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Present and prospective research themes for tourism and hospitality education post-COVID19: A bibliometric analysis

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ABSTRACT

Academic research in tourism and hospitality sector adds value directly to the way the industry grows and develops. Scholars in this area struggle with the pressures to publish in high ranking journals. The present study attempts to help doctoral students and tourism educators in identifying emerging themes in the tourism and hospitality arising out after COVID-19 pandemic. Using bibliometric analysis, five broad areas of emerging research themes are identified. Such research would further help managers, tourism related state administrators, and firm owners to recover from the devastating impact of COVID-19 on the industry across the world.

1. Introduction

Given the pressures to 'publish or perish' for early career researchers (Ertaş & Kozak, 2020) and for doctoral students to show a strong publication track record by publishing in high-quality journals before graduation (Carr& Hayes, 2017) requires academically oriented research scholars to constantly stay relevant. This is no different for students of the hospitality and tourism industry. The most relevant research in the current scenario is studies related to COVID-19 impact. The outbreak of the current unprecedented pandemic has significantly impacted the tourism and hospitality sector (Gössling, Scott, & Hall, 2020).

Scholars all over the world are trying to make sense of this pandemic and its impact on the hospitality industry (Duarte Alonso et al., 2020), its changing trends (Seyitoğlu& Ivanov, 2020) and future survival (Kaushal & Srivastava, 2020). Gursoy and Chi (2020) point out that even when travel restrictions are lifted, customers may not feel comfortable enough to visit a destination, stay at a hotel or eat in a restaurant. Further research is needed to understand how these customers can be made to return as the industry's survival depends on increasing the demand for their services and products. Some studies like Higgins-Desbiolles, (2020) have pointed out the opportunities that this pandemic has given to rethink the tourism industry in terms of community-centered socialized tourism. To help researchers and practitioners understand the pandemic's impact on tourism and hospitality, the present study undertakes a systematic literature review of published articles related to the early wave of COVID-19 and the hospitality and tourism industry. The research

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questions addressed are as follows: What are the publication trends in the early wave of COVID-19 outbreak in tourism and hospitality research? What are the emerging research foci that the doctoral students in tourism and hospitality education research can focus on during and after the pandemic times?

COVID-19 pandemic has disrupted the academic world, testing its ability to effectively move to remote learning (Greenberg & Hibbert, 2020), with all teaching and learning core facets switching to online mode (Coates, Xie, & Hong, 2021). Graduate scholars, driven partly by the institutional requirements and partly through their own career aspirations to pursue academic careers, are under pressure to establish their distinctive research identities through quality publications (VosViewer). Finding relevant research themes early on in their doctoral education improves their chances of getting a top-tier publication. Research indicates a positive relationship between doctoral student's research achievements and their early career earnings (Marini, 2019). The current research is expected to help research students of hospitality and tourism academia narrow down their search for relevant research themes related to the pandemic. The study would also be helpful to practitioners in helping set a direction for the future of this industry.

The paper is organized as below. The next section details the systematic literature review methodology followed and data collected for the research followed by analysis results and discussion section. Future research directions and research limitations are highlighted next. Finally, research conclusions are drawn in the last section.

2. Methods and data

The study aims to review the research relevant to hospitality and tourism and COVID-19 research themes. A systematic quantitative method was applied to identify relevant literature, synthesise and review the past literature in a structured manner (Kim, 2020; Rosalina et al., 2021). As a first step to identify relevant literature, the availability and suitability of databases were evaluated. The validity of a research paper depends on the database, as it should cover the research area being studied fairly well. Articles for the study were gathered from the Scopus database, a widely accepted comprehensive research database (Booth, Chaperon, Kennell, & Morrison,
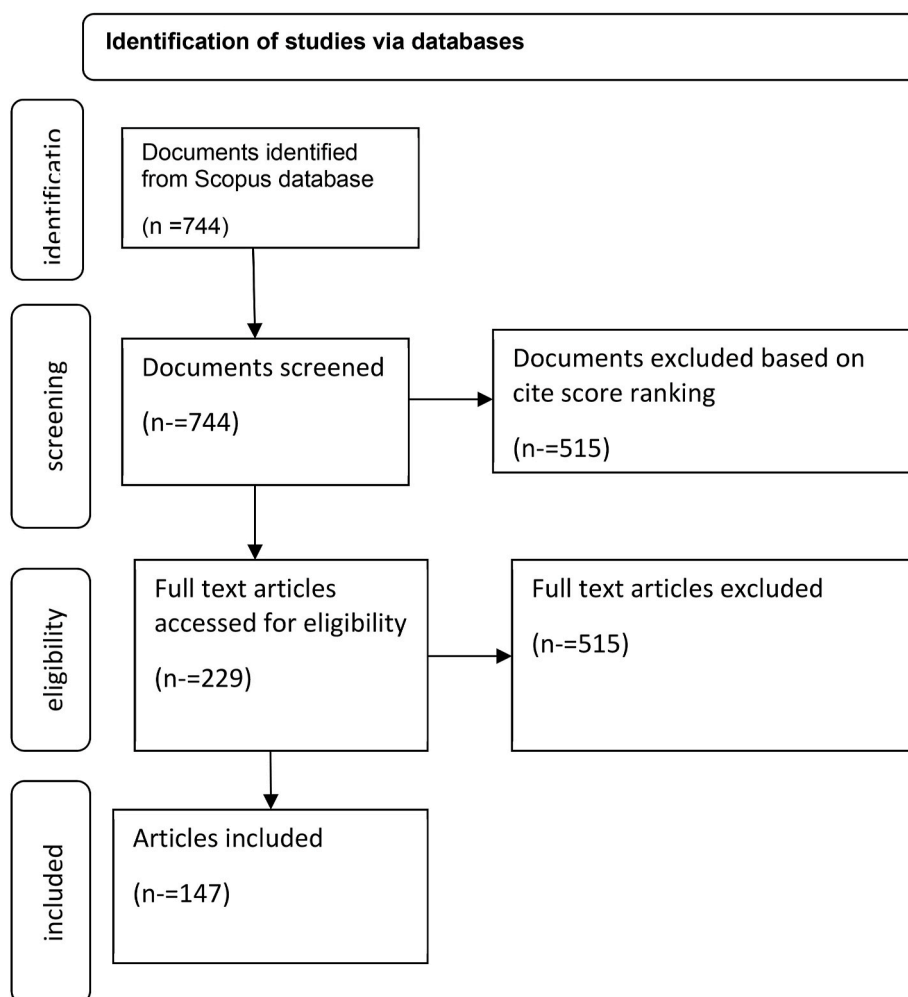

Fig. 1. PRISMA diagram.

2020) which is among the largest curated bibliographic, abstract and citation databases today, with over 3 million new items being added to it every year (Baas, Schotten, Plume, Côté, & Karimi, 2020). Other researchers have similarly used the Scopus database along with similar databases like Web of Science, Science Direct, Emerald, ProQuest, and Sage (deMatos et al., 2020; Li, M., Yin, D., Qiu, H., & Bai, 2021; Agapito, 2020).The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology was adopted to select the relevant articles from the database. To increase the reliability of evidence produced by the review, specific steps are laid out under this methodology for the identification of the relevant articles from the database. The flowchart is given in Figure (1) indicates the criteria applied to include or exclude the articles for the study. A similar methodology has been widely used in Hospitality and Tourism reviews (Booth et al., 2020; Li, M., Yin, D., Qiu, H., & Bai, 2021).

In the first step of identification, a series of keywords were used in combination to search in the Scopus database. To capture articles related to tourism and hospitality, the terms 'tourism' or 'hospitality' were used. Further to identify literature related to COVID-19, keywords included were 'Corona', 'COVID' and 'pandemic'. The combination of these keywords was searched within article titles, keywords and abstracts. The search was restricted to the time period of Jan 2020 to April 2021 (downloaded on 10th April 2021). Only *journal*(source type) *articles* (document type) written in *English* (language) were included in this study. The initial search yielded 744 articles across 316 journals from various disciplines. To enhance the overall quality of the literature review, only top-tier journals were considered based on the cite score ranking given in Scopus for 2019. Only those journals that were listed in the top 10 percentile were included for further analysis. The top-tier journals lead the research trends in academia with the most notable scientific findings (Kim, 2020). This resulted in the narrowing of the journal list selected to 43 journals with a total of 229 articles. These were further refined by reviewing each of the article title and abstract to guarantee topic appropriateness. Only studies with a primary focus on the COVID-19 and hospitality and tourism were included for the in-depth analysis Articles like (titled) *'COVID-19 lockdown improved the health of coastal environment and enhanced the population of reef-fish'* were excluded. This resulted in the final set of 151 publications that were further synthesised.

2.1. Bibliometric and thematic analysis

In answering the first research question, the present study identifies the hospitality and tourism research trends in COVID-19 using the bibliometric method. The descriptive summary of the 151 articles is undertaken with a focus on leading contributors −authors, institutions, and countries. Data was exported from Scopus to do the analysis. Basic information of each searched article, including the authors' information (names, countries, and institutions), publication years and journals, total citations, keywords and abstract, were saved to facilitate detailed analysis. Thematic analysis of the articles was further undertaken to identify the newly emerging themes in the study area and thus answer the second research question.

2.2. Thematic analysis

This is the last stage of the PRISMA technique, where synthesis of the findings is done to allow for the production of knowledge about the topic under review. For the 151 articles, based on the abstract, keyword and title of articles, broad categories of research areas were first identified by two authors independently. Altogether, they identified 11 research categories. These were then discussed with two independent experts who are experienced in the area of hospitality and tourism research. The experts helped in further grouping the research areas into 5 broad research categories. After identifying these research areas, each article was reviewed and coded into these categories by two authors separately to ensure objectivity and reliability of the assigning process. For studies that were assigned to different research categories by the two authors, further review was sought with other authors until consensus was reached for all studies. The research areas identified and the number of articles thus assigned to them are *Economic impact and demand analysis* (18 articles), *Hospitality and tourism workforce* (19 articles), *Customer/tourist studies* (35 articles), *Crisis management, Resilience and Transformations in touristic industry* (71 articles) and *Hospitality & Tourism Education* (8 articles).

These research categories are further analysed using cluster analysis. Clustering helps group the elements of a study according to their degree of similarity. Several visualization tools are available. We use VOSviewer, a professional visualization software, to undertake keyword co-occurrence network analysis. Since its development by van Eck and Waltman (2010), this visualization software has been used by several studies,[1] including studies analyzing bibliographic data in hospitality and tourism research (Palácios et al., 2021). The present study uses this software to analyse keyword co-occurrence clustering using author's keywords and index keywords from the studies.

In the visual maps created by the VOSviewer, the circles show terms with the size of the circle and text of the term, indicating the preference of the term in the study area. The larger the circle and the text, the more preferred the term in the field of study. The distance between the two terms indicates the robustness of the relationship, with a shorter distance indicating a higher relationship. Colours indicate grouping the terms by clusters. Details of keywords included in the clusters can also be derived from the software.

3. Results and discussions

The final corpus of articles for analysis consisted of 151 documents indexed in Scopus. As seen from Figure (2), the publication of

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[1] for details of all applications see www.vosviewer.com/publications.

articles relating to COVID-19 and hospitality and tourism research were mostly published in journals related to *Business, Management and Accounting* (27.4%) and *Social Sciences* (26.9%). Other subject areas together are seen to contribute less than 50% of the overall number of articles published. Identifying the authors, affiliation and countries along with journals that contributed the most to the research area help future researchers identify important literature in their area of interest. Most researchers set document alerts for their relevant journals. Also, they are seen to follow authors from their area of research on various social platforms like Linkedin or google scholar. We describe the top contributors next.

3.1. Distribution of authors, countries and affiliation

There were 426 authors who contributed to this area of study, of whom over 32 authors contributed at least 2 or more studies in the top tier journals. The five most contributing authors include Morrison A.M and Coca-Stefaniak J.A with 4 papers each, Hall C.M, Kock F and Filimonau V with 3 papers each respectively. The authors from several countries have contributed to the literature with United States (11.68%) contributing the most, followed by United Kingdom (11.34%), Australia (9.28%), Chine (7.90%) and Spain (3.44%). With regard to affiliation, the University of Johannesburg, University of Greenwich and Griffith University have contributed the most with 7 authors each, followed by Hong Kong Polytechnic University, the University of Surrey and the University of Macau with 6 authors each, respectively. Other universities across the globe have also contributed between the range of 1–5 authors. With regard to the number of co-authors for a paper, while the mean was at 2.5 authors per paper, the co-author numbers ranged from 1 (single author papers) to a maximum of 11 authors (Ibn-Mohammed et al., 2021).

3.2. Journal contribution

The review found that the *International Journal Of Hospitality Management* contributed the highest to the 151 articles, with over 27.7 percent (41 articles) publications, followed by *Current Issues In Tourism*, with 17.6 percent (26 articles), *Tourism Geographies* with 16.89 percent (25 articles), *Annals Of Tourism Research* with 8.78 percent (13 articles) and *International Journal Of Contemporary Hospitality Management* with 8.11 percent (12 articles). The remaining 31 articles were published across 9 journals, with some indicating 9 articles while others were contributing only 1 article.

3.3. Thematic analysis to identify prominent themes under each area of research

Thematic analysis was undertaken whereby articles were grouped under the following five areas of research as *Economic impact and demand analysis* (18 articles), *Hospitality and tourism workforce* (19 articles), *Customer/tourist studies* (35 articles), *Hospitality/tourism industry* (71 articles) and *Hospitality & tourism education* (8 articles). Each research category is further analysed using VOSviewer to help identify the prominent themes emerging in the area of research.

Based on the keywords across the identified studies under each research category, keyword co-occurrences are analysed to identify the major emerging themes. The keyword co-occurrence network analysis results are shown in Fig (3-7) for all the research categories, respectively. These are discussed in detail next. Further details of the themes identified based on the network analysis under each research area along with the studies that indicate these keywords, are given in Table 1.

3.3.1. Research area 1: Economic impact and demand analysis

For the research category of *Economic impact and demand analysis*, keywords with more than three occurrences were included. In all 18 studies were grouped under this research category. Fig (3) indicates 3 clusters that are identified for this research area. One of the cluster (blue colour) highlights the pandemic but does not reveal any emerging themes; hence this is not included in table(1) analysis. The two broad themes are identified as indicated in table (1) including *economic impact* contributing over 28% of articles to the area and *demand analysis and tourism development* with a contribution of 44%.
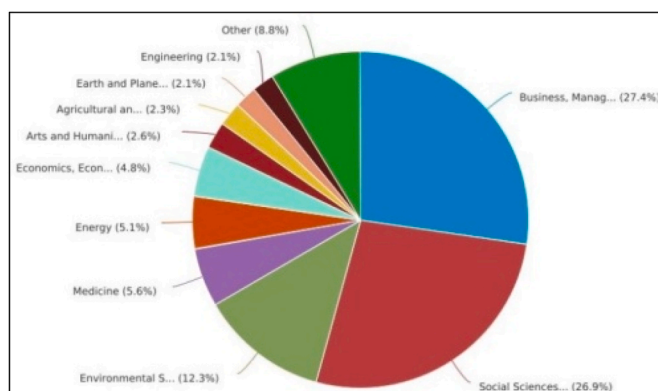

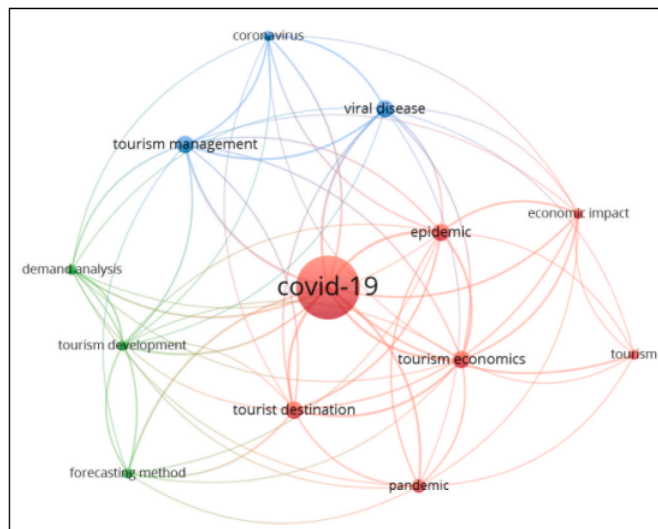**Fig. 2.** Publication by subject area.

Fig. 3. Network analysis diagram for Economic impact and demand analysis research area.
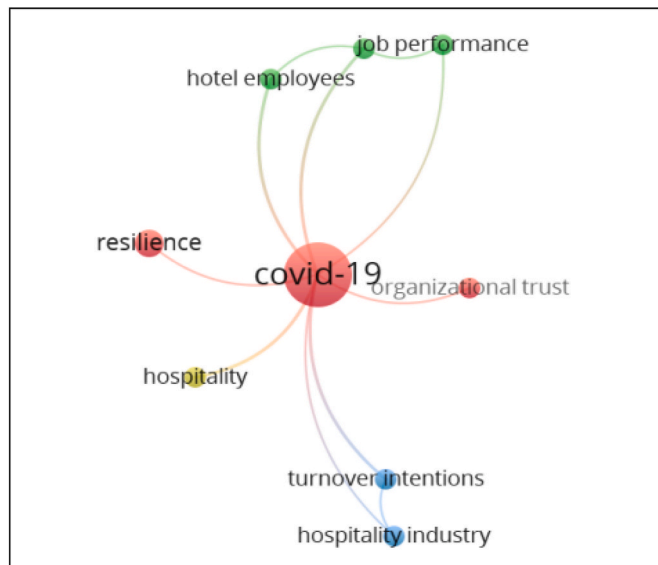

Fig. 4. Network analysis diagram for Hospitality and tourism workforce related.

3.3.1.1. Theme: Economic impact. COVID-19 pandemic has impacted the tourism economies of almost every country across the world, and this is highlighted in the studies of researchers who have focused on the *economic impact* of the first wave of the pandemic, in particular on employment (Pharm et al., 2021) and lockdown strategy impact on the revival of the tourism economy (McCarteny et al., 2021). While studies have found the individuals willingness to pay is high to maintain public health and reduce the risk of the tourism sector (Qiu et al., 2021), others recommend government support for the recovery of tourism and hospitality sector (Phan et al., 2021). The revival of tourism economies are also analysed using diverse economic frameworks (Cave & Dredge, 2020; Ibin et al., 2021). Ibin-Mohammed et al. (2021) further point out using circular economic framework analysis that economies should leverage the chance that COVID-19 pandemic exit strategies like lockdown have given to build a more resilient, low-carbon economy. These studies indicate the short term impact of the first wave of COVID-19 pandemic and highlight the need to analyse these impacts more deeply in follow-up studies.

3.3.1.2. Theme: demand analysis and tourism development. This theme includes studies that have forecasted the post-COVID tourist arrivals (Kourentzes et al., 2021; Liu et al., 2021; Qiu et al., 2021) and the economic impact of COVID-19 on hospitality firm performance (Crespí-Claderaet al., 2021). While Kourentzes et al. (2021), using the time series forecasting method, have estimated the
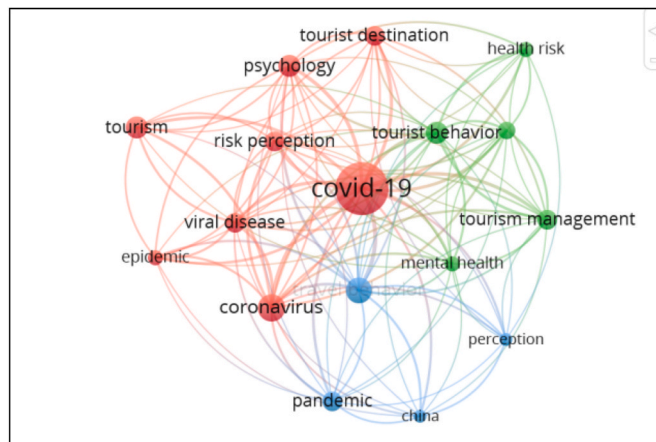
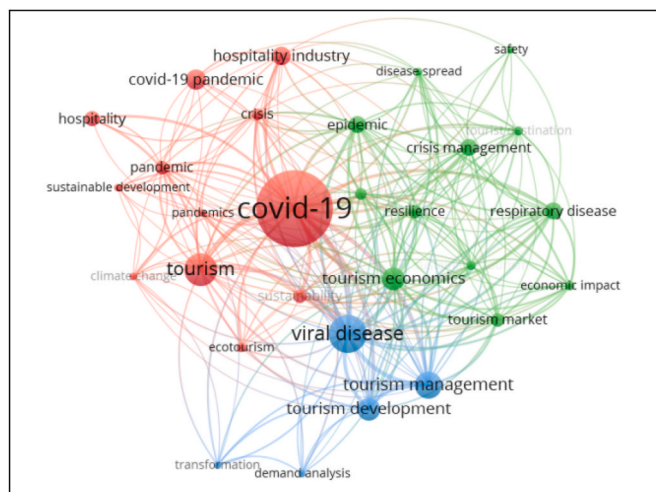**Fig. 5.** Network analysis diagram for Consumer perspective.

Fig. 6. Network analysis diagram for Crisis management, Resilience and Transformations in touristic industry.
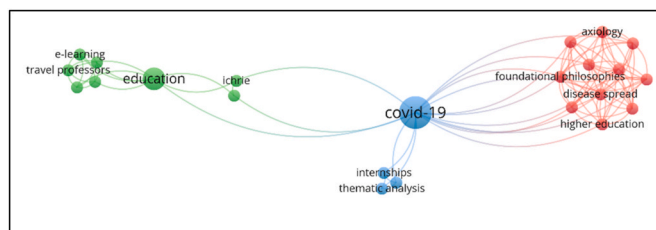

Fig. 7. Network analysis diagram for Hospitality and tourism education.

international tourist arrivals for 20 destinations, Liu et al. (2021), using scenario-based two-steps mixed method including time series analysis, Artificial intelligence and judgmental forecasting, estimate tourist arrivals across 20 countries to suggest that strong relationship between the speed and intensity of recovery and destinations dependency on long-haul markets. Qiu et al., 2021, using statistical and judgemental forecasting methods, estimates tourist arrivals across 20 Asia Pacific countries.Wickramasinghe and Ratnasiri (2020), using monthly data on tourist arrivals and google trends, estimate the foregone tourist expenditure for Srilanka. Gallego and Font (2020), using big data analytics with Skyscanner data on air passenger searches and traffic light dashboard analysis, predict the willingness to travel by air passengers, thus indicating recovery strategies for tourist markets from the impact of the pandemic. Analysing the firm-level impact of the COVID pandemic on Spanish hospitality firms using the Logit model and solvency stress test, Crespí-Claderaet al. (2021) find firms with low operating leverage to be in a better position to survive the crisis. While

Table 1
Identifying research areas, cluster themes and grouping of studies.

Research area Identified	Cluster theme	Study in the database	%
Economics impact and demand analysis	Economic impact	Pham &Ngo, 2021; McCartney & Liu, 2021; Ibn-Mohammed et al., 2021; Qiu et al., 2020; Cave & Dredge, 2020.	28%
	Demand analysis and tourism development	Crespí-Claderaet al., 2021; Kourentzes et al., 2021; Liu et al., 2021; Qiuet al., 2021; Fotiadis, Polyzos, & Huan, 2021; Guo, Liu, Song, & Y, 2021; Wickramasinghe & Ratnasiri, 2020; Gallego & Font, 2020.	44%
	Others	Kaczmarek, Perez, Demir, & Zaremba, 2021; Qiu et al., 2021; Wieczorek-Kosmala, 2021; Huang, Makridis, Baker, Medeiros, & Guo, 2020; Khan et al., 2021	28%
Hospitality and tourism workforce/ employee	Organizational trust & resilience	Guzzo et al., 2021; Ngoc et al., 2021; He et al., 2020; Salazar, 2020; Mao et al., 2020	28%
	Job performance & life satisfaction	Tu et al., 2021; Aguiar-Quintana et al., 2021; Kim et al., 2021; Karatepe, Saydam, & O, 2021; Vo-Thanh et al., 2020	28%
	Turnover intentions	Yu et al., 2021; Bajrami et al., 2021; Manoharan et al., 2021	16%
	Others	Sakdiyakorn et al., 2021; Chadee et al., 2021; Zhang et al., 2020; Baum et al., 2020; Park et al., 2020	28%
Customer/tourist studies	Consumer risk perception	Pappas, 2021; Dedeoğlu & Boğan, 2021; Aebli et al., 2021; Foroudi et al., 2021; Kock et al., 2020; Zhan et al., 2020; Bae & Chang, 2021	20%
	Tourist changing behaviour	Zenker & Kock, 2020; Adongo, Amenumey, Kumi-Kyereme, & Dubé, 2021; Sánchez-Pérez et al., 2021; Zhang et al., 2020; Chua et al., 2020; Chua, Al-Ansi, Lee, & Han, 2021	17%
	Travel behaviour	Hu et al., 2021; Bresciani et al., 2021; Miao et al., 2021; Zheng et al., 2021; Karl, Kock, Ritchie, & Gauss, 2021; Ribeiro et al., 2021; Jin, Bao, & T, 2021; O'Connor & Assaker, 2021; Christou, Simillidou, & Stylianou, 2020; Yang & Wong, 2020; Sánchez-Cañizares et al., 2021; Neuburger & Egger, 2020	34%
	Others	Nilashi, Asadi et al., 2021; Schiopu et al., 2021; Tuzovic et al., 2021; Prakash et al., 2021; Li et al., 2021; Kim et al., 2021; El-Said & Aziz, 2021; Jeon & Yang, 2021; Buckley & Westaway, 2020; Wong & Yang, 2020	29%
Crisis management, Resilience and Transformations in touristic industry	Crisis management & sector resilience	Smart et al., 2021; Sobaih et al., 2021; Shapoval et al., 2021; Zhang, Song, Wen & Liu, 2021; Yacoub &ElHajjar, 2021; DeMicco, Cetron, Davies, & G, 2021; Giousmpasoglou et al., 2021; Ntounis et al., 2021; King et al., 2021; Breier et al., 2021; Hu et al., 2021; Japutra & Situmorang, 2021; Filimonau, Derqui, & Matute, 2020; Duarte et al., 2020; Lai & Wong, 2020; Jones & Comfort, 2020; Hall, Scott, & Gössling, 2020; Haywood, 2020; Mostafanezhad, 2020; António & Rita, 2020; Quang et al., 2020; Yung et al., 2020; Gössling et al., 2020; Chen et al., 2020	35%
	Sustainable development	Filimonau, 2021; Tsai, 2021; Niewiadomski, 2020; Cooper & Alderman, 2020; Sheller, 2020; Stankov et al., 2020; Cheer, 2020; Galvani et al., 2020	11%
	Industry transformation and tourism development	Škare et al., 2021; Tomassini &Cavagnaro, 2020; Carr, 2020; Ateljevic, 2020; Rowen, 2020; Renaud, 2020; Prideaux et al., 2020; Brouder, 2020; Benjamin, Dillette, & Alderman, 2020; Ioannides & Gyimóthy, 2020; Everingham & Chassagne, 2020	16%
	Others	Bonfanti et al., 2021; Cai G et al., 2021; Pillai et al., 2021; Rivera et al., 2021; Visentin et al., 2021; Magnini&Zehrer, 2021; Loi et al., 2021; Nisar et al., 2021; Brizek, Frash, McLeod, & Patience, 2021; Hugo, 2021; Yang & Han, 2021; Kamata, 2021; Isaac, 2021; Liu et al., 2021; Khalid, Okafor, & B, 2021; Zhang et al., 2021; González-Torres, Rodríguéz-Sánchez, & Pelechano-Barahona, 2021; Kaushal & Srivastava, 2021; Im, Kim, & M, 2021; Seyitoğlu F & Ivanov, 2020; Jiang & Wen, 2020; Zeng et al., 2020; Higgins-Desbiolles, 2020; Baum & Hai, 2020; Ramkissoon, 2020; Seyfi et al., 2020; Foo et al., 2020	38%
Hospitality & tourism education	Transformational education	Edelheim, 2020; Zopiatis et al., 2021; Hayes, 2020	37%
	Hybrid education & blended learning	Griffin, 2021; Smith, 2021; Tolkach & Pratt, 2021; Qiu et al., 2020; Tavitiyaman et al., 2021	63%

Note: % indicates the percentage of articles in total number of articles under each research area identified.

studies above estimate the loss to the tourism and hospitality sector due to falling demand for inbound tourists, they also forecast a reactivation of the tourist markets that would help these sectors bounce back. Studies confirming or refuting these forecasts would go a long way in better understanding the economic impact on this sector.

3.3.2. Research area 2: Hospitality and tourism workforce

There are 19 studies that are seen to focus on the issues faced by the workforce of the hospitality and tourism sector. With the keyword threshold of 2 Fig (4) indicates 4 clusters. The threshold is reduced due to the small number of studies included in this research area. Among the clusters identified by the network analysis, one cluster (yellow colour) includes only the hospitality keyword; hence this is excluded from further analysis. The 3 remaining clusters indicate the themes *Organizational trust & resilience,* which contributes over 28% to the research area, *Job performance & life satisfaction* with 28% contribution and *Turnover intentions* contributing 16%. The remaining studies (28%) could not be included specifically in any of the themes hence are listed under the others

category in table (1).

3.3.2.1. Theme: Organizational trust & resilience. Studies under this theme highlight the impact of manager's communication on employee's organizational trust (Guzzo, Wang, Madera, & Abbott, 2021), the importance of employees in building organizational resilience (Ngoc et al., 2021) and the importance of CSR activities in augmenting the psychological capital of employees and increasing trust (Mao et al., 2020). Further, Salazar(2020), focusing on tourism-related labour mobility, highlights the 'nexus between migration and tourism' and social sustainability that has thrown up new challenges following the pandemic. While Ngoc et al. (2021) used in-depth interviews as means to collect their data, questionnaire-based survey was used by others(He, Mao, Morrison, & C.-S, 2020; Mao et al., 2020).

3.3.2.2. Theme: Job performance & life satisfaction. Studies under this theme highlight the stress and mental health of the workforce in the hospitality and tourism sector. Research indicates that unpredictable downsizing during the pandemic has increased the stress levels of surviving employees in the hospitality industry, impacting their performance (Tu et al., 2021). The study further argues that social support (through family) can help to reduce the negative effect COVID-19 related layoff for the employees. Similar results were found by others (Aguiar-Quintana, Nguyen, Araujo-Cabrera, & Sanabria-Díaz, 2021; Karatepe, 2021) for hotel employees where, the pandemic was seen to impact the mental health of hotel employees, further bringing down their performance. Further studies by Kim et al. (2021) show organizational safety climate to boost employee's safety motivation, while the reduction in perceived job insecurity is seen to improve the performance of employees (Vo-Thanh et al., 2020).

3.3.2.3. Theme: Turnover intentions. Yu et al. (2021) using mixed methodology study employees' attitudes and behaviour towards the hospitality industry due to subjective stress and negative emotions due to negative work events such as COVID-19 the pandemic. The study finds that the industry level impact of the pandemic has made several employees uncertain about their future careers in the hospitality industry, and subjective stress is seen to increase their intentions to quit the industry and also result in negative word of mouth. The authors further point out that while the unprecedented layoff in the hospitality industry cannot be avoided during the COVID pandemic, the negative emotions felt by the employees maybe reduced through rebuilding trust and proper communication. These areas of future research are much needed for the industry to understand fully the impact of the pandemic on the employees and help find ways to motivate them to continue to work in this sector, thus reducing turnover ratios. Bajrami et al. (2021) further, in understanding the impact of COVID-19 on work related attitudes and turnover intentions of the employees in the hospitality industry focuses on job insecurity, employees' health complaints during isolation, risk-taking behavior at workplace and changes in the organization. Using the data collected from hospitality workers from Serbia, the study finds that job insecurity and changes in the organization have a negative impact on both work-related attitudes and turnover intentions of the employees.

Studies under the Other category are seen to focus on the managers use of digital technologies to perform their job during COVID-19 (Chadee, Ren, & Tang, 2021), the impact of hotel safety leadership on employee safety behaviour (Zhang et al., 2020), the impact of COVID-19 on the life of hospitality employees (Baum, Mooney, Robinson, & Solnet, 2020), and perceptions of tourism employees towards COVID-19 (Park et al., 2020).

3.3.3. Research area 3: customer/tourist studies

The research area of customer studies (or tourist related studies) includes 35 articles. Fig (5) indicates three clusters based on the keywords from these articles. These are Consumer risk perception, Tourists changing behaviour and Travel behaviour, contributing 20%, 17% and 34% respectively to the research area as seen from the table(1). Studies that are not grouped under these themes are included as others in table (1).

3.3.3.1. Theme: consumer risk perception. Zahn et al., (2021) conducted a study on Chinese residents travelling to Wuhan after the pandemic and developed a risk perception scale that concluded that occupation and place of residence are the most important factors of risk. Studies have also highlighted the holiday risk and impact of COVID-19 (Pappas, 2021), health and safety risks as a reason for travel demotivations (Aebli et al., 2021). Further studies (Bae & Chang, 2021) have found customer's attitude to be moderating their risk perception and behavioural intentions. Studies also suggest that post-pandemic visits of customers to restaurants would be influenced by their trust in the restaurants (Foroudi, Tabaghdehi, S, & Marvi, 2021) and governments (Dedeoğlu & Boğan, 2021).

3.3.3.2. Theme: tourist changing behaviour. Perceived health risk and avoidance behaviour of tourists have significantly affected the international tourists' air travel and tourism industry (Chua et al., 2020(b)). Sánchez-Pérez et al. (2021) examines the behaviour change among tourists during COVID-19 and highlight the importance of linking the health risk perception of tourists to their behavioural intention.Zhang et al. (2020) in their study of find tourists travelling during the COVID-19 are more risk-averse, and this magnifies their negative emotional reactions towards disadvantaged tourism-related prices. Chua et al. (2020(a)) find that destination attachment is critical in post-pandemic tourists' travel choices, and this will be impacted by perceived response efforts and health preventive behaviour during COVID-19.

3.3.3.3. Theme: travel behaviour. Studies indicate that COVID-19 has resulted in a significant increase in travel risk perception among tourists (Neuburger&Egger, 2021), resulting in increased psychological resilience among travellers who display cautious travel behaviours (Zheng et al., 2021). The cautious behaviour has lent itself to a higher willingness to pay for additional safety measures

(Sánchez-Cañizares et al., 2021), like the preference of renting full flats rather than single hotel rooms to maintain physical distancing norms (Bresciani et al., 2021), travelling in their own vehiclesto reduce the risk of pandemic (Bresciani et al., 2021; Ribeiro et al., 2021). It is further suggested by studies (O'Connor &Assaker, 2021) that post-pandemic travel behaviour will be pro-environmental, and tourists would be looking beyond hygiene attributes to select hospitality servicesHu et al. (2021).

Other studies include articles that focus on the use of electronic media for information sharing during the pandemic (Nilashi, 2021), the use of virtual reality (Schiopu et al., 2021), low consumption due to safety concerns (Li et al., 2021), use of robot-staffs in room service (Kim et al., 2021), post-COVID increase in local tourism (Jeon & Yang, 2021) and quarantine lodging experience (Wong & Yang, 2020). All the studies are related to understanding the consumer perspective of the hospitality and tourism sector.

3.3.4. Research area 4: Crisis management, Resilience and Transformations in touristic industry

For the research category of the *Crisis management, Resilience and Transformations in touristic industry,* 71 studies were included. The clustering network analysis from Fig (4) indicates 3 clusters with studies relating to Crisis management and sector resilience contributing 35% as indicated in table (1), studies focusing on *Industry transformation and tourism development* contributing 16% and *Sustainable development* contributing over 11%. Studies that could not be specifically grouped under these clusters are highlighted in the others category in table (1). These include studies that focus on the impact of COVID-19 on customer experience (Bonfanti, Vigolo, & Yfantidou, 2021), cleanliness (Magnini&Zehrer, 2021), destinations (Foo, Chin, Tan, & Phuah, 2020; Isaac, 2021) and destination residents' attitude (Kamata, 2021). Studies have looked at new developments like robotics adoption in the hospitality and tourism industry (Seyitoğlu & Ivanov, 2021; Zeng et al., 2020).

3.3.4.1. Theme: Crisis management and sector resilience.
With the global lockdown during the COVID-19, the hospitality and tourism industry is seen to undergo unprecedented crisis like situation globally (António& Rita, 2020). Studies analyse the crisis faced by managers of hospitality business (Japutra & Situmorang, 2021) and highlight the importance of the resilience of managers of these businesses to overcome it (Giousmpasoglou et al., 2021). Few others have also focused on the impact of the public health crisis in the hospitality industry (Shapoval et al., 2021), suggesting innovative business models to create new revenue streams to better manage future crisis situations (Breier et al., 2021) and improve resilience in the sector (Duarte Alonso, 2020). Varied methodologies have been used to understand the crisis faced by the hospitality and tourism industry, including the case-study approach (Hu et al., 2021; Smart et al., 2021), questionnaire survey (Sobaih et al., 2021) and forecasting methods (Zhang et al., 2021).

3.3.4.2. Theme: Industry transformation.
Hospitality and tourism industry transformation need studies to focus on new ways of developing this sector. Tourism managers have to understand the impact of pandemics like COVID-19 and should build capabilities to forecast recovery path (Škare, 2021), focusing more on local travellers more than the global networks (Tomassini &Cavagnaro, 2020). It is further suggested by Carr, 2020 that such sectoral plans should have an inclusive approach. The managers should not look at returning to the pre-COVID demand, instead, look at the emerging economic transformation and plan for recovery (Prideaux et al., 2020) with a focus on overall societal wellbeing and sustainability (Everingham & Chassagne, 2020).

3.3.4.3. Theme: Sustainable development.
Being an enabler for economic development, sustainable tourism has been the context of research for many years. Researchers underthe *Sustainable development* theme have focused on various aspects of sustainability, including sports tourism (Cooper & Alderman, 2021), tourism infrastructure (Sheller, 2020) and tourists' awareness (Galvani, Lew, & Perez, 2020; Stankov et al., 2020) during the pandemic period. While Filimonau (2021) looks at alternative uses of food and plastic waste from the tourism industry, Niewiadomski (2020) looks at COVID-19 as an opportunity to re-boot the tourism industry with the tenets of sustainability. Other researchers like Cheer (2020) focus on the concept of human flourishing to understand the post-COVID tourism landscape. Studies under this theme suggest a faster recovery of the hospitality and tourism sector, also suggesting ways to reduce the severity of any future COVID like pandemics in this sector. Tsai (2021) predicts medical tourism and leisure to be the areas of importance post-COVID-19, indicating that future researchers must focus on these areas of tourism.

3.3.5. Research area 5: Hospitality and tourism education

Academic research has a prominent role in tourism education, as research-based learning adds more value to tourism and hospitality education by supporting sustainable development (Espinoza-Figueroa, Vanneste, Alvarado-Vanegas, Farfán-Pacheco, & Rodriguez-Giron, 2021). Though touristic education began in vocational secondary schools, due to the prominence this sector gained in the economy and employment, it has increased its prominence in schools and universities. Tourism education helps to increase touristic competitiveness and plays a key role in the growth of tourism sector in any country (Renfors et al., 2020). Tourism education research has been a well-researched area in the past.[1] The changing focus on emerging areas of tourism developmet will open new areas for education research in tourism also.

The criteria of the top 10 percentile cut off for inclusion of journal articles under a theme was relaxed for this theme due to very small number of articles falling in this criteria (5 articles). The inclusion percentile was increased to include journals up to top 20 percentile in Scopus list. This resulted in 8 articles being selected under this theme. While the network diagram indicates 3 clusters, one of the clusters was related to thematic analysis and systematic review. Dropping this cluster results in 2 clusters, namely *Transformational education* and *Hybrid education & blended learning.*

3.3.5.1. Theme: Transformational education.
Edelheim (2020) highlights the need for the value-based education system and points out

that COVID-19 pandemic may be the much needed impetus to revisit the travel, tourism, hospitality and event higher education sector. While the pandemic has brought to the forefront the idea that the past and present cannot help us plan for the future, Edelheim points out that with transformation in the higher education sector towards value-based education, students would be more equipped towards transformative practices in the industry.

Experiential learning through internships have become the norm of hospitality education and COVID-19 has brought a new dimension to it. The industry is preparing to provide a new customer experience and the tourism academics also should quickly adapt so that the students become competent to handle any such future eventualities. Empirical research during COVID-19 should be able to provide a new approach to tourism internships so as to provide better insights to students compared to pre-COVID period (Zopiatis et al., 2021).

Hayes (2020) analysed the tourism taught master's programs and found that these programs are offered as more of vocational content and less of liberal arts. He argues that such programs are intended to produce leaders in tourism industry and there should be a balance of vocational and liberal arts content as the industry needs philosophic practitioners to bring disruptive changes to create a better resilient tourism and hospitality industry.

3.3.5.2. Theme: Hybrid education & blended learning. Griffin (2021) in discussing the future of hospitality education points towards practices that could become necessary for educators to adapt to the changes forced upon us by COVID pandemic. He also points out that educators in this ever challenging industry should help future leaders (current students) to with the required tools to help them adapt to any change. The article also discussed the importance of creative use of online media like interactive course content with a hybrid approach to education, integrated industry forums and mentorship for creating entrepreneurial skills, project-based learning across the curriculum, real-world industry exposure for students through industry partnership in problem-solving, and accelerated short courses instead of traditional semester-based courses. The paper reflects on "creating a radically new hospitality program that benefits student learning and industry-academia collaboration". Smith (2021) also highlights the creative utilization of technological tools, software, and platforms to facilitate online learning in hospitality education.

Though YouTube is being used for blended learning, research and online classes widely, the use of this channel is limited in tourism academia (Tolkach & Pratt, 2021). They suggest that use of YouTube channels like 'Travel Professors' can be used for blended learning in Tourism education during COVID-19 and beyond. Qiu et al. (2020) suggested that the effectiveness of tourism education during the COVID-19 period can be increased by including MOOCs and SPOCs in the pedagogy.

While many studies talk about the need for blended learning and research in tourism education and advocate for improving online teaching effectiveness, Tavitiyaman et al. (2021) studied the impact of online classes on personality of hospitality students. They suggest that the instructors should increase their support to students in online classes and this will enhance motivation levels of the students and helps in a higher level of perceived learning and reduced learning anxieties and eventually, increase student satisfaction levels.

4. Future research directions

It is well-acknowledged fact that PhD students need to have a publication record in high-ranking journals to get an academic job (Carr and Hayes, 2017). Staying relevant and publishing on topics that are current and have future potential can help them get a good publication. The present bibliometric study is aimed at providing an overview of the current literature relating to COVID-19 and the hospitality and tourism industry, one of the most relevant topics for future research. While studies in each area identified have highlighted the current crisis, its impact and crisis management, several studies have given directions to help future researchers choose their area of research with relevance.

Tourism has evolved as a major economic activity across regions employing both skilled and unskilled labour. Prior to COVID-19, travel and tourism industry accounted for 25% if the new jobs created globally (WTCC). Its importance and share in any country's economic activity chart have increased over the decades. A similar expression of increased interest is seen in academic research (Wilson, 1998) with improved methodology in estimating the tourism demand across tourist destinations (Song et al., 2012). Being an important industry in several countries, continuous economic assessment of tourism industry and its contribution to economic development and progress is essential (Comerio & Strozzi, 2019). The pandemic and following lockdown and travel restrictions have economic impacts across all countries in the world particularly related to employment (Phan et al., 2021), on hospitality firm performance (Crespí-Claderaet al., 2021), on tourist arrivals and hence demand impacts (Kourentzes et al., 2021; Liu et al., 2021; Qiu et al., 2021). While all these studies have indicated the impact and effect of the crisis, what needs to be further studied is the sector wise impact of tourism demand and employment on the short term, medium term and long-term economic growth and development of economies. Such studies must focus on strategies specific to reviving of the tourist markets and helping the sector recover from the pandemic in terms of tourism demand recovery leading to increasing employment, better firm performance in this sector and promotion of sustainable practices for future crisis handling. These areas of research would benefit from academic debates and have direct implications on the industry recovery. Hence hospitality scholars must focus in these areas of future research.

Being a labour-intensive industry, tourism and hospitality sector like other similar sectors have faced employee-employer related issues like job performance and job satisfaction, work-life balance and life satisfaction, labour turnover, building organization trust and such others. The Unpredictable closure of many tourist destinations and all related businesses has resulted in increased stress levels in employees (Aguiar-Quintana et al., 2021; Karatepe, 2021; Tu et al., 2021) impact their mental health and performance (Vo-Thanh et al., 2020). While some of the countries have opened its tourist destinations, several countries are still in favour of partial or full travel

restrictions with new strands of corona virus emerging across the world. While currently, the sector is more in damage control mode, it is the post-pandemic years when the real impact of mental health on hotel employees would be seen. It is imperative that these areas be researched from several different angles of causes, impact, effect, recovery and sustainability to help the sector employees stay healthy and perform better in the coming decades. Health of the employees is most important to increase productivity and efficiency of any organization and tourism being an experiential service sector has a high interaction level between employees and customers. Thus, future research scholars of this area must focus on understanding the pandemic impact on employee's mental health and performance, find ways to support them to recovery and formulate strategies to help build organization trust and resilience. These are some important areas of research related to tourism-hospitality sector employees that would have long-term implications for the industry as well.

Customer satisfaction is the most important driving force for service sector profitability. Motivation to travel to a particular destination and the experiences that the consumers experience at the destination results in revisit, recommendation and customer loyalty (Huang & Hsu, 2009). These factors impact firm profitability (Petrick, 2004). COVID-19 has impacted tourists' travel preferences, destination choice (Li et al., 2021) and their risk perception (Pappas, 2021; Zhan et al., 2020), with health and safety risk impacting their travel motivation (Aebli et al., 2021; Bae & Chang, 2021; Chua et al., 2020(b)). The changing behaviour of tourists post pandemic highlight some interesting areas of research like changing travel motivation, destination choice, expectations from the hospitality and tourist service providers, demand for better health and safety norms among consumers. These changes also lead to new ways of customer assessment of service providers and hence academic research in these areas can lead to high-quality publications for research scholars. These potential research areas are also of high implications to practitioners, including hotel, restaurant, travel agency managers and governments across the world that are interested in fast recovery of this sector.

Though the cash-driven resilient nature and employee resilience of the tourism industry is well studied in the past (Wieczorek-Kosmala, 2021), COVID-19 has opened up a new stream of resilience studies in the tourism and hospitality industry, like resilience of business owners (Pathak & Joshi, 2021), managers (Japutra & Situmorang, 2021) etc. Public health crisis during COVID-19 (Shapoval et al., 2021) have necessitated the creation of new and innovative business models in tourism that can better address any future crisis (Breier et al., 2021) and improve resilience in the sector (Duarte Alonso, 2020). Future research in tourism, hospitality and leisure should suggest innovative business models that are more resilient and sustainable so that the sector is equipped to face challenges raised by any crisis. Medical tourism and leisure are expected to be the focus of tourism industry in future (Tsai, 2021).

Academic research has a prominent role in tourism education, as research-based learning adds more value to tourism and hospitality education by supporting sustainable development (Espinoza-Figueroa et al., 2021). Though touristic education began in vocational secondary schools, due to the prominence this sector gained in the economy and employment, it has increased its presence in schools and universities. Tourism education helps to increase touristic competitiveness and plays a key role in growth of the tourism sector in any country (Renfors et al., 2020). Many of the education related studies during the COVID-19 is of qualitative nature with views from one set of stakeholders like either teachers or students etc and the future studies including multiple stakeholders as respondents using quantitative or mix method will give more insight into the effectiveness of the use of technology in touristic education (Qiu et al., 2020). The use of technology would increase the possibilities of blended learning in touristic education, including the increased use of social media like YouTube etc (Tolkach & Pratt, 2021) and would bring in a new dimension to experiential learning by including real life challenges in tourism internships (Zopiatis et al., 2021).

5. Implications and limitations

Considering how the tourism and hospitality sector has suffered in an unpreceded manner due to COVID-19, it is vital for tourism academics to envision the future for their field and to identify potential related issues and opportunities (Wassler & Fan, 2021). These areas are full of potential for future PhD students to publish their work. It is a well-acknowledged fact that PhD students need to have a publication record in high-ranking journals to get an academic job (Carr and Hayes, 2017). Staying relevant and publishing in topics that are current and have future potential can help them get a good publication. The present bibliometric study is aimed at providing an overview of the current literature relating to COVID-19 and the hospitality and tourism industry, one of the most relevant topics for future research. While studies in each area identified have highlighted the current crisis, its impact and crisis management, several studies have given directions to help future researchers to choose their area of research with relevance.

Additionally, the study results also help practitioners develop curricula both for academe and for training programs to help the current and future industry workforce stay relevant. The study has practical implications. In that, it is imperative for managers to be well informed of an issue and understand all aspects of it before taking an informed decision. The present review highlights the emerging issues related to COVID-19 and the hospitality and tourism industry, highlighting some of the bigger issues and providing a future outlook on several others.

The study has several limitations. First, the data was collected only over a short period of duration and from one source Scopus database. Future studies can collect data from other well-known databases as well. Future studies can also include more detailed keywords like hotel, restaurant, sports and other tourism-related words to search for the relevant literature. Also, the source of studies only included journal articles while excluding conference papers and other book chapters. These could be included in future studies to better understand the field of research. More advanced bibliometric analysis tools can be used by future studies to draw deeper insights into the literature.

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