

# Hospitality & Tourism Research during (COVID-19) Pandemic: A Bibliometric Analysis

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**Abstract** COVID-19 has changed the world forever in every imaginable aspect. Hospitality and Tourism has been one of the world's largest employers and key economic contributors. Hospitality and Tourism has been one of the worst-hit sectors due to the pandemic (COVID-19) worldwide. This has called upon the attention of many researchers worldwide. The main purpose of this study is to analyse the literature during 2019-2022, identify the most productive authors, most influential countries, most productive institution and journals also top-performing research articles and keyword analysis to know the research themes and trends focussing coronavirus in the fields of Hospitality and Tourism. The study also suggests the areas of future research to the researchers and policymakers and proposes solutions to contemporary issues. The study uses "biblioshiny" – an interface of R-package and VOSviewer for conducting bibliometric analysis that ameliorates the quality of review bereft of any subjective biasness.

**Keywords:** Bibliometric Analysis, COVID-19, Scopus, Tourism, VOSviewer

## INTRODUCTION

On 31 December 2019, the World Health Organization (WHO) China Country Office, established in Wuhan, Hubei province of China, reported cases of pneumonia of unknown aetiology in the city. On 07 January 2020, it was identified as a new coronavirus (2019-nCoV) that was not detected in humans so far. The COVID-19 pandemic, realising its global impact soon after its outbreaks, WHO, on 11 March 2020, declared a global epidemic (pandemic) (Cucinotta and Vanelli, 2020). The world has experienced several significant epidemics in the last 40 years, but none have significantly impacted the global economy, like Novel Coronavirus Disease (COVID-19) (Gössling, Scott and Hall, 2020). The spread of the coronavirus (COVID-19) caused severe stagnation in the global economy, and many commercial sectors became non-operating for weeks (Yetgin, 2020).

The hospitality and tourism industry has been among the worst-hit sectors due to the pandemic (COVID-19)

worldwide. The first measures to contain the spread of COVID-19 were closing national and international borders and imposing travel restrictions. This form of social isolation directly affected the tourism systems around the world. This resulted in disruptions of social and economic dynamics (Göktepe & Çetin, 2020).

It had become quintessential to derive a solution for socio-economic interventions caused due to outbreak of COVID-19. The academicians and researchers worldwide embarked upon researching coronavirus, epidemics and pandemics due to substantial pressure exerted on global societies and economies.

This study explores the research trends related to coronavirus by analysing the papers published during the COVID-19 pandemic in hospitality and tourism using bibliometric analysis. It adopts a quantitative approach that systematically undertakes a review of past literature. The main purpose of this study is to analyse the literature from 2019-to 2022 and to identify the most productive authors, most influential

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countries, most productive institution and journals also top-performing research articles and keyword analysis to know the research themes and trends focussing coronavirus in the fields of hospitality and tourism. The study also suggests the areas of future research to the researchers and policymakers and proposes solutions to contemporary issues. The study uses “biblioshiny” – web-based interface of R-package and VOSviewer for conducting bibliometric analysis that boasts of ameliorating the quality of review bereft of any subjective biasedness.

## RESEARCH OBJECTIVES

The present study addresses the following research objectives to explore the dynamics of past literature related to hospitality and tourism research during (COVID-19) Pandemic:

- To identify the publication and citation structure of Tourism & Hospitality research during COVID-19 Pandemic.
- To pin down Top contributing Authors, Countries, Institutions, Journals and Research Articles during COVID-19 Pandemic.
- To spot the themes or trends or research topic in Hospitality & Tourism domain during Pandemic Time.

## RESEARCH METHODOLOGY

Multiple data bases such as Web of Science, Google Scholar etc were available for selection of articles. Due to insufficient data coverage usage of the web of science has been criticize in the field of Social Science (Norris & Oppenheim, 2007). For the study, the articles were extracted from the Scopus database ([www.scopus.com](http://www.scopus.com)). The keywords used for this research are “COVID -19” AND “Hospitality” AND “Tourism” in September 2021. From 2019 to 2022, the researchers extracted a total of 1258 publications. The entire set of retrieved and gathered data was then examined and sorted in order to attain research objectives.

The objectives for the present research study are focused on answering the above questions. The prime objective of the study is to find the publication and citation structure of Tourism & Hospitality research during COVID-19 Pandemic. For this, “biblioshiny” and “VOSviewer” were used to undertake descriptive analysis of the papers. The second objective is to pin down Top contributing Authors, Countries, Institutions, Journals and Research Articles during COVID-19 Pandemic. The Third objective is to spot the themes or trends or research topic in Hospitality & Tourism domain during Pandemic Time. For this, the thematic

mapping of the conceptual framework has done with the help of keywords plus and authors’ keywords analyses. The findings of the objectives lead to an in-depth interpretation of existing data in the given field and set directions for future research in the area of study.

## RESULTS AND DISCUSSIONS

### Publications and Citations Pattern

Table 1 gives the descriptive analysis of 1258 research papers extracted from the Scopus Database spanning 2019-2022, focusing on COVID-19 in Hospitality or Tourism.

**Table 1: Descriptive Features of COVID-19 Literature in the fields of Hospitality and Tourism**

Description	Results
Time span	2019 to 2022
Total no. of Articles	1258
Authors of single-authored documents	197
Authors of multi-authored documents	3582
Documents per Author	0.333
Author Appearances	4336
Author’s Keywords	3732
Average citations per document	6.35
Authors per Document	3
Co-Authors per Documents	3.45
Collaboration Index	3.41

The author appearances were seen at high volume, a total of 4336 authors appeared, out of which 197 articles were contributed by a single author. It is observed that the research work on COVID-19 in hospitality and tourism is highly collaborative, with a collaboration index of 3.41. Around three authors have written one document, as the average number of documents per author was 0.333.

**Table 2: Publications and Citations Structure**

Year	Number of Articles	Number of Citations
2019	1	1
2020	378	5998
2021	874	1989
2022	5	0

Overall, the number of articles has increased more than doubled in 2021 than 2020. The number of articles increased from one in 2019 to 874 in 2021 (Table 2). The year 2020 has seen efflorescence in a number of citations too.

## Prominent features of COVID-19 Literature in the fields of Hospitality & Tourism

Researchers from numerous organisations and nations have published their findings on the effects of the COVID-19 pandemic on tourism and hospitality around the world during the pandemic.

### a) Top Performing Authors, Countries, Affiliations, Institutions and Journals

**Table 3: Top Performing Author in terms of No of Citations & No. of Documents**

No. of Citations						No. of Documents				
Rank	Author	Documents	Citations	h-index	g-index	m-index	TC	Rank	Author	Documents
1	Hall C.M.	7	872	3	3	1.5	916	1	Liu X.	8
2	Gössling S.	3	871	3	3	1.5	916	2	Filimonau V.	7
3	Wen J.	7	275	4	4	2	296	3	Hall C.M.	7
4	Higgins-Desbiolles F.	5	219	3	3	1.5	234	4	Han H.	7
5	Kock F.	3	193	3	3	1.5	208	5	Wen J.	7
6	Baum T.	5	179	4	4	2	186	6	Law R.	6
7	Kozak M.	4	167	3	3	1.5	178	7	Li Z.	6
8	Lei C.I.	3	146	1	3	0.5	154	8	Yang Y.	6
9	Lew A.A.	3	146	2	2	1	154	9	Zhang H.	6
10	Lo I.L.	3	146	1	3	0.5	154	10	Zhang J.	6

In the sample retrieved from the Scopus database, 4336 authors appeared who published their research on the pandemic in the fields of Tourism & Hospitality. According to the findings, there are 3.0 authors per document and 0.33 documents per author, respectively. Regarding the researchers who produce the most, Table 3 is divided into two parts that highlight the 10 most productive authors based on no. of citations on the left side and the basis of no. of documents on the right side. With a minimum threshold value of three publications and citations, the most productive authors are displayed on the left side. According to the research, Hall C.M. is the leading author with 872 citations; Gössling S. with three publications holds the second positions with 871 citations. Wen J. and Higgins-Desbiolles with seven and five publications and 275 and 219 citations, respectively.

Based on a minimum threshold value of six publications, the most productive authors are displayed on the right side of the table. With eight publications, Liu X leads the field, with seven apiece for Filimonau, Hall, Han, and Wen. The remaining authors have contributed six articles, each among the top ten productive authors; this indicates that many researchers around the globe have contributed significantly to the pandemic.

**Table 4: Most Influential Countries in terms of Publications and Citations**

No. of Citations			No. of Documents		
Rank	Country	Citations	Rank	Country	No. of Documents
1	United Kingdom	2047	1	United States	195
2	Australia	1611	2	China	158
3	United States	1330	3	United Kingdom	131
4	China	1292	4	Australia	119
5	Canada	1196	5	Spain	105
6	New Zealand	1162	6	South Africa	67
7	Sweden	1083	7	New Zealand	42
8	Norway	763	8	Canada	39
9	Spain	528	9	Sweden	25
10	South Africa	494	10	Norway	14

Table 4 lists the most productive nations based on the quantity of publications and citations to give a broad overview of the most prominent regions. The United States is at the top position boasting the maximum number of publications, followed by China and the United Kingdom, which occupied the third rank, but in terms of citations, United Kingdom's total citation volume is much more extensive than other countries. Australia and United States occupied second and third ranks respectively.

Table 5 represents the ten most productive institutions in the context of publications during 2019-2022 in the fields of hospitality and tourism. Of the most productive institutions, "The School of Hospitality and Tourism Management, University of Surrey, Guildford, United Kingdom", is the most productive institution with 893 citations and four documents. In the Shanghai Global Ranking of Academic Subjects 2021, it is placed first in the United Kingdom and third in the entire world for hospitality and tourist management. The university has a strong emphasis on research, and to support that emphasis, they have a centre for the visitor economy's competitiveness, digital transformation, and sustainability and well-being.

**Table 5: Most Productive Institution in Terms of No of Citations**

Rank	Organisation	Documents	Citations
1	School of Hospitality and Tourism Management, University of Surrey, Guildford, United Kingdom	4	893
2	School of Business and Economics, Linnaeus University, Kalmar, Sweden	4	872
3	School of Tourism and Hospitality, University of Johannesburg, Johannesburg, South Africa	6	118
4	School of Business and Law, Edith Cowan University, Joondalup, Australia	4	112
5	School of Tourism, Sichuan University, Chengdu, China	7	51
6	School of Business and Law, Edith Cowan University, Perth, Australia	5	49
7	School of Hotel and Tourism Management, The Hong Kong Polytechnic University, Hong Kong	4	43
8	College of Business and Economics, University of Johannesburg, Johannesburg, South Africa	7	31

9	Rosen College of Hospitality Management, University of Central Florida, Orlando, FL, United States	7	26
10	College of Tourism, Huaqiao University, Quanzhou, China	4	20

"School of Business and Economics, Linnaeus University, Kalmar, Sweden", ranked second in the list with solid research fields in business, economics, entrepreneurship, hospitality and tourism and has achieved international acclaim. "School of Tourism and Hospitality, University of Johannesburg, Johannesburg", South Africa, is number three among most affluent affiliations. Ranked at fourth place "The School of Business and Law, Edith Cowan University, Joondalup, Australia", provides vital research ecosystems allowing world-class research to create a lasting impact on societies and communities. "School of Tourism, Sichuan University, Chengdu", China, is in fifth place as the most productive institution in terms of the number of citations in COVID-19 publications in hospitality and tourism. "The School of Business and Law, Edith Cowan University, Perth, Australia", is at sixth place in the top list of affiliations and is a dynamic School with a diverse range of staff from around the world who produce engaged and applied research across a range of disciplines. Currently, in the top 10 list, there are two institutions from Australia, South Africa and China and one institution each from the following countries the United Kingdom, Sweden, the United States and Hong Kong.

Analysis of bibliometric citations is a useful approach for assessing journal performance. Various journals concentrate on various tourism study subfields within the broader topic of tourism and hospitality. Table 6 lists the top journals for tourism and hospitality research during the pandemic. According to the total number of publications published about pandemics, journals are ranked. The top three journals, with 113, 58, and 49 publications each, are the "Journal of Sustainability (Switzerland)", "International Journal of Hospitality Management", and "Current Issues in Tourism". Among the top 10 most productive journals, 90 percent of journals are from Tourism, Leisure and Hospitality Management area.

**Table 6: Top Most Productive Journals in terms of Articles Published**

Rank	Source	Number of Documents
1	Journal of Sustainability (Switzerland)	113
2	International Journal of Hospitality Management	58
3	Current Issues in Tourism	49

4	International Journal of Contemporary Hospitality Management	32
5	Annals of Tourism Research	31
6	Tourism Geographies	31
7	International Journal of Environmental Research and Public Health	29
8	Worldwide Hospitality and Tourism Themes	29
9	Tourism Recreation Research	23
10	Tourism Management	22

### b) Most Influential Research Papers

Table 7 enlists the top ten documents with the highest number of citations, with a cap of more than 100. Ten significant documents—out of a total of 1258—have received more than 105 citations. The only work with more than 600 citations, according to Scopus, is “Pandemics, Tourism and Global Change: A Rapid Assessment of COVID-19,” which

was co-published by Gössling, Scott, and Hall in 2020. The paper undertakes a comparative study of the impacts of COVID-19 on previous epidemics & pandemics and investigates the transformation in society, the economy, and tourism due to such global crises. The second paper, published by Sigala (2020), has 226 citations and provides a comprehensive evaluation of prior and recent literature for a better understanding of COVID-19 on tourism for expanding and resetting industry and research. The third publication on the list, by Hall et al., provides a thorough summary of the pandemics and their effects on nations, governments, and other stakeholders as well as the tourism sector. The following paper in the list that boasts 168 citations suggests a community-centred tourism framework that helps socialise tourism for the benefit of society and the environment. It is also observed that five papers have received more than 140 citations in the list. Among the papers, three papers are published in Tourism Geographies Journal, only one is single-authored, and the remaining nine are multi-authored publications. It is really interesting that the context of most stories is the hotel and restaurant industry.

**Table 7: Top Performing Research Articles**

Rank	Title of the Paper	Authors	Year	Journal	No of Citations
1	Pandemics, Tourism and Global Change: A Rapid Assessment of COVID-19	Gössling S., Scott D., Hall C.M.	2020	Journal of Sustainable Tourism	685
2	Tourism And COVID-19: Impacts and Implications for Advancing and Resetting Industry and Research	Sigala M.	2020	Journal of Business Research	226
3	Pandemics, Transformations and Tourism: Be Careful What You Wish For	Hall C.M., Scott D., Gössling S.	2020	Tourism Geographies	177
4	Socialising Tourism for Social and Ecological Justice After COVID-19	Higgins-Desbiolles F.	2020	Tourism Geographies	168
5	Evaluation Of Sars-Cov-2 Rna Shedding in Clinical Specimens and Clinical Characteristics Of 10 Patients With COVID-19 In Macau	Lo I.L., Lio C.F., Cheong H.H., Lei C.I., Cheong T.H., Zhong X., Tian Y., Sin N.N.	2020	International Journal of Biological Sciences	145
6	The Coronavirus Pandemic – A Critical Discussion of a Tourism Research Agenda	Zenker S., Kock F.	2020	Tourism Management	134
7	Coronavirus Pandemic and Tourism: Dynamic Stochastic General Equilibrium Modeling of Infectious Disease Outbreak	Yang Y., Zhang H., Chen X.	2020	Annals of Tourism Research	123
8	COVID-19 And Surface Water Quality: Improved Lake Water Quality During the Lockdown	Yunus A.P., Masago Y., Hijioka Y.	2020	Science of the Total Environment	119
9	Effects Of COVID-19 On Hotel Marketing and Management: A Perspective Article	Jiang Y., Wen J.	2020	International Journal of Contemporary Hospitality Management	108
10	From High-Touch to High-Tech: COVID-19 Drives Robotics Adoption	Zeng Z., Chen P.-J., Lew A.A.	2020	Tourism Geographies	106

c) Keywords plus, Authors' Key Words and All Keywords analysis in the Tourism Research during Pandemic

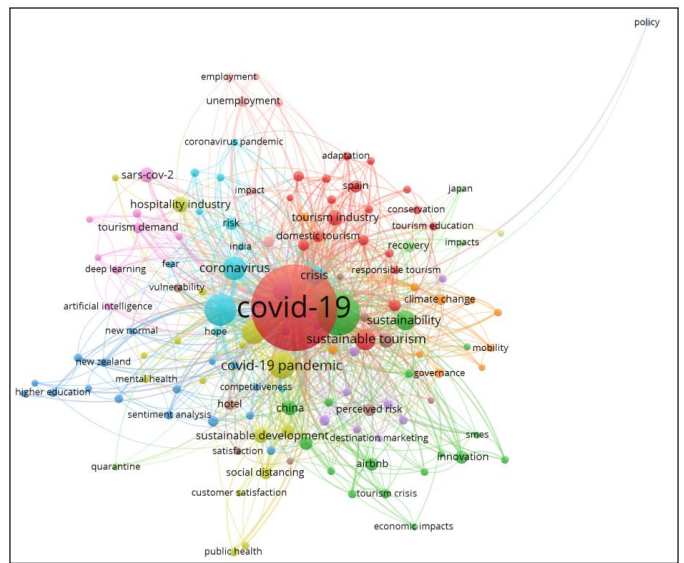
A total of 3732 authors' keywords occurred in the selected documents. Out of the author keywords, COVID-19 (684), tourism (175), pandemic (94), COVID-19 pandemic (68), hospitality (54), coronavirus (51), resilience (40), sustainable tourism (40), crisis management (37), and sustainability (36) are considered the most prominent keywords in the Scopus database when they appear more than 30 times (Table 8).

**Table 8: Key Word Analysis**

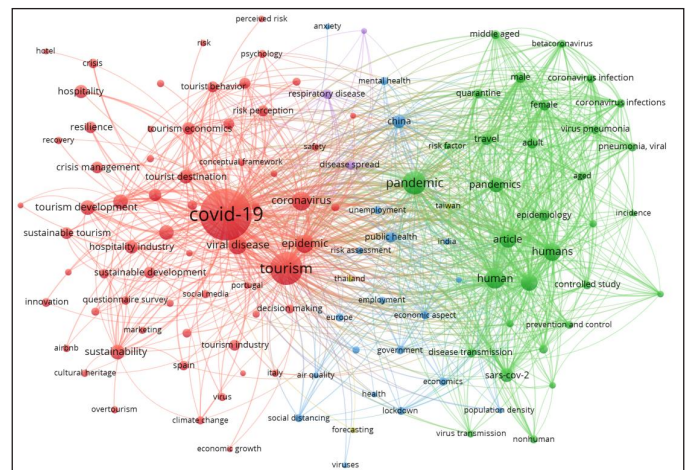
Authors Key Words			All Keywords Analysis		
Rank	Keyword	Occurrences	Rank	Keyword	Occurrences
1	COVID-19	684	1	COVID-19	794
2	Tourism	175	2	Tourism	314
3	Pandemic	94	3	Pandemic	162
4	COVID-19 Pandemic	68	4	Human	119
5	Hospitality	54	5	Coronavirus	106
6	Coronavirus	51	6	Epidemic	102
7	Resilience	40	7	Viral Disease	101
8	Sustainable Tourism	40	8	Humans	90
9	Crisis Management	37	9	Article	89
10	Sustainability	36	10	Coronavirus Disease 2019	88
11	Crisis	30	11	COVID-19 Pandemic	68
12	Hospitality Industry	24	12	Pandemics	67
13	Tourism Industry	24	13	Sustainability	67
14	China	21	14	Tourism Development	66
15	Sars-Cov-2	21	15	Tourism Management	62
16	Sustainable Development	21	16	Sars-Cov-2	59
17	Risk Perception	20	17	Tourist Destination	58
18	Over Tourism	17	18	China	55
19	Airbnb	16	19	Hospitality Industry	55
20	Innovation	16	20	Hospitality	54

The examination of keywords that appear together creates a network of related subjects in a scientific field. In terms of the graphical representation, the words that are most likely to appear in the same paper are connected by the lines (Merigo

et al., 2019). With increasing relevance, a circle gets bigger. Figure 1 shows the author's keyword linkages, and Figure 2 shows the all-key word published in research papers. The thickness of the line linking the vertexes (called the edge) reveals the frequency of co-occurrence of two keywords, while the vertex size indicates the frequency of occurrence. The author's keywords are visualised in the same colour when they occur frequently together. As an illustration, "COVID-19." This draws attention to the themes that have frequently and prominently appeared together. Tourism and education are usually mentioned combined in the documents, followed by curriculum and hospitality, education and teaching, and, considering the thickness of the edge, tourism and education.



**Fig. 1: Authors Key Word Linkages**



**Fig. 2: All Keyword Linkages**

A scatter plot of the most popular subjects from 2019 to 2022 is shown in Figure 2. The substance and research

theme of an article are represented by the article's keywords. The pandemic research's most popular subjects are often expressed by the most commonly occurring keywords. The major keywords in the indicated year in terms of frequency of occurrences are determined by the height of the keyword. Being pandemic research focus, "tourism", "COVID-19", and "pandemic" has the most frequently occurred keyword between 2019 to 2022. Other notable keywords that are frequently appeared are "coronavirus", "epidemic", "destinations", "human", and "tourism development".

## Significant Trends and Core Thematic Areas of COVID-19 literature in the fields of Hospitality and Tourism

Keyword plus is used to identify the numerous linkages amongst words to delve into understanding core thematic areas and trends of COVID-19 literature in hospitality and tourism research. A Thematic Map is carved using the bi-dimensional matrix of these words to find out significant

trends and themes. A co-occurrence network is proposed by the study projecting various topics related to COVID-19.

### a) Co-Occurrence Network

The co-occurrence network of keywords plus extracted from "biblioshiny" of the "R-package" is depicted in Figure 3. On close observations, it is discernible that the COVID-19 literature in hospitality and tourism is categorised into four clusters- the central cluster indicating the highest centrality is shown as the red cluster. It reflects the articles referring to COVID-19, its impact on humans and the tourism industry. The second cluster shown in blue is indicators of themes like the impact of the COVID-19 pandemic on numerous tourism destinations and its effect on human psychology. Various tourism-related themes like tourism segmentation, tourism behaviour, tourism development, tourism management, tourism market, hospitality industry, and tourism economics related to the COVID-19 pandemic. The white cluster represents COVID-19 and its impact on public health and different age groups and transmission.

### b) Thematic Map

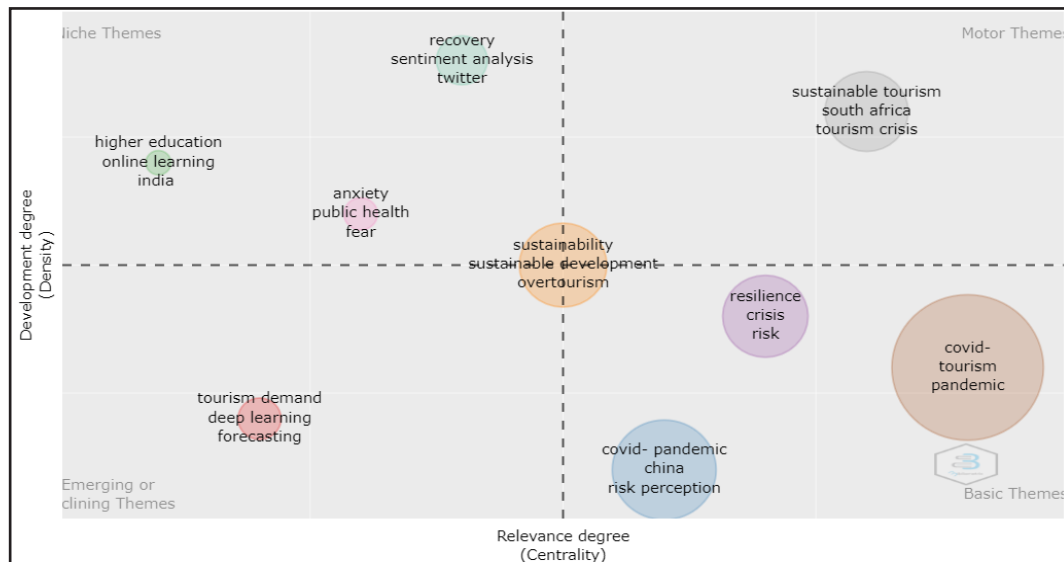


Fig. 4: Thematic Map

Thematic map based on centrality (x-axis) and density is shown in Figure 4 above (y-axis). The density of the chosen theme is used to gauge its development, while the centrality assesses the importance of the study themes. The above picture has four parts upper left and right & lower left and right. The upper left part of the picture illustrates high centrality but low density, which indicates the research themes in this part are highly developed but isolated. Contrarily, high density and high centrality are indicated by the themes that fall in the upper right part of the graphical

representation. These motor themes are well developed and essential too. The lower left part of the above illustration is concentrated on those new themes that are either emerging or declining in the research area. The primary or transversal themes are shown in the lower right corner of the thematic map as low density and high centrality. As illustrated in figure 4, the thematic map is formed based on 250 no. of keywords, and the clusters shown above show a set of three themes with minimum frequency of 5. A table no. 9 is created based on the above figure that depicts the core themes and trends

in research themes related to COVID-19 literature in tourism and hospitality fields.

**Table 9: Trends and Core Thematic Areas**

Cluster Representation	Themes	Key Words
COVID	Basic	COVID-pandemic, tourism, China, Risk perception
Resilience	Basic	Resilience, crisis, risk
Sustainable Tourism	Motor	Sustainable tourism, Sustainability, Sustainable Development, South Africa, Tourism Crisis, Over-tourism
Recovery	Highly Developed but Isolated themes	Recovery, Sentiment Analysis, Twitter
Anxiety	Highly Developed but Isolated themes	Anxiety, Public Health, Fear
Higher Education	Highly Developed but Isolated themes	Higher Education, Online learning, India
Tourism Demand	Emerging Theme	Tourism demand, Deep learning, Forecasting

Table 9 indicates different themes, clusters and keywords of COVID-19 literature in the fields of hospitality and tourism. The basic themes are COVID-pandemic, tourism, china and risk perception representing the primary cluster COVID. Since these themes fall under high centrality and low density, much work is being done on the themes leaving hardly any area for future research work. Sustainable tourism, Sustainability, Sustainable Development, South Africa, Tourism Crisis, and Over-tourism are highly contributory motor themes. Themes related to Recovery, Anxiety and Higher Education are highly developed yet isolated. Their density is high whereas centrality is low, which shows there is a lot of potential in these themes where there is the scope of impactful work to be undertaken.

## CONCLUSION

This study finds the, Hall C.M. is the leading author with seven publications and 872 citations; followed by Gossling S. with three publications and perfect citations score (871). In terms of the most productive authors based on a number of documents Liu X is the leading author with eight publications, followed by Filimonau, Hall, Han and Wen, and seven documents each. The United States is at the top position boasting the highest number of publications,

followed by China and the United Kingdom, which occupied the third rank, but in terms of citations, United Kingdom's total citation volume is much more extensive than other countries. Australia and United States occupied second and third ranks respectively. Of the most productive institutions, "The School of Hospitality and Tourism Management, University of Surrey, Guildford, United Kingdom", is the most productive institution with 893 citations and four documents. Among the top 10 journals, "The Journal of Sustainability (Switzerland)", "International Journal of Hospitality Management", and "Current Issues in Tourism" are the top three journals with 113, 58 and 49 publications. This study also finds the key research areas, themes, and literature trends related to COVID-19. It further sets implications for research in future.

## FUTURE IMPLICATIONS

- The directions for the future research for researchers and policymakers can be set based on thematic and conceptual frameworks as
- More research on COVID-19 in the field of hospitality and tourism can be conducted further.
- The quality research can be undertaken by collaborating with authors across the globe with high citations.
- Inter and intra Institutional collaboration can be explored further for impactful research.
- Themes indicated in the conceptual framework can also be considered research areas for the future.

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