

THE EARLIEST BIBLIOMETRIC ANALYSIS ON COVID-19 SOCIAL SCIENCE RESEARCH: A REVIEW, SYNTHESIS AND FUTURE RESEARCH AGENDA

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ABSTRACT

This paper presents one of the earliest bibliometric analyses on the topic of COVID-19 in social sciences. Initially conducted during the height of the pandemic, the study remains relevant by offering valuable insights into the evolution of research trends and identifying foundational gaps that have since influenced further scholarly work. The objective is to provide a comprehensive bibliometric analysis report that helps the research community understand both the early status and the ongoing development of COVID-19-related research in the social sciences. The analysis examined 899 articles published from January 1st to June 31st, 2020, in Scopus-listed journals. Key parameters such as country of publication, authorship, citation patterns, journal of publication, and keyword distribution were analysed.

Additionally, 73 early studies within business and management disciplines were reviewed, highlighting significant early research contributions in sectors like tourism, healthcare, education, and financial services. The visualization of international collaboration and keyword co-occurrence using VOS viewer software provided critical insights into responsive areas like policy studies, governance, public administration, information systems, human resource management, and crisis management.

In retrospect, these early findings provided valuable insights during the initial stages of the pandemic and continue to inform ongoing research addressing the long-term societal and business impacts. While this study offers a baseline understanding from the early pandemic period, its relevance persists in examining how these foundational insights have shaped the current trajectory of pandemic-related research in the social sciences.

Keywords: COVID-19, Pandemic, Bibliometric, Future Research, Research Gap, and Research Collaboration

INTRODUCTION

In December 2019, an outbreak of a novel coronavirus was detected in Wuhan, the commercial and capital center of China's Hubei province. On January 20, 2020, the World Health Organization (WHO) confirmed the virus as SARS-CoV-2, which causes COVID-19, a disease that spreads through human-to-human transmission (Raju, 2020). As the virus rapidly spread across the globe, WHO declared COVID-19 a pandemic, prompting many countries to implement nationwide lockdowns. The world was profoundly impacted by the unprecedented speed of transmission and the devastating effects of the pandemic. COVID-19 drastically altered global lifestyles, with people forced to remain indoors and practice social distancing (Tarkar, 2020). By July 5, 2020, over 11.1 million cases had been reported across 188 countries and territories, resulting in more than 528,000 deaths (Soni, 2021). Almost every sector of life was severely affected. As WHO noted, "The world will not and cannot go back to the way things were. There must be a 'new normal'" (WHO, 2020). The pandemic underscored the urgent need for transformation and preparation across all sectors.

In response to this global crisis, numerous research initiatives were undertaken across various disciplines to mitigate the challenges faced by society. While scientific research received immediate attention, social sciences also played a crucial role in understanding the pandemic's broader implications. The surge in research publications on COVID-19 in such a short period highlights the critical importance of studying its impact from diverse perspectives. Many reputable journals quickly launched special issues focused on the pandemic, reflecting the urgency of these efforts. Despite the growing body of literature, comprehensive bibliometric analyses of COVID-19 research in the social sciences remain limited. This paper addresses this gap by conducting one of the earliest bibliometric analyses on the topic, focusing on publications during the initial phase of the pandemic.

Although a six-month period may seem short for a bibliometric study, the researchers justify it by showcasing the intense research activity during this critical period. The first half of 2020 was characterized by uncertainty and vulnerability as sectors across the globe faced unprecedented challenges, especially in managing the economic and social crises brought about by the pandemic. For example, McKinsey & Company (2020) reported a sharp decline in demand for goods and services in early March 2020, which hindered global economic growth, particularly in industries like aviation, tourism, and hospitality. By the end of March 2020, global COVID-19 cases had surged to over 735,000, with more than 35,000 deaths across 175 countries (McKinsey, 2020). Corporate organizations were advised to act across five stages: Resolve, Resilience, Return, Imagination, and Reform. As economies began reopening in May 2020, business leaders were encouraged to incorporate learning and adaptation into their reopening strategies. By the end of June 2020, sectors such as consumer goods, semiconductors, insurance, engineering, and small businesses demonstrated signs of recovery, adapting to the 'new normal' and changing consumer behaviour.

The intensity and speed of research conducted during this period were essential to understanding the multifaceted impact of the pandemic and mitigating its adverse effects. While the volume of published studies was still relatively low at the time, many more contributions were expected by the end of 2020 and into 2021. Nevertheless, analysing the earliest COVID-19 research remains significant, as these initial studies laid the groundwork for future research directions and strategies in both business and society.

The purpose of this research is to provide a comprehensive overview of the initial social science research on COVID-19, identify research gaps, and facilitate future studies in this area. This study also examines the contributions of various countries, authors, and journals to the body of COVID-19 literature. To achieve these objectives, the following research questions (RQs) are addressed:

- **RQ1:** Which countries contributed to the initial social science research on COVID-19?
- **RQ2:** What was the extent of country collaborations in the early stages of COVID-19 research?
- **RQ3:** Which journals published the earliest COVID-19 social science research?
- **RQ4:** Who were the influential researchers involved in the earliest COVID-19 social science research?
- **RQ5:** What were the significant themes of the earliest COVID-19 social science research?
- **RQ6:** Which areas within business and management saw the earliest research efforts, and what directions do they suggest for future studies?The authors believe that this early bibliometric analysis will serve as a valuable resource for future researchers, while also recognizing the important contributions made by scholars during this critical period.

METHODOLOGY

This study employed a bibliometric analysis to examine the status of social science research related to the COVID-19 pandemic. The bibliometric process followed several key steps:

1. Data was retrieved from the Scopus database, specifically within the social sciences category, using the keyword "COVID-19." A broad search strategy was implemented, combining the topic "COVID-19" with search criteria that included title, abstract, author keywords, and indexed keywords using our search string.

2. From the search results, only journal articles were selected, excluding other types of documents such as reviews, notes, editorials, and short surveys, to ensure a focused analysis on peer-reviewed scholarly articles.

3. The retrieved data was analyzed according to the objectives of this study. A content analysis was conducted on the keywords of the articles published in the most influential journals, which had the highest contributions to early COVID-19 research. To further explore the scope of early research in the "Business and Management" field, relevant articles from this area were specifically reviewed.

The Scopus database was used for data collection over the period from January 1st to June 31st, 2020. During this six-month window, 899 articles were published in Scopus-listed journals. As the largest abstract and citation database of peer-reviewed literature, Scopus provided a robust foundation for this analysis.

Following this methodology, Section 3 presents the results of the bibliometric analysis, highlighting key trends and findings. Section 4 offers a review of articles published in the "Business and Management" category within Scopus, providing a brief overview of the early studies to inform future researchers in this domain. This approach represents a methodological advancement over traditional literature reviews, offering a more structured and quantitative analysis of early research patterns (De Bakker et al., 2005; Rey-Martí et al., 2016).

DATA ANALYSIS

This article presents a bibliometric analysis using the Scopus database to determine the most focused research areas, prominent authors, most productive countries and journals in this area. To carry out the analysis, this study retrieved journal articles from the Scopus database on July 1st of 2020 for a period of six months. A bibliometric analysis combined with a literature review enables us to identify current trends and future research avenues. To identify the themes from keywords generated by the journals of high contribution towards COVID-19 research, a word cloud is generated based on content analysis. The analysis includes affiliations, country collaborations, citation analysis, and keyword co-occurrences. The keywords co-occurrence was analyzed with VOSviewer software. It is a popular open-source

tool to generate, visualize and analyze bibliometric networks. Author keywords, as well as index keywords, have been considered as the unit of this analysis. With the 3398 keywords, the co-occurrence threshold of the keywords was set as 3 and 363 items were brought into visualization. Contribution of countries and country-wise collaboration

The contribution of different countries is estimated by assessing the affiliation of at least one author of all published papers. Out of 899 articles, author affiliation was not provided for 50 articles (5.5%) in the Scopus database. Therefore, 849 articles have been selected for this analysis. The most number of articles published by authors' affiliated to the country is the United States. The United Kingdom and Italy are followed with 108 articles and 93 articles respectively. Table 1 shows the top 15 countries based on their contributions. It is noteworthy that more than half of these countries belong to the European Union and only one country is from the African region. This result answers *RQ1*.

FIGURES

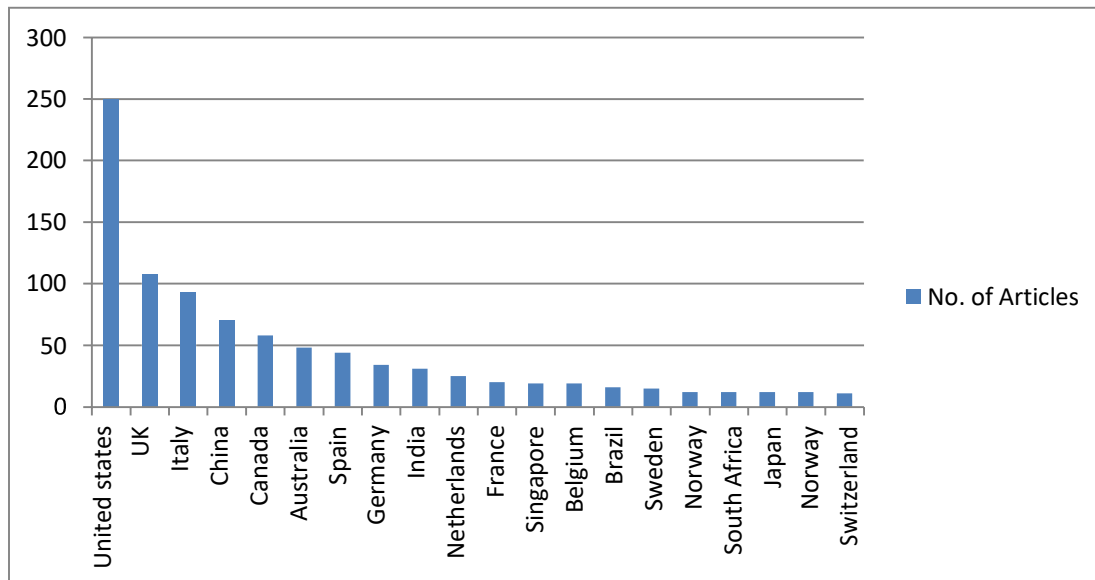


Figure 1. Country-wise contribution

An analysis of international collaborations is provided with the help of VOSviewer software. It is a widely-used software to analyze and visualize the relationships among the countries, authors and co-occurrence of keywords (Guo et al., 2019). The international collaboration has been analyzed by finding articles that were co-authored by researchers from multiple countries. Figure 2 shows the visualization of country-wise collaboration. Here the different colours are indicated for different clusters of countries that are collaborated more. The size of the circle specified that the quantity of the contribution. It can be observed that major collaborations are done by the United States and the United Kingdom but the extent of collaboration is restricted to a few eastern and middle-east countries. Most of the nodes appear

to form a network of two. The co-authorship network shows a collection of few networks that are fairly closed and show few interactions among themselves, indicating that although the earliest researches on COVID-19 were initiated by many countries, the collaboration among scholars is comparatively low in social science research. Further changes can be explored in the latter researches in the field. This result answers *RQ2*.

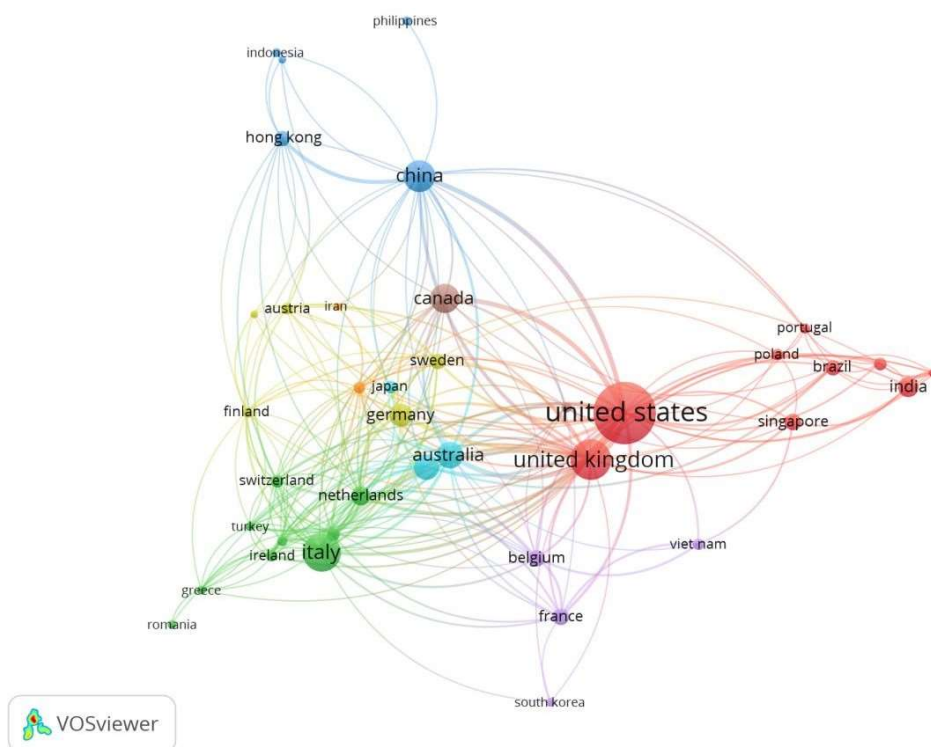


Figure 2. Country collaboration

Analysis of journal publications

Figure 3 shows the 10 most-productive journals or the list of journals that published 10 or more articles during the period. In total 899 articles were published in 303 journals listed in Scopus. *BioLaw Journal* published the most number of articles, 63 (5.89 %), during this period, followed by *Sustainability* with 34 articles (3.78 %) and *Social Anthropology* with 28 articles (3.11 %). Table 1 provides the list of journals with the highest number of publications. Further, a content analysis of keywords of articles published in *BioLaw Journal*, *Sustainability* and *Geopolitica* are analysed to create word clouds. The significant themes of publications in *Social Anthropology* and *Medical Education* are identified by analyzing the contents of the article titles. These Journals do not list the article keywords.

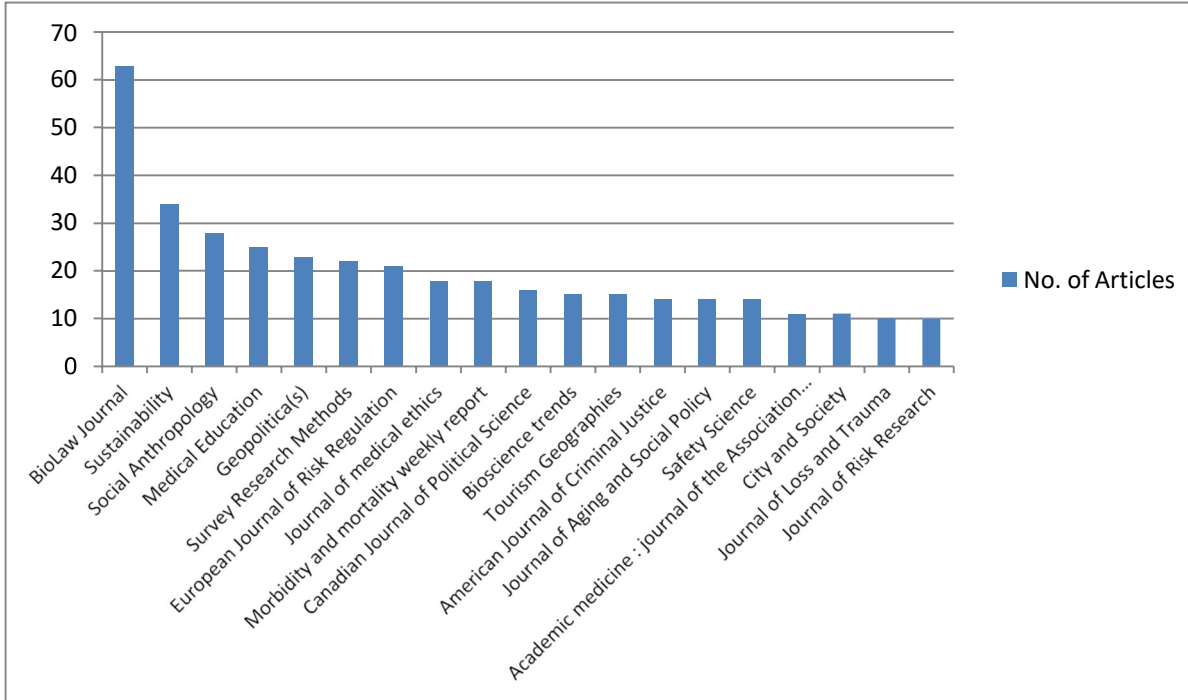


Figure 3. Journal-wise contribution

BioLaw Journal focused on legal aspects pertaining to the pandemic emergency, freedom of movement, emergency power, precautionary measures, state of exception and contract tracing. The journal also included contributions on data protection, distribution of resources, risk management, multilevel governance, civil liberty, administrative order, clinical trials and so on.



Figure 4. Word Cloud generated based on keywords of *BioLaw Journal*



Figure 6. Word Cloud generated based on keywords of *Geopolitica*

Social Anthropology focused research on multiple dimensions such as social distancing, public controversy, viral relationality, market of securitization, public health measures. Most of the studies had an ethnographic approach. The keyword analysis was done after filtering the obvious keywords like “COVID-19” and “Pandemic”.

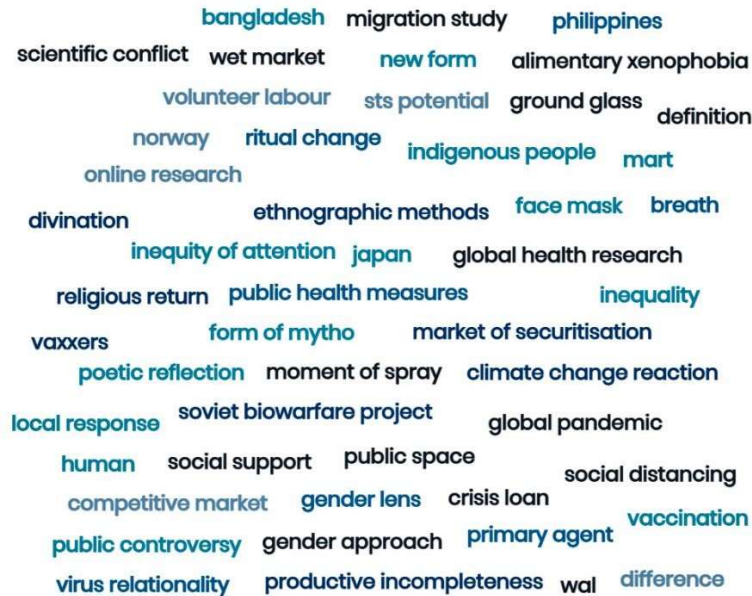


Figure 7. Word Cloud generated based on Titles of articles (*Social Athropology*)

Medical Education clearly shows how social media and online technological platforms were effectively used for medical communication and information sharing at the time of pandemic emergency.

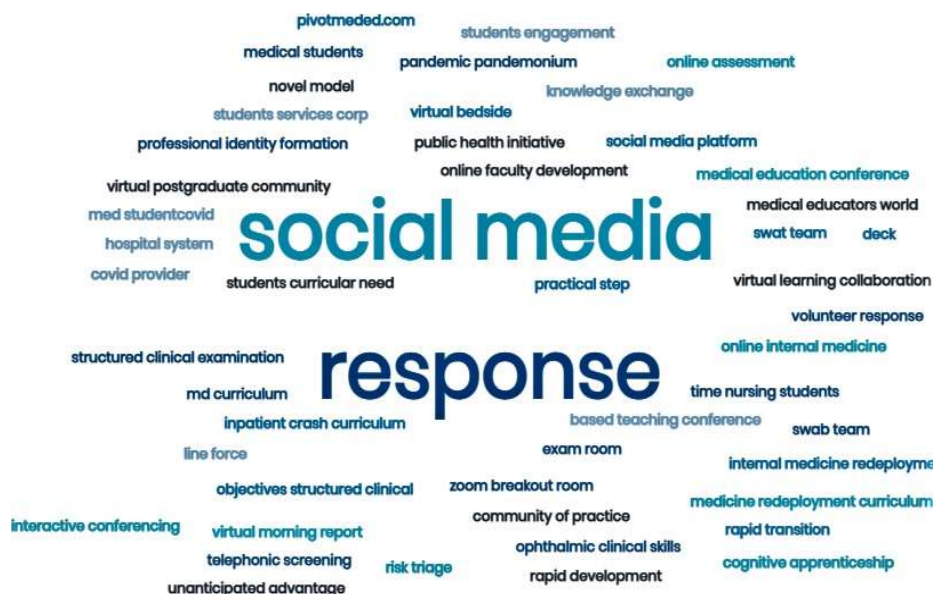


Figure 8. Word Cloud generated based on Titles of articles (*Medical Education*)

It is notable that though these are the top contributed journals, based on the citation received for the published articles, *Bioscience Trends* leads with a high difference. The journal received 230 citations for its 15 articles. The second most citations received by the journal in this list is *Morbidity and Mortality Weekly report* with 37 citations for their 18 articles. *European Journal of Risk Regulation* followed by 21 citations for 21 articles. The analysis answers the RQ3.

Table 1: List of journals and articles published

Journal	Number of articles published*	Citations**
BioLaw Journal	63	0
Sustainability (Switzerland)	34	20
Social Anthropology	28	0
Medical Education	25	1
Geopolitica(s)	23	0
Survey Research Methods	22	1
European Journal of Risk Regulation	21	21
Journal of medical ethics	18	12

MMWR. Morbidity and mortality weekly report	18	37
Canadian Journal of Political Science	16	3
Bioscience trends	15	230
Tourism Geographies	15	13
American Journal of Criminal Justice	14	1
Journal of Aging and Social Policy	14	4
Safety Science	14	3
Academic medicine : journal of the Association of American Medical Colleges	11	15
City and Society	11	0
Journal of Loss and Trauma	10	5
Journal of Risk Research	10	7

* Number of articles during the period (January 1 - June 31, 2020)

** Citations as on June 31, 2020

Source: The authors

Contribution of Authors

Table 2 shows the authors who have published three or more than three articles in journals that are listed in Scopus. 21 authors have crossed this margin of the number of papers and they are listed in this table. It is remarkable that two authors, Wang J and Wilkinson D, have published five articles during this six month's period. The average number of authors for articles is 3.21. It is surprising that two articles have 50 or more than 50 authors and five articles have more

than 20 authors. In this context, the initial indicator pertains to quantity, gauging productivity based on the volume of publications. The subsequent indicator focuses on quality, assessing a publication's impact relative to the number of citations it garners. Based on the number of citations received for the publication, Li Z tops the list with 75 citations for his 3 articles. Chen X is in the second position with 62 citations for his 4 publications. The other authors who got 10 or more than 10 citations are Song P (14), Wang M (12), Tran T (11) and Vuong Q.-H (10). This finding answers *RQ4*.

Table 1: *List of journals and articles published*

Journal	Number *articles published*	of Citations*
BioLaw Journal	63	0
Sustainability (Switzerland)	34	20
Social Anthropology	28	0
Medical Education	25	1
Geopolitica(s)	23	0
Survey Research Methods	22	1
European Journal of Risk Regulation	21	21
Journal of medical ethics	18	12
MMWR. Morbidity and mortality weekly report	18	37
Canadian Journal of Political Science	16	3
Bioscience trends	15	230
Tourism Geographies	15	13
American Journal of Criminal Justice	14	1
Journal of Aging and Social Policy	14	4
Safety Science	14	3
Academic medicine : journal of the Association of American Medical Colleges	11	15
City and Society	11	0
Journal of Loss and Trauma	10	5
Journal of Risk Research	10	7

* Number of articles during the period (January 1 - June 31, 2020)

** Citations as on June 31, 2020

Source: The authors

Table 2. *Contribution of authors*

	Author	* Citation		Author	* Citation
1	Wang J.	5 9	12	Li J.	3 0
2	Wilkinson D.	5 1	13	Li Z.	3 75
3	Chen X.	4 62	14	Liu X.	3 2
4	He J.	4 0	15	Raposo V.L.	3 0

5	Liu Y.	4	2	16	Song P.	3	14
6	Savulescu J.	4	1	17	Tran T.	3	11
7	Zhang H.	4	4	18	Vuong Q.-H.	3	10
8	Zhang J.	4	8	19	Wang M.	3	0
9	Zhang Y.	4	7	20	Wang X.	3	12
10	Chen Y.	3	3	21	Wen J.	3	4
11	Connolly C.	3	1				

* Number of articles during the period (January 1 - June 31, 2020)Source: The authors

Most used Keywords

Analysis of keywords can be used to identify directions in research. Table 3 shows the list of words used as keywords for the articles. The topmost three words, except Pandemic/s and Pandemic emergency/ies in the list are closely related to the COVID-19 which is used as complementary words of COVID-19. The word “COVID-19” tops in the list and followed by some complimentary words of COVID-19 like “Coronavirus”, “COVID 19 pandemic”, “SARS-CoV 2” with “pandemic/s” and “pandemic emergency/ies”. The words that come after these top listed words will be more useful for considering identifying the research gap in this area. The major limitation that occurred in this analysis that some words are accompanied by precedence words or succeeded words. For example, the word count for “education” is 32 but it occurs only three times as a single word. Many times, it comes with precedence words like “higher”, “online”, “medical” and so on and succeeded by words like “policy”, “change”, “reform” and so on. The analysis answers the RQ5.

Table 3. *Frequency of keywords used*

Keyword	No.
COVID-19	428
Coronavirus	76
Pandemic/s	69
Pandemic emergency/ies	42
COVID-19 pandemic	40
SARS-CoV-2	32
Crisis, Social distancing	16
Public health	15

A REVIEW OF EARLY MANAGEMENT RESEARCHES ON COVID-19

Research articles listed in the *Business and Management* category of the Scopus database have been selected for this review. Out of 75 articles listed in this category, 2 articles are excluded from the study. They were based on data collected before the COVID outbreak but published during the first phase of the pandemic. The keyword "COVID" appeared in the abstract, hence triggered in the Scopus database. The remaining 73 articles were included in the review and classified into two themes: business sectors and *Management areas*. 37 early reaches were done on 10 *Business Sectors* and the remaining 36 articles focused on 13 *Management Areas*. Table 4 illustrates the details of these articles in detail. The RQ6 is answered with a structured review of these articles.

Table 4: The themes (*Business Sectors* and *Management Areas*) identified in the review

Sl No	Business Sectors	No. of Articles Published	Journals
1	Tourism and Hospitality	19	Tourism Geographies (12), Current issues in Tourism (2), Tourism management (1), Tourism Review (1), Journal of Tourism Futures (1), Tourism Economics (1), Annals of tourism research (1)
2	Healthcare	6	Journal of Risk Research (2), Applied Geography (1), Public Money and Management (1), Technology in Society (1), Work and Occupations (1)
3	Logistics and Supply Chain	3	Transportation Research (2), International Journal of Physical Distribution & Logistics Management (1)
4	Education	2	Journal of Management Education (1), Educational Assessment, Evaluation and Accountability (1)

5	Financial Services	2	Contemporary Economic Policy (1), Journal of Accounting and Public Policy (1)
6	Aviation	1	Journal of Air Transport Management
7	Export & Import	1	The World Economy
8	Publishing Industry	1	Publishing Research Quarterly
9	NGO	1	Public Administration Review
10	Multidisciplinary	1	Tourism Recreation Research
Management Areas			
1	Policy Studies	6	Public Administration Review (2), Administrative Theory & Praxis (2), Journal of Risk Research (2)
2	Governance and Public Administration	3	Public Administration Review (2), Administrative Theory & Praxis (1)
3	Systems and Information Management	4	Journal of Homeland Security and Emergency Management (1), Public Money & Management (1), Logistics and Transportation Review (1), Journal of Risk Research (1)
4	Human Resource Management	4	Public Administration Review (1), Journal of Risk Research (1), Gender, Work & Organization (1), Management Communication Quarterly (1)
5	Leadership	4	Leadership (3), Public Administration Review (1)
6	Crisis Management	2	Administrative Theory & Praxis (1), Public Administration Review (1)
7	Risk Management	3	Journal of Risk Research (3)
8	Environment Management	2	Utilities Policy(1), Journal of Risk Research(1)
9	Political Environment	2	Administrative Theory & Praxis(1), The World Economy(1)
10	Economics	2	Contemporary economic policy(1), Socio-economic planning sciences(1)
11	Gender studies	2	Gender, Work & Organization(2)
12	Marketing Management	1	Asian Journal of Business Research

13	Strategic Management	1	Asian Business & Management
	Total	73	

Source: The Authors

Business Sectors

Tourism & Hospitality, Healthcare, Logistics and Supply Chain, Education, Financial Services, Aviation, Export & Import, Publishing Industry, Non-Governmental Organizations (NGO) were the sectors where earliest researches on COVID-19 were conducted. These sectors were identified purely based on the context of the study and not based on the journals they are published. For e.g., 2 articles on healthcare are published in the Journal of Risk Research. Onestudy was found to be multidisciplinary, involving tourism and public health.

Under *tourism* research, 12 articles are published in the journal Tourism Geographies. It clearly shows the research focus on this industry during this critical period. Many countries restricted the travel of their citizen to avoid the spreading of coronavirus, which tremendously affected

the tourism industry. The review also observed that 20 percent of early research on the impact of COVID-19 was on Tourism and Hospitality, which had a tremendous impact due to lockdown and travel restrictions. Chen, Huang and Li (2020) analyzed the Chinese news coverage on tourism impact and identified impact on the tourism industry, people sentiments, control of tourism activities, role of the hospitality industry, national command and local response, tourism disputes, corporate self-improvement strategies, government support and post-crisis tourism as the key themes. Early research discusses on transformational tourism that can bring specific changes at multiple levels, re-exploring and re-envisioning tourism (Benjamin, Dillette & Alderman, 2020; Haywood, 2020). Environmentally friendly, mindful, balanced, responsible and community-driven tourism (Ioannides & Gyimothy, 2020; Newsome, 2020; Stankov, Filimonau & Vujicic, 2020; Prideaux, Thompson & Pabel, 2020) is recommended for the future. Renaud (2020) stressed the importance of de-globalization in cruise tourism and focus on de-growth for liveability as cruise tourism needs to be healthy. Pandemic also paved the way to thoughts of socially responsible tourism; the impact of CSR on the psychological capital of tourism employees is conducted to measure the resilience and self-efficacy of employees during COVID-19 (Mao et al., 2020). Artificial intelligence and robotics adoption in tourism would be a wake-up call to provide better services by controlling human contact and the potential spread of the virus (Zeng, Cheng & Lew, 2020). A study done in the Chinese context reveals the expectation of the residents for a quick tourism recovery with the support of government policies and subsidies as the situation improves (Fong, Law & Ye, 2020). Zenker and Kock (2020) remind for a deliberate rigour in further tourism research as the existing theories cannot explain the solutions to the present problem. Hence, tourism crisis management theories need to be further explored.

Early researches in *healthcare* were multidimensional. The risk perception of COVID-19 worldwide identified that personal experience with virus, individual and pro-social values, learning from friends and family are the significant predictors of risk perception. However, it varies slightly from country to country (Dryhurst et al., 2020). Researches also suggest a transformation of health care organizations and system in terms of employment, work and labour with less political interference (Bryce et al., 2020; Avgar et al., 2020). Innovations such as telemedicine to mitigate the psychological and physical effects of social isolation, 3D printing technology aiding healthcare services (Leite, Hodgkinson & Gruber, 2020; Singh, Prakash & Ramakrishna, 2020) and studies identifying significant space-time clusters to aid

the allocation of resources, testing sites, quarantine and travel bans (Desjardins, Hohl & Delmelle, 2020) were timely initiatives.

The *supply chain* disruption is another severe repercussion of the pandemic bringing a total imbalance to the global economy. Paul and Chaowdhary (2020) suggested a mathematical modeling approach to develop a production recovery model, which would help prompt decision-making on production plans to recover the pandemic disruption issues, which can further be supported by logistics and optimization software (Ivanovo, 2020). Government subsidies for the viability of innovative service operations for transforming the logistics are recommended, especially in Mobile Service Operations, which is economical and can create a win-win model for both consumers and service providers (Choi, 2020).

The lockdown and social isolation have entirely changed the face of *education* across the world. A study using a school barometer – a quick survey on the impact of COVID -19 on education was a brief attempt by Huber and Helm (2020). The e-learning practices, new technologies and policies recommend a severe improvisation of teaching practices (Beatty, Leigh & Lung, 2020).

The economic and financial disruptions created by the pandemic are massive, and some of the early researches also focused on *financial services*. The researchers focused on the alternatives to cash crunch such as fiscal policies, tax deferrals, bridge loans to mitigate the liquidity of firms (DeVito & Gomez, 2020). At the micro-level, the financial readiness of people was also researched from the perspectives of fluctuating income and emergency savings during the pandemic (Stavins, 2020).

When the *Aviation* sector had a brutal hit, the pandemic measures taken by European Airlines is a lesson to the aviation industry. The challenge here is the detailed epidemiological model has been integrated with the airlines' and land transport network to track the epidemic spread of infectious diseases originated from distant locations is an insightful study. The experiments provide convincing evidence not only on the effectiveness that the European

airport system offered in controlling the emergence of the epidemic but also on the time and extent to take control measures to break the chain of infections in realistic cases (Nikolaou & Dinitriou, 2020).

The early researches also pointed the impact on the publishing industry, Export- Import, Non-profit organizations. Investigations on how content management and e-service provisions

enhancement as an alternative (Nguyen et al., 2020), study on critical assessment of the resort to export curbs and import taxes, especially on medical supplies (Evenett, 2020) and the study to assess the responsiveness of local governments towards non-profit organizations initiated by Maher, Hoang & Hinder (2020) are some of the exciting initiatives. A cross-disciplinary team of tourism and public health academics proved how seemingly disparate research domains could cooperate on timely research endeavors during the crisis (Wen et al., 2020)

Management areas

The review identified Policy Studies, Governance and Public Administration, Systems and Information Management, Human Resource Management, Leadership, Crisis Management, Risk Management, Environment Management, Politics, Economics, Gender studies, Marketing and Strategic management. Though these studies are conducted in certain contexts, the objectives were focused on specific management areas with sufficient scope of generalizability. Some of the early researches focused on policy studies in various countries. The case of South Korean government policies on how COVID-19 was effectively controlled without a harsh lockdown, but through agility, transparency and people participation is a reference for other nations (Moon, 2020). Meanwhile, the researches on US policies in managing pandemic include criticisms such as unclear goals and lack of political commitment, the institutional dynamic, bureaucracy and narrow economic interests (Carter & May, 2020), poor risk anticipations (Roberts, 2020) and electoral disruptions (Landman & Splendore, 2020). Italy identified that mixed messages from multiple sources, delay in the release of information, paternalistic attitudes, lack of immediate risk management actions and political confusion were significant issues that affected the pandemic policies (Ruiu, 2020).

The public administration's focus on death care in the US is a positive turn where research on cemetery managers revealed well-managed death care during the pandemic (Zavattaro, 2020). More government interventions integrating the governmental and individual factors help manage the pandemic, including personal cyber threats, detailed pandemic information, and positive risk information (Renaud et al., 2020).

Digital accelerations such as the use of digital technologies for public sector service delivery, systems to manage the issue of misinformation, and colour coded alert systems during

COVID-19 were some of the innovative contributions (Agostino, Arnaboldi, & Lema, 2020; Coppola & Ryan, 2020; Krause et al., 2020)

The research on how emergency team management in healthcare and law enforcement organizations like the police force is implemented and the role of labour unions in crisis management are some of the insightful human resource management research. These studies identified four essential processes: roles management, knowledge, interpersonal relations, and emotions (Fay & Ghadimi, 2020; Ugureanu & Bertolotti, 2020).

Some studies were drawing interesting insights on Pandemic leadership. Leadership, management and command in public administration altering the conventional leadership act of managing societal problems (Grint, 2020), focus on leadership research to irrational and primal dimensions in the relationship of leaders and who they lead rather than focusing on individual leaders (Ladkin, 2020; Dai et al., 2020). Wilson (2020) draws a framework of good practices for pandemic leadership through a New Zealand leadership case study. This study unraveled the methods where the government's willingness to themselves be led by expertise, its efforts to mobilize the population, to enable copying and building the trust in leadership needed for transformative and collective action such as the pandemic demands.

The risk management research done in Sweden, Singapore, and Norway contributes lessons for other nations (Wong & Jensen, 2020; Giritli & Oloffsson, 2020; Christenson & Laegreid, 2020). Another focus was on the environmental concerns, where the pandemic has generated a second thought on nature preservation.

The economic impact from labor loss and the indirect spillover through the supply chain inside and outside made the Chinese economy critically (Luo & Tsang, 2020). The high transmissibility of the disease, uncertainty of recovery and preventive measures and risk modifying behavior can impact economies (Verikios, 2020).

DISCUSSION ON IMPORTANT RESULTS, LIMITATIONS AND FUTURE DIRECTIONS

European countries and the US dominate the research contributions in this context. Nevertheless, the contributions from Asian countries are moderate in number. However, it is worrisome to know the lack of research from African countries. A country-specific analysis is recommended in this context due to geographical and cultural differences. The amount of publications during this period clearly shows the importance of social science research in this area. The top contributed journals are not only medical-related in this case. Journals like *Tourism Geographies* and *American Journal of Criminal Justice* are also placed in the top 15

list. The number of authors for some papers is more than 50. It shows the level of collaboration that happened on the topic at this critical time. But the cross-country collaborations were comparatively less in the initial phase.

The contributions from the review of literature are also significant. The structured review has made the sectoral initiatives and pandemic emergency strategies in various management areas explicit. Tourism, Healthcare, Logistics & Supply Chain, Education and Financial Services addressed the emergency through studies that proved highly relevant for sustaining the "new normal". Transformational measures of Tourism, personal health risk perception, transformational healthcare system with lesser political interference, innovative healthcare technologies, Government support for technology-enabled logistics and supply chain, school barometer survey on the change management in education and pandemic behavior in personal financial management is the timely, relevant and futuristic approaches taken by various business sectors. In the management areas, the policy studies and governance revealed the positives and negatives in emergency management strategies apart from reflections on leadership, human resource management and system management which contributes to lessons learned from success and failure.

Generally, the period of data for six months for a bibliometric analysis is concise. Bibliometric reviews published in most of the prominent journals analyzed ten or more than ten years of data. However, in this precarious situation, even the six-month data is significant as the initial phase of COVID-19 demanded research in all folks of life across the world. So, the number of published works during this short period is precisely high. Moreover, this is the earliest attempt for any review on this topic. This study analyses only article documents for analysis. It excludes conference papers, book chapters, reviews and so on. As this analysis also considers quality in terms of citations, the researchers limited to only articles for the consistent output with comparison value. Missing information in the Scopus database constrains finding the exact calculations. However, as the proportion of this missing information is minor, the result's disparities are insignificant. The study considers data for a shorter period, where the co-citation output is not significant enough to be presented as an output. But this can be addressed in future bibliometric studies on COVID -19.

The paper primarily focuses on review, synthesis and future scope of research. This kind of hybrid review, integrated structured review with bibliometric, will also be helpful for future researchers in many ways. The literature sources analyzed can be used as lessons learned during emergency crisis management and remains relevant for future research. Understanding the level of collaboration among the countries and institutes will be adding value to bibliometric analysis output. Considering the importance of the earliest impart of knowledge derived from this hybrid review on this pandemic context limited the researchers to only the most helpful

analysis.

The early research recommends revamping the existing tourism strategies focusing on environmentally friendly, mindful, balanced, responsible and community-driven tourism. But a deliberate rigour in further tourism research is recommended as the current theories cannot explain the solutions to the present problem. Hence, tourism crisis management theories need to be further explored (Zenker & Kock, 2020). Being an industry positively impacted by the pandemic, the healthcare and personal protection equipment (PPE) also recommends further research on quality enhancement of products/services. The technology-enabled supply chain and product delivery supported by government interventions would ideally be future research possibilities in the area.

Further research is expected shortly on human resource management in corporate organizations as there is a complete transformation in the work culture during the last six months. The outcome and repercussions are yet to be discussed. Though the early research focused on new technologies, practices and policies in education (Beatty, Leigh & Lung, 2020; Huber & Helm, 2020), the outcome of these practices are expected to be published shortly. Most countries have already introduced revised financial policies to support the financial crisis at organizational and individual levels. The outcome of these policies is another future research arena. The governance, public administration and policy studies will continue to be discussed at different phases of the pandemic as structural changes are recommended systematically in all nations to overcome the crisis across the world.

The pandemic affected every sector in one way or another. It demands research on the transformational changes happening in the practices and policies in all sectors and their impacts on the system and humankind. A longitudinal analysis may help understand the developmental stages and evolution of research after the pandemic outbreak. Some sectors have utilized technology for effective management of transformational changes that happened due to the pandemic. However, there is a lack of research on the difficulties in accepting and adopting technology instantaneously. The study emphasizes the importance of identifying research areas significant to conduct in the African context where the quantity of research is meager.

CONCLUSION

This study analyzes articles from January to June 2020. This decision is made because the pandemic started in December 2019 and WHO confirmed it officially in January 2020. The first six months is considered as the first phase of COVID-19, where the entire world struggled to accept the new normal. The study examined the contribution of various countries and their collaboration in early social science research on COVID-19. Interestingly, timely research initiatives were taken in aviation, tourism policy studies, healthcare, and emergency

pandemicmanagement. Though the published study during this period is minimal, it is evident that the outcome of the early investigation paved the way to manage the pandemic effectively in the latter phase and accept the new normal. Therefore, this bibliometric analysis contributes as a source for the lesson learned in the initial phase of crisis management. The output will be alsohelpful for future researchers to know the influential journal and authors of this particular areain the social science field. The keyword analysis gives the direction of future research to assessthe research gap. With the help of a structured literature review and bibliometric comment, thispaper shows the overview of social science research in the context of the COVID-19 pandemic. It facilitates future researchers to understand the initial status and identify research gaps and other related information motivating new avenues of research on COVID-19.

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