A Bibliometric Analysis on Business and Management Research During COVID-19 Pandemic: Trends and Prospects

IMI
BHUBANESWAR

Anshu Rani[1] and Pavithra Salanke[2]

Abstract

As the global pandemic of COVID-19 has drawn significant attention with an increasing number of research studies appearing in the literature, it is imperative to analyse the recent trends of research and future thrust areas. In numerous fields of knowledge, including business and management, the COVID-19 problem has produced enormous research undertakings. A bibliometric study of the articles published during the COVID-19 period in the area of business and management is rare with the focus on the South-Asian context. The total number of articles identified for the purpose of research throughout the Scopus database was 3,648 using the COVID-19 keyword and limiting this search to published journal articles in the domain of business and management. Further, VOSviewer software was used to analyse data and finds were presented. VOSviewer software has given the results on the cluster of authors, country of publications, citation analysis, co-citation, keywords and significant journals of publication. Given that the COVID-19 epidemic is still far from being under control, more research is needed to determine the direction of future research and other current topics. This study will provide the prospects in COVID-19-related business research and will end by pointing out the implications of these results.

Keywords

COVID-19, research trends, VOSviewer, business, business research during COVID-19, bibliometric analysis

[1]REVA University, Bangalore, Karnataka, India
[2]School of Commerce and Management Studies, Dayananda Sagar University, Bangalore, Karnataka, India

Corresponding author:
Anshu Rani, REVA University, Bangalore, Karnataka 560064, India.
E-mail: meetanshu2504@gmail.com

Introduction

COVID-19 has emerged as the most fatal disease, wreaking havoc on world economies in every way. There are 3,39,15569 confirmed cases and 4,50,127 deaths across India as of 8 October 2021 (Government of India, n.d.). Worldwide, there are 236,511,950 active cases and 4,828,340 deaths (Wikipedia, n.d.). As a result, governments and civil society organisations are working to limit its impact on human lives while also providing monetary easing to keep businesses afloat and reduce rising unemployment, particularly in emerging countries (Goodell, 2020). Governments around the world responded by enacting a variety of policies to mitigate the pandemic's impact, including travel bans, border closures, lockdowns (restricting people's movement) and recovery programmes (to assist workers and companies who have lost employment and production, respectively). Regardless of the rules put in place by policymakers, the Novel coronavirus was destined to kill people and limit economic growth, resulting in a significant negative productivity shock. The disease's consequences, as well as the measures adopted to battle it, have prompted questions regarding epidemic preparedness (Aristovnik et al., 2020; Leach et al., 2021; Mahi et al., 2021). The crisis adversely affected low-wage, unstable jobs, but it also had a significant impact on the middle-class income group.

Coronavirus and related diseases such as Ebola, SARS and MERS have been the subject of extensive research during its impact years (Deng et al., 2020; Gong et al., 2020). There is still a lot of work to be done in future as well. However, the number of such studies has increased significantly since the epidemic of COVID-19 in all the disciplines of research (Yang et al., 2020). The impact of COVID-19 was so evident in each area of life and highly impacted the input-process-outcomes of the business and its management. The coronavirus and pandemic literature in business and management has rarely been thoroughly reviewed in a bibliometric review till 2021. As a result, this research has been taken up as a delicate attempt to review the existing business and management literature on COVID-19 through bibliographic analysis. Besides, the influence of COVID-19 is so powerful that there is the necessity for more research within the area of business and management to make better decisions. The whole COVID-19 literature in the context of business, economics and management has rapidly increased thus, become vital to summarise. In light of the recent COVID-19 pandemic's business consequences, the study's goal is to examine the published scientific works that specifically address business and management related topics (Aristovnik et al., 2020). In order to help future researchers and policymakers, this study will provide a comprehensive bibliographic analysis of the literature from the past (2019) to the present (2021) (Bauwens et al., 2021).

This article studied a corpus of COVID-19 and business and management papers to address concerns to enable business practitioners and researchers to understand the impact of the pandemic on future growth. The following research questions have been undertaken to examine in this article: (a) What are the publishing growths and patterns in the time span of the COVID-19 pandemic particularly in the area of business and management? (b) What are the most used

keywords and prominent research clusters associated with them? (c) Who are the top researchers and their citation strength in the area of business and management? (d) Which are the top journals and countries studying the pandemic in the area of business and management till today?

This study contributes to the literature by reviewing recent studies relating to COVID-19 and business research and by supporting other researchers in conducting a study on other pandemic-related topics. In relation to the connection between business research and the COVID-19 pandemic, this study should contribute to the literature. Classifying the literature between epidemics and research in business might lead to the identification of various open research issues to be investigated in the near future.

Literature Review

On 26 March, India's Union Finance Minister announced a raft of measures under the Pradhan Mantri Garib Kalyan Yojana to ease the resulting financial troubles. The statement addressed a variety of welfare measures, including rationing and direct cash transfers under different current SP systems. More humanitarian measures were announced six weeks into the lockdown, including migrant worker rations, the implementation of the 'One Nation-One Ration Card' and increased NREGA funds. Innovative methods, such as piggybacking on and vertical and horizontal growth of certain existing SP programmes (such as PDS), were used to accomplish the response, despite the fact that it was delayed (Sanyal & Shrivastava, 2021). As of 11 October 2021, 238,714,967 cases are registered worldwide with 4,868,709 deaths. We could see that India has 33,971,607 total cases and there is an increase of 314 new cases with 450,814 deaths. There is a gradual rise in new cases and the number of death in most of the countries worldwide (Woldometer, n.d.).

The impact of COVID-19 has rapidly grown in the sectors of healthcare, vaccine, transportation, manufacturing, information technology, tourism, education, SMEs, e-commerce, transportation, employment, income, investment, phycology, work–life balance, entertainment, etc., and will show differential influence in the coming decade as well. The workplace study by McKinsey and Org examines the perspectives of more than 65,000 survey participants from 423 different organisations. A desolate picture of the COVID-19 pandemic and its impact on the workplace, nevertheless, business challenges have enhanced across the organisations since 2019, and persistent gaps remain in research to understand the scenario better (mckinsey.com, 2021). Therefore, examining the trends and prospects for new research related to COVID-19 in the area of business and management will be highly fruitful for coming researchers.

Bibliometric analysis has grown in popularity in recent years in business research (Khan et al., 2021), and its popularity is due to (a) the advancement, availability and affordability of bibliometric software like Gephi, Leximancer and VOSviewer, as well as scientific databases like Scopus and Web of Science, and (b) the bibliometric analysis's growing use in business research shows that it's more than just a passing trend; it reflects the method's usefulness in two key

areas: managing large volumes of scientific evidence and producing significant results. To discover emerging trends in article and journal performance, collaboration patterns and research constituents, scholars use bibliometric analysis for various reasons, including the exploration of the intellectual structure of an existing domain in the extant literature (Verma & Gustafsson, 2020). It can therefore be used to decode and map the accumulated scientific knowledge as well as evolutionary nuances of well-established fields by attempting to make sense of large volumes of unstructured information rigorously through bibliometric analysis. It's for this reason that well-conducted bibliometric studies can help lay the groundwork for expanding an area in novel and significant ways, because they give researchers an all-in-one view, enable them to identify knowledge gaps and generate new ideas for investigation, and allow them to better position their intended contributions to the field. Bibliometric analysis in business research is a guide, which presents a significant avenue for business scholars who wish to conduct future research in this domain (Cruz-Cárdenas et al., 2021). This study will attempt the analysis with help of VOSviewer software and will answer the research questions.

Research Method

Bibliometric analysis refers to the study and analysis of citations of scholarly publications using different frameworks, tools, and methods. This has led to the development of various metrics to generate an understanding into the intellectual structure of a broad academic field and evaluate scientific journals, research and researchers accordingly. According to Ellegaard and Wallin (2015), bibliometric analysis is a systematic, concise and generalisable process that minimises the inherent subjectivity of description and systematic reviews, which is why we used it to review the relevant literature in this study (Donthu et al., 2021). By showcasing the frontiers of the existing relevant intellectual borders and knowledge structure, displaying references through mapping enables researchers to understand research trends generally and intuitively (Verma & Gustafsson, 2020). We used four different procedures proposed by Donthu et al. (2021) to conduct a bibliometric review of the related literature. Figure 1 depicts the four-stage process workflow for the existing study. Numerous bibliometric indicators and scientific knowledge mapping techniques are used to answer the research questions. This is the brief of process and data collection.

The results of collecting exhaustive bibliometric data on COVID-19-related research have been meticulously planned. All relevant documents and publications in the Scopus database were identified between the periods of 1 November 2019 to 30 September 2021. This database has been used in previous studies; however, it became more relevant in the area of business and management because most of the quality journals are found in this database. Keeping one database in search will also reduce the probability of overlap in search. Further, only journal articles and conference articles were considered for this study excluding letters, reviews, notes, editorials, white papers, reports, book and book chapters. The broad range
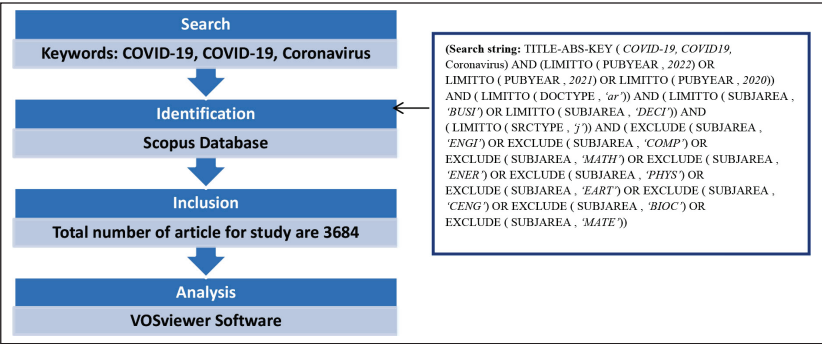
Figure 1. Flowchart of Database Determination.

of COVID-19-related keywords was included in the applied search query, which extended prior narrowly defined queries by including 'novel coronavirus', 'coronavirus', 'COVID-19', 'COVID19', 'Coronavirus' and 'COVID-2019', in titles, abstracts and keywords were applied for search. In addition, the subject areas were specifically narrowed down to business and management and decision-science. As a result of the screening process, a dataset of 3,684 documents was short-listed for further analysis for this article.

The next step was a comprehensive bibliometric analysis, which allowed for a novel approach to literature review while also vastly improving traditional literature review methods. An organised review of the literature is a traditional method for analysing and evaluating scientific literature that offers a comprehensive look at the subject matter (Bauwens et al., 2021). The downside to this approach is that it has several drawbacks related to subjective factors, time commitment and effectiveness. By using modern bibliometric approaches, these limitations can be reduced and extensive scientific literature collections can be efficiently handled. By using VOSviewer bibliometric studies on COVID-19 research have so far strengthened the findings and implications of those results.

Finally, the review process included only documents written in English. Comma-separated values format was used to export the information to a separate file. Various bibliometric techniques were used as a result of this information to provide evidence of the result. The study has presented citation analysis, co-citation analysis, keyword analysis and country analysis to present the data in the next section.

Analysis, Visualisation and Discussion

Keywords Analysis

Keywords and co-words evaluation are used to trace the current knowledge structure of the field of study taken for research. In this study, a systematic method

is used to discover scientifically subfield linkages, track the phenomenon and build a semantic field map. A different approach is used to perform co-word analysis, which makes it possible to use the text's content directly to grasp co-occurrence interactions when building the framework. This allows us to extract scientific maps based on the text's high frequency of usage. With the help of a keyword mapping clustering algorithm, a conceptual structure and a thematic map for the existing research are created. By evaluating the proximity of keywords used during research, the study develops a conceptual framework for the field and uses clustering to identify groups of papers that express common concepts (Aria & Cuccurullo, 2017). The study also identifies the configuration of existing research clusters (Demiroz & Haase, 2019).

With the help of VOSviewer, keyword analysis is undertaken to discover which terms have appeared the most frequently in the research. This study adds weight to our criteria for looking for COVID-19 study literature in the business field. Based on the cartography, it's assumed that results from keyword research will accurately reflect the article's content and, in turn, identify the main cluster discussed in the relevant literature (Khan et al., 2022; Verma & Gustafsson, 2020). The results are presented in Figure 2, which shows 'COVID-19' is the top keyword used in business and management research during the intended time span of COVID-19, followed by crisis, viral disease, crisis management, sustainability, tourism, leadership, China and technology, which are the most frequently used keywords . The indexed keyword analysis also reflected that the top three keywords are Covid-19, viral disease and respiratory disease followed by other 10 inductive words, epidemic, crisis management, Public health, China, pandemic, tourism management, air transportation, social media, human, online, as significant keywords used during the period of 2020 and 2021 in business and management area of research.

(a) Most Cited Keywords.   (b) Indexed Keywords Analysis.
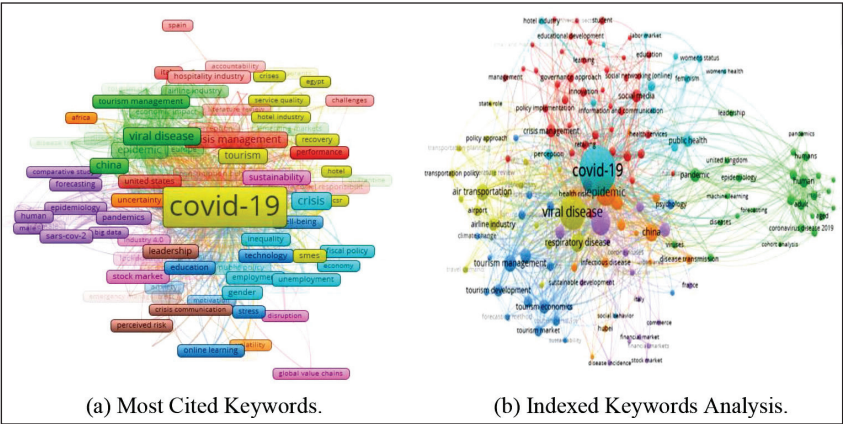
Figure 2. Keyword Analysis Using VOSviewer.

There are six evident clusters shown in the results with several keywords. The six clusters are denoted by different colour indications in indexed keyword analysis. The dominant keywords of clusters are (a) COVID-19 (*epidemic, public health, perception, online, hotel industry, women's status*), (b) viral disease (*respiratory, airline industry, airport, transport policy, state role*), (c) China (*disease transmission, health, infectious disease, corona, psychology*), (d) crisis management and social media (*retailing, innovation, health service, government policy, education, online learning, ICT*), (e) human and pandemic (*Coronavirus, UK, virus, leadership, epidemiology, adult, male, cohort analysis*), (f) tourism management (*tourism development, economy, sustainable development, market and climate change*). This analysis shows the linkage between the keywords and help in understanding the trends of research in the field of business and management during the pandemic so far.

Most Cited Authors and Publications

This section highlights the most influential researchers working in the field of business and management during the period of coronavirus. More than 56.7% of the authors have only one published work and therefore the output is diverse. The distribution shows that scientific publication contributions are not concentrated among a small number of authors, but rather are spread across a larger group. Figure 3 represents the most cited authors and their citation values to get a better idea of their productivity and the ramifications of their work. The clusters of co-citation of authors are shown in Figure 3(a), wherein six different groups are identified.

Zhang Y. is the most prolific researcher when it accounts for the number of publications. An active researcher who has written and published a whopping seven scientific papers, followed by Zhang X. and Zhang J. However, there is no monopoly on the research work during this time. There are five groups of writers presented in Figure 3(b) who were mostly cited for their work in the area of business and management during COVID-19. The references in the research paper published during this time period were also analysed and are represented in Figure 3(c). Gössling (2020) has been cited in the majority of the paper in the business and management area.

Journals Analysis

Aside from that Table 2 lists out the most published journal and the total document published in these journals. This information is essentially significant for those authors who are looking to publish scientific papers about COVID-19 in the area of business and management. An active researcher who has written and published a whopping seven scientific papers, followed by Zhang X. and Zhang J. However, there is no monopoly on the research work during this time. There are five groups

(a) Co-citation of Authors.

(b) Top Cited Authors.

(c) Documents Bibliographic Analysis.
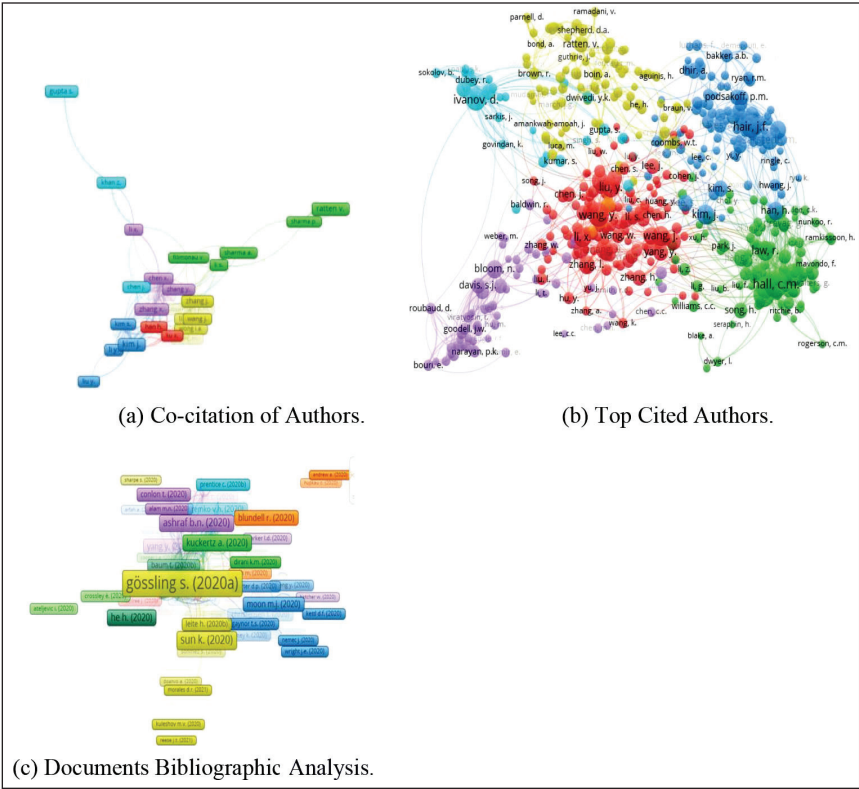
Figure 3. Most Cited Author Using VOSviewer.

of writers presented in Figure 3(b) who were mostly cited for their work in the area of business and management during COVID-19.

Figure 4 is a visual representation of the journal's total strength link of documents and clusters. This also shows the number of publications year-wise. The new authors can target the journals that are publishing in 2022 for their recent research. As can be seen in Figure 4, almost all of the top journals in this field of study have an increasing publication trend.

Country Analysis of Published Research

This section examines the geographic distribution of publications by author affiliation and country. On the basis of total publications, the countries listed in Figure 5 are the most productive. Multi-country publications (MCPs) and an MCP ratio are also considered during this analysis.
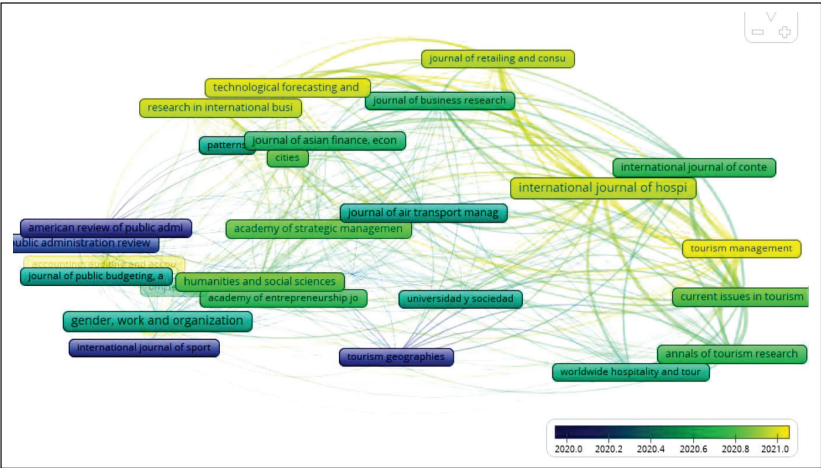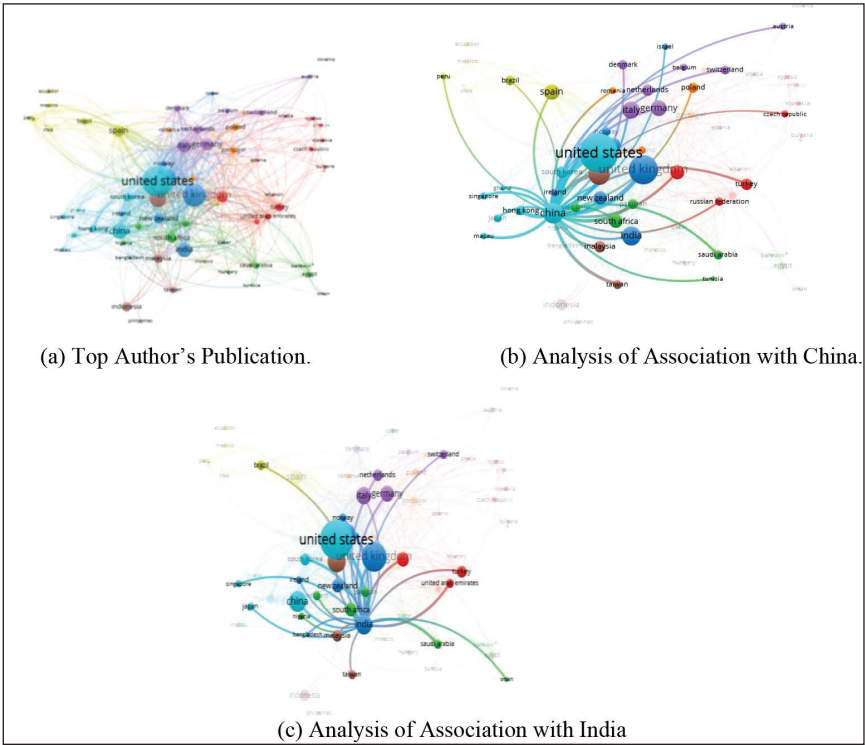
Figure 4. Publishing Journal Visualisation.

(a) Top Author's Publication.

(b) Analysis of Association with China.

(c) Analysis of Association with India

Figure 5. Country Analysis of Published Research Using VOSviewer.

Table 1. Top Authors' Publications.

Author	Citations	Total Link Strength
C. M. Hall	464	423.48
Y. Wang	363	350.47
S. Gossling	356	330.63
J. F. Hair	322	313.33
B. W. Ritchie	313	297.98
D. Scott	295	286.58
D. Ivanov	336	275.25
R. Law	252	244.80
X. Li	245	241.81
Y. Liu	252	240.59
J. Wang	245	237.47
M. Sarstedt	247	236.23
J. Kim	249	235.23
Y. Zhang	233	229.92
Y. Li	225	218.57
L. Zhang	214	209.92
C. M. Ringle	217	207.31
N. Bloom	215	203.29
H. Han	212	196.39
C. Wang	191	188.12

According to the analysis report, the United States leads in this area of research, followed by the United Kingdom, Italy and China. However, compared to other top publication countries on the list, the United States' collaborative publication output is superior among the top three. Nearly, a third of all developed countries' authors' publications collaborate with researchers from other countries, according to this ratio.

The United States and the United Kingdom were the most active collaborators. Both countries have a high level of collaborative scientific output due to them both having the most publishing countries. In addition to the United States, the authors from the United Kingdom worked with research groups from Italy, Germany, Australia, China and India. The United States authors partnered with researchers from most of the nations. As an alternative, Chinese researchers have produced numerous joint publications in their field with developed countries such as Germany, Singapore and Australia. Similar is the case with Indian research outputs in this area of research. There is a regional concentration of research collaboration activities that is true for the world.

Table 2. Top Publishing Journals.

Source	Doc	Citation	Total Link
International Journal of Hospitality Management	83	409	4,987
International Journal of Contemporary Hospitality Management	35	351	2,966
Current Issues in Tourism	36	125	2,780
Tourism Management	20	170	2,347
Annals of Tourism Research	33	397	1,654
Technological Forecasting and Social Change	47	252	1,560
Journal of Retailing and Consumer Services	25	161	1,161
Journal of Business Research	32	1016	1,013
Research in International Business and Finance	37	262	900
Worldwide Hospitality and Tourism Themes	21	28	652
Journal of Asian Finance, Economics and Business	50	149	629
Journal of Air Transport Management	41	307	541
Humanities and Social Sciences Communications	37	88	460
Tourism Geographies	28	986	451
Cities	24	81	401
American Review of Public Administration	44	207	357
Gender, Work and Organization	62	238	300
Accounting, Auditing and Accountability Journal	29	35	258
Annals of Operation Research	20	253	258
Public Administration Review	38	491	255

The current study's descriptive analysis reveals a number of captivating results from the body of literature under consideration. However, two points should be made clear. When it came to business- and management-related COVID-19 research, authors primarily used the United States, the United Kingdom and Australia as their primary source countries (places of employment). Co-occurrence analyses revealed six key clusters in the literature on COVID-19: crisis management and technology use for competitive advantage, leadership and risk-management strategies, hospitality, tourism and air transport sectors as well as social impact and corporate social responsibility. These findings can be substantiated and better understood thanks to recently published studies on COVID-19. As a result, this research emphasises how important technology has become in helping companies deal with the COVID-19 crisis. Furthermore, research shows that COVID-19 has had a significant impact on industries like travel and tourism.

Table 3. Ranking of Country.

Country	Documents	Citations	Total in Strength
United States	826	3,517	19092.86
United Kingdom	470	3,197	18786.66
Australia	273	1,858	11086.71
China	234	1,418	10154.95
Italy	171	700	6121.64
France	111	535	5966.17
India	203	339	5578.28
Germany	143	832	5186.27
New Zealand	100	1,233	4753.46
Canada	124	1,273	4602.52
Spain	137	420	4524.99
South Africa	106	461	3867.29
South Korea	78	326	3687.09
Turkey	73	323	3110.87
Malaysia	80	188	3087.48
Finland	52	528	3083.85
Hongkong	55	289	2791.10
Netherlands	78	218	2663.79
Denmark	50	427	2489.27
Pakistan	54	193	2381.94

Conclusion

The purpose of this article was to investigate new research trends on the impact of COVID-19 on business and management by utilising bibliometric and scientific knowledge mapping techniques. Our comprehensive review of the literature indicates some important research gaps that need to be addressed in the future. When dealing with a current or future epidemic or pandemic, these issues will be particularly important to consider. Though the number of studies published during COVID-19 in the area of business and management is good, the academic community anticipates even more contributions in the future. Social scientists, particularly those working in business, economics or related fields, are expected to make significant academic contributions to research on disease or outbreaks, even though scientists typically dominate the field (Aristovnik et al., 2020). In such a crisis, an appropriate economic reaction model would help the government and policymakers maintain adaptability while also ensuring public health and safety.

Declaration of Conflicting Interests

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