the above-mentioned generalization, the effects of COVID-19 may be classified in several groups depending on the sphere of influence:

- I. In the context of health and safety:
 1. change in tourists behavior when choosing tourist destination and place of accommodation (change in the accommodation model);
 2. introduction of new work practices;
- II. Survival of the sector:
 1. development of new strategies;

2. introduction of new technologies and innovations, including robotization and smart-technologies;
3. technical renovation (for example replacement of the central air conditioning systems of hotels with separate air conditioners for each room);
4. development of new services;

III. Decline in employment and profitability.

The effects of COVID-19 can be conditionally separated into two large groups on the base of the continuance of influence criterion: an impact causing short-term effects, and an impact causing long-term consequences. To the long-term consequences can be related: withdrawing from the tourism business and turning to long-term rentals (Farmaki et al. 2020); a permanent change in the expectations of part of the tourists and in their requirements regarding accommodation places (Hu et al. 2021); termination of the operation of part of the accommodation facilities etc. To the short-term effects can be related: temporary closure of sites due to government measures taken; decline in employment and income; some of the safety measures taken, such as wearing masks and social distancing; a change in the purpose of the accommodation facilities (medical personnel is temporarily accepted in hotels) etc.

Summarizing future studies recommended by the authors of the articles, object of the content analysis, it was concluded that they should be dedicated to:

- Studying the impact of other critical factors and additional motivations which influence the decision to travel and book a room/house/apartment (Shin and Kang 2020; Pappas and Glyptou 2021);
- Research on the following problems: how to achieve social distancing, hygiene and safety in the places for accommodation (Hossain 2021), and how these measures influence customer satisfaction (Bonfanti et al. 2021); to what extent the change in price and the price-quality relation influences the decision for accommodation (travelling), including the choice of accommodation type (Bresciani et al. 2021; Pappas and Glyptou 2021);
- Studying the role of the destination image caused by the pandemic (Jang et al. 2021);
- Tracing the evolution of the significance of second homes, assessment of the causes for and effects of the search for second home, as well as the scale and the temporal character of this phenomenon (Zoğal et al. 2022);
- Developing specific scales for COVID-19 and collecting questionnaire survey samples from different destinations and time periods (Melián-Alzola et al. 2020; Mao et al. 2021; Sobaih et al. 2021; Yan et al. 2021; Vo-Thanh et al. 2021; Hu et al. 2021; Kim and Liu 2022);
- Expanding the territorial scope of future studies (Lai and Wong 2020; Sobaih et al. 2021; Vo-Thanh et al. 2021; Hu et al. 2021; Kim and Liu 2022; Salem et al. 2022);
- Research on the impact of new technologies in the accommodation sector introduced as a result of the COVID-19 pandemic (Shin and Kang 2020; Hao et al. 2020).

5. Limitations and Future Research

The present research was done under certain limitations. The main database where the search for scientific publications was concentrated was the Web of Science and that could have led to the omission of significant studies. A similar omission could also be contained in the result produced after entering the selected keywords. Despite the above-mentioned limitations, we believe that the analyzed articles included in the present research are sufficiently representative, and that the present research is relevant.

The necessity to repeat studies already done was confirmed in order to substantiate the present consequences and to potentially reveal new long-term consequences of the pandemic on the tourist accommodation facilities.

We found that the studies are limited in the spatial context, therefore it is necessary to put in some effort in this direction. Spatial analyses contribute to the enrichment of other types of analyses. A spatial analysis helps to explore the “decision making at the level of tourists – destination attributes” relation (Jang et al. 2021).

COVID-19 affected all aspects of contemporary life. The impact of the pandemic reached every single economic sector. Our focus here was on the tourist accommodation facilities because they are an important component of the tourism system without which sustainable tourism could not be developed.

The present study complements the bibliometric analyses existing to date related to the accommodation tourism industry. It was done at a later stage of the outbreak of the pandemic which allowed more scientific publications revealing the impact of COVID-19 on the accommodation sector to be included and more aspects of the impact of the pandemic to be considered.

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Conflict of interest

The authors have declared that no competing interests exist.

ORCID

<https://orcid.org/0000-0001-7115-4726> - M. Nekova

Supplementary material

Suppl. material 1: Most cited articles, grouped in clusters

Authors: Nekova M.

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