

**A review of early COVID-19 research in tourism: Launching the *Annals of Tourism Research's* Curated Collection on coronavirus and tourism**

Yang Yang, Ph.D.

Associate Professor

Department of Tourism and Hospitality Management

Temple University, Philadelphia, Pennsylvania, USA

Email: [yangy@temple.edu](mailto:yangy@temple.edu)

Carol X. Zhang, Ph.D.

Assistant Professor

University of Nottingham, Nottingham, United Kingdom

Email: [carol.zhang@nottingham.ac.uk](mailto:carol.zhang@nottingham.ac.uk)

Jillian M. Rickly, Ph.D.

Professor

University of Nottingham, Nottingham, United Kingdom

Email: [jillian.rickly@nottingham.ac.uk](mailto:jillian.rickly@nottingham.ac.uk)

**Equal contribution statement**

All authors made equal contribution to this paper.

Yang Yang's research focuses on tourism analytics.

Carol X. Zhang's research focuses on identity related issues in tourism.

Jillian M. Rickly's research interests include authenticity/alienation, accessibility and tourism mobilities.

# A REVIEW OF EARLY COVID-19 RESEARCH IN TOURISM: Launching the *Annals of Tourism Research's* Curated Collection on coronavirus and tourism



## Major research themes

<p>Psychological effects and behavior</p> 	<p>Responses, strategies, and resilience</p> 	<p>Sustainable futures</p> 	<p>Impact monitoring, valuation, and forecasting</p> 	<p>Technology adoption</p> 
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## Discussion

 <p>Find theoretical contribution</p>	 <p>"New normal" vs. "back to normal"</p>	 <p>Rigor and robustness of research methods</p>	 <p>Future areas of study</p>	 <p>Multi-/interdisciplinary studies</p>	 <p>Research relevance</p>
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Dr. Yang Yang  
[yangy@temple.edu](mailto:yangy@temple.edu)

Dr. Carol Zhang  
[Carol.Zhang@nottingham.ac.uk](mailto:Carol.Zhang@nottingham.ac.uk)

Prof. Jillian Rickly  
[jillian.rickly@nottingham.ac.uk](mailto:jillian.rickly@nottingham.ac.uk)



We reviewed the early literature on the COVID-19 pandemic and tourism.

Five key research themes were revealed and analyzed.

It raised questions about theoretical contribution and methodologies.

Future research potential was discussed.

## A REVIEW OF EARLY COVID-19 RESEARCH IN TOURISM: Launching the *Annals of Tourism Research's* Curated Collection on coronavirus and tourism

**Abstract:** The COVID-19 pandemic has brought unparalleled impacts to the global tourism industry, thus inspiring a wave of academic research. This paper presents a review of the early literature on COVID-19 and tourism, representing 249 papers. The analysis revealed five key themes: (1) psychological effects and behavior; (2) responses, strategies, and resilience; (3) sustainable futures; (4) impact monitoring, valuation, and forecasting; and (5) technology adoption. However, this research also raises questions about theoretical contribution, methodologies, and future research potential. This article also launches the *Annals of Tourism Research's* Curated Collection on coronavirus and tourism. The Collection contains all past articles published in *Annals of Tourism Research* on the topic and will continue to grow as new articles are added.

**Keywords:** COVID-19; systematic literature review; keyword co-frequency analysis; research contribution

### 1. Introduction

COVID-19 has had an indisputable impact on tourism. Yet, the extent and longevity of this pandemic are yet to be fully grasped. Nevertheless, tourism researchers have strived to capture change as it happens, reflect on the pandemic's importance, and forecast tourism's future. One year into this global crisis presents an opportune time to take stock of the field. To that end, this paper critically reviews the current tourism literature on COVID-19. In so doing, this article also launches the *Annals of Tourism Research's* Curated Collection on COVID-19 and tourism. The Collection will function as a living archive of COVID-19 research in the journal.

In December 2019, global news media began reporting on a novel coronavirus infecting people in Wuhan, the capital city of Hubei province in central China. The World Health Organization (WHO) confirmed that the virus had spread and declared the new coronavirus strain an emerging international public health threat in January 2020. The organization officially named the virus "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)." Lockdown and quarantine measures were implemented in Wuhan at that time and later extended to all of China—and subsequently the world. In March 2020, WHO declared "coronavirus disease 2019," otherwise called COVID-19, a global pandemic. More than 90% of people worldwide were living under travel restrictions two months later (Asquith, 2020).

By July 2020, infection rates had slowed, and travel restrictions were eased to varying degrees around the globe. The world witnessed the fluid opening and closing of travel corridors and travel bubbles as infection rates rose and fell (Sharun, et al., 2020). However, as September 2020 approached, health professionals began warning of a potential second wave of infections as the northern hemisphere was poised to enter autumn. Cooler temperatures would drive people indoors and coincide with a return to university, with some students traveling long distances. Indeed, infection rates spiked in November. Amid concern about the upcoming holidays, many governments reinstated lockdowns and imposed stricter travel regulations (WHO, 2021). New variants began to be reported around this time as well. Meanwhile, promising news began to circulate regarding vaccine development, leading to an air of optimism around a possible "return

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4 to normal” in 2021. In tourism, specifically, additional rhetoric related to a “new normal” and  
5 “building back better” began circulating in the industry.  
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8 Against this backdrop of pandemic impacts and opportunities, this paper critically reviews the  
9 tourism literature related to COVID-19. This differs from other systematic literature reviews and  
10 bibliometric analyses, which draw upon a study area’s expansion over time because research on  
11 COVID-19 has a distinct starting point. Many journal articles on the topic have been published  
12 over the last year, with more forthcoming. It is acknowledged that “you cannot step into the same  
13 river twice”; the flood of COVID-19 research is constant, as is variance in the pandemic.  
14 Nevertheless, one year into this crisis, it reaches a critical mass of research and a suitable point at  
15 which to reflect on the field. It is an ideal time to assess key findings and identify gaps to be  
16 addressed in future studies.  
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20 Towards this objective, 513 papers on COVID-19 and tourism published through January 11,  
21 2021, were reviewed. Each articles’ suitability was evaluated following the systematic review  
22 method (Pickering & Byrne, 2014), yielding 249 journal articles for analysis. These papers were  
23 then read, thematically coded, and subjected to keyword analysis. This review begins with a brief  
24 overview of crisis and disaster management. Next the methodology is elaborated, namely  
25 thematic analysis and keyword analysis. Then, the major research themes identified are  
26 described: (1) psychological effects and behavior; (2) response, strategies, and resilience; (3) a  
27 sustainable future; (4) impact monitoring, valuation, and forecasting; and (5) technology  
28 adoption. Finally, several prevalent issues in current COVID-19 research are discussed, and  
29 areas for future work are outlined. Notably, a lack of theoretical development is a concerning  
30 trend in this body of literature, raising questions about the significance of current COVID-19  
31 research for the advancement of tourism theories.  
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## 37 **2. COVID-19: Crisis or disaster?**

38 The COVID-19 pandemic is often conceptualized as a type of crisis or disaster. It is thus  
39 essential to examine the definition of each term before discussing the state of tourism research on  
40 the pandemic. The 21<sup>st</sup> century has seen increased sensitivity and awareness to crisis and disaster  
41 management in the global tourism industry. Although the terms “crisis” and “disaster” are often  
42 used interchangeably, some scholars have pointed out differences. Notably, Faulkner (2001)  
43 differentiated a disaster from a crisis as follows: a disaster occurs when “an enterprise ... is  
44 confronted with sudden, unpredictable catastrophic changes over which it has little control” (p.  
45 136). By contrast, a crisis is at least partially attributable to internal organizational structures. A  
46 crisis thus refers here to internal events, whereas a disaster concerns external events.  
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50 In terms of COVID-19, a few researchers have argued that it is important to conceptualize the  
51 pandemic as a disaster to better understand how external factors (e.g., viral outbreaks) influence  
52 tourism (e.g., Hao, Xiao, & Chon, 2020). Conversely, a large number of researchers maintain  
53 that the notions of disaster and crisis are interchangeable in relation to COVID-19’s role in  
54 tourism (Hall, Scott, & Gössling, 2020). A large-scale event such as COVID-19 will inevitably  
55 trigger internal and external challenges. In this vein, crises and disasters are unexpected  
56 occurrences that threaten the operation of tourism-related businesses, compromise destination  
57 reputation, and influence traveler confidence (Ritchie & Jiang, 2019). Hence, in this review  
58 article, crisis and disaster are treated as interchangeable terms.  
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7 **3. Research methodology**

8 **3.1 Literature search**

9 In order to review the early literature on COVID-19 and tourism, Pickering and Byrne (2014)  
10 suggested steps for obtaining relevant literature were followed. To begin, search keywords were  
11 identified including: “coronavirus tourism,” “pandemics tourism,” “pandemic tourism,” “COVID  
12 tourism,” “coronavirus tourist,” “pandemics tourist,” “pandemic tourist,” and “COVID tourist.”  
13 These were searched in two major databases – Google Scholar and the Web of Science (WoS) –  
14 with results limited to articles published in 2020 and 2021. Different from WoS, which only  
15 covers papers from WoS-indexed journals, conference papers, and books, Google Scholar  
16 provides records from an array of publications, including non-WoS-indexed journals. Moreover,  
17 unlike other databases, Google Scholar can in most cases search for keywords in full-text  
18 sources; this parameter improves search efficiency. Google Scholar also quickly indexes  
19 publications once they become available online, a process that can take weeks or even months on  
20 other traditional databases. This proved useful considering the limited timescale of publications  
21 for this review. On WoS, keywords were searched within the “social science journals” category.  
22 Search results were also checked from EBSCO and Scopus to ensure no studies in tourism and  
23 hospitality management had been inadvertently excluded.  
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29 Further refinements included limiting the sample to English publications and assessing the role  
30 of COVID-19 in the research presented. Many papers, such as that of Zhang and Yang (2020),  
31 only briefly discussed tourism implications in the (post-)COVID-19 era without integrating this  
32 context in their research framework. Such articles were removed from the sample. Importantly,  
33 the sample was not limited to tourism and hospitality journals, as social science journals outside  
34 of this field offer insight into how COVID-19 and tourism are intertwined with multiple  
35 perspectives and contexts. As a result of this screening process in January 2021, the final sample  
36 consisted of 249 papers from 76 academic journals in and outside tourism. All were downloaded  
37 and details entered into a spreadsheet for data management.  
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41 **3.2 Sample description**

42 Table 1 provides a summary of the sample (Pickering & Byrne, 2014) by (1) journal, (2)  
43 geographic area of study, (3) unit of analysis, (4) discipline, and (5) research methods.  
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46 Among the 76 journals featuring papers on COVID-19 and tourism, the top five (based on  
47 number of publications) were *International Journal of Hospitality Management*, *Current Issues*  
48 *in Tourism*, *Tourism Geographies*, *Annals of Tourism Research*, and *Anatolia*. These journals  
49 represent several highly ranked outlets in tourism and hospitality management per various  
50 metrics (Gursoy & Sandstrom, 2016). Aside from traditional tourism and hospitality journals,  
51 relevant publications also appeared in journals from disciplines such as general business (e.g.,  
52 *Journal of Business Research*), geography (e.g., *Dialogues in Human Geography*), public health  
53 (e.g., *International Journal of Environmental Research and Public Health*), information systems  
54 (e.g., *Journal of Statistics and Management Systems*), sociology (e.g., *International Journal of*  
55 *Sociology and Social Policy*), human development (e.g., *Early Human Development*), public  
56 affairs (e.g., *Journal of Public Affairs*), transport (e.g., *Transport Reviews*), and area-specific  
57 studies (e.g., *Development Southern Africa*). Additionally, the structure of the publications is  
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4 noteworthy. Many authors appeared interested in publishing their findings in a timely manner  
5 without developing their research into a full-length article; many papers were hence in brief  
6 formats, such as research notes or short communications. Therefore, full-length research articles  
7 were less common than anticipated. Instead, research notes, commentaries, letters, and other  
8 short communications were prominent. In particular, a considerable number of articles were  
9 published in formats that did not require external peer reviews, such as letters to editors and  
10 commentaries.  
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18 Table 1 also lists the top five most researched countries/regions in the sample. Studies on the  
19 United States and China dominated, accounting for 21.8% and 20.3% of publications,  
20 respectively. Figure 1 depicts the location of researched countries/regions. Europe (especially  
21 southern Europe) and Asia (especially East Asia and Southeast Asia) seemed particularly  
22 popular. Other geographical regions remain understudied, such as South America, the Middle  
23 East, and Africa.  
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29 Publications were further classified based on the unit of analysis. *Individual-level studies*  
30 considered how COVID-19 has influenced people's perceptions, behavior, psychology, and well-  
31 being, including among (potential) tourists, industry employees, and destination residents. This  
32 category comprised 37.35% of publications in the sample. Common research topics included  
33 tourists' perceived risks of traveling during the pandemic (Nguyen & Coca-Stefaniak, 2020),  
34 employees' psychological responses to the pandemic (Chen, 2020), and residents' attitudinal and  
35 behavioral changes (Tse & Tung, 2021). *Organization-level studies* evaluated COVID-19's  
36 impact on organizations' operational and financial performance (Sharma & Nicolau, 2020) and  
37 examined organizational responses and resilience to the pandemic (Sobaih, Elshaer, Hasanein, &  
38 Abdelaziz, 2021). Several publications in this category specifically addressed organizational  
39 resilience, providing generalizable insight for crisis management. The sample contained 10.44%  
40 organization-level studies. *Destination-level studies* accounted for 16.47% of collected  
41 publications. These studies evaluated the pandemic's effects on destinations (e.g., cities, regions,  
42 and countries) (Yang, Altschuler, Liang, & Li, 2020) and discussed strategies and policies to  
43 alleviate its adverse consequences (Collins-Kreiner & Ram, 2020). *Industry/sub-industry-level*  
44 *studies* focused on how the pandemic has influenced the tourism industry and sub-industries such  
45 as hotels (Lai & Wong, 2020), home-sharing (Dolnicar & Zare, 2020), airlines (Gallego & Font,  
46 2020), and cruise lines (Choquet & Sam-Lefebvre, 2021). This category represented 35.74% of  
47 all publications, and many such papers were conceptual studies.  
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53 Regarding research methodologies, nearly half of the chosen publications (48.59%) were  
54 conceptual, as evidenced by frequent commentary pieces. Quantitative methods were much more  
55 popular than qualitative approaches. Among the sample, 40.56% of papers were quantitative;  
56 only 10.44% were qualitative. Favored quantitative methods included surveys, econometric  
57 analysis, text analytics, experiments, and forecasting. A large portion of quantitative studies  
58 relied on survey data and adopted multivariate statistical analysis (e.g., structural equation  
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4 modeling) to examine the impacts of COVID-19–related constructs (e.g., perceived risk and  
5 uncertainty) on various tourism consequences (e.g., behavioral intention and well-being) (e.g.,  
6 Nguyen & Coca-Stefaniak, 2020). Econometric analyses were mostly based on secondhand  
7 sources and included COVID-19–related variables (e.g., lockdown policies and confirmed cases)  
8 in econometric models (e.g., Sharma & Nicolau, 2020). Text analytics were utilized to examine  
9 textual data from social media, public media, and published reports to uncover related themes,  
10 topics, and sentiments (e.g., Lu & Zheng, 2020). Experimental studies were performed to solicit  
11 individuals’ responses under different pandemic scenarios and to compare patterns across these  
12 situations (e.g., Zhang, Hou, & Li, 2020). Given the great uncertainty accompanying the  
13 pandemic, tourism forecasting has become vital to projecting tourism-related recovery; many  
14 quantitative studies applied assorted models to yield forecasts in the (post-)COVID-19 era (e.g.,  
15 Škare, Soriano, & Porada-Rochoń, 2021). Within qualitative research, interviews, case studies,  
16 and content analysis were most common. Only one study in the sample used a mixed method,  
17 adopting a survey to gather quantitative data and holding interviews to generate qualitative  
18 findings (Brizek, Frash, McLeod, & Patience, 2021).  
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### 25 ***3.3 Keyword co-frequency analysis and qualitative thematic analysis***

26 In order to understand the topical areas of tourism research undertaken in the context of the  
27 COVID-19 pandemic, keyword co-frequency analysis, a form of content analysis, was performed  
28 using Textometrica online software. This process clarified topical areas of tourism research  
29 related to COVID-19 and assisted in devising a structure for presenting the findings.

30 Textometrica is an open-access online tool that analyzes word co-occurrences within discrete  
31 text blocks using connected concept analysis through min-max normalization (Lindgren & Palm,  
32 2011). Textometrica then produces visualization maps in which the sizes of nodes signify  
33 occurrence frequency, and the thickness of the edge connecting nodes indicates the strength of  
34 their co-occurrence.  
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38 For this review, Textometrica was used in conjunction with qualitative thematic analysis (see  
39 also Fellenor, et al., 2018). This resulted in an iterative process in which the researchers used the  
40 initial output from Textometrica analysis to discern potential themes in keywords, which could  
41 then be combined or separated to illustrate trends in the chosen research articles. All author-  
42 provided keywords for the 224 papers in the sample were first imported into Microsoft Excel  
43 (some publications, such as research notes and commentaries, had no keywords so these were  
44 created). The first step involved cleaning for uniformity (i.e., US spelling). This step also  
45 included the removal of common denominator terms such as “COVID,” “pandemic,” “tourism,”  
46 and so on, as these were the search criteria for the sample and overshadowed topical research  
47 areas. Further, multiple word concepts were joined to reduce redundancy from Textometrica and  
48 to highlight their frequent co-occurrence (e.g., “mental health” = *MentalHealth*; “climate  
49 change” = *ClimateChange*; “social media” = *SocialMedia*).  
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54 Next, consistency of terminology and topical representation was refined. To further reduce  
55 redundancy, similar terms were combined. For example, all mentions of “social distancing,”  
56 “physical distancing,” “distant service,” and so on were merged into simply *Distancing*. Then,  
57 the Textometrica output was employed to assist in the construction of themes to capture related  
58 terms that individually appeared infrequently in the sample but collectively represented a notable  
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4 topic. For example, the theme of *Equity* encompassed the topics of equity, rights, values, justice,  
5 inequalities, discrimination, and so on. Similarly, the *Emotions* theme reflected stress, loneliness,  
6 anxiety, fear, and nostalgia, while *Hygiene* included hygiene, cleanliness, sanitation, and  
7 cleaning, among others.  
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10 After several rounds of Textometrica analysis and revisiting the keywords, the final visualization  
11 was created (Figure 2). This map was built from a keyword frequency range of 2–34 (min-max)  
12 across 91 distinct terms, leading to a co-occurrence range of 2–16 (min-max). In this case, 62 co-  
13 occurrences were mapped thus representing the strongest frequencies in the sample. This map  
14 informed the arrangement of topical areas discussed in the findings.  
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## 21 **4. Findings: Major research themes**

### 22 **4.1 Psychological effects and behavior**

23 Within the keyword co-frequency analysis, two areas related to the psychological effects of the  
24 pandemic prevail in the sample. First, the themes of *Well-being*, *Mental Health*, and *Emotions*  
25 form the central nodes of a cluster in the upper right quadrant of Figure 2. Second, in the lower  
26 left quadrant, another important aspect of psychological consequences and travel behavior can be  
27 observed: *Risk* is most strongly connected to *Perceived*, which is subsequently connected to *Visit*  
28 *Intention* while also linking to *Behavior* and *Health*.  
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32 When considering psychological effects and individuals' behavior during crises and disasters, the  
33 notions of risk, threat, and uncertainty heavily influence people's mental states and emotions  
34 (Ritchie & Jiang, 2019). Psychologists argue that fear is a common response to a pandemic (Van  
35 Bavel, et al., 2020). COVID-19-related research on psychological effects and behavior thus  
36 largely focuses on how people feel and respond to risk, its implications for behavior, and its  
37 impacts on tourism businesses' operations.  
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41 **Risk perceptions.** Risk is strongly associated with various types of crises and disasters (Williams  
42 & Baláž, 2015). It thus comes as no surprise that risk perceptions were prominent in the  
43 literature. Many early commentaries attributed the decline in tourist numbers to global travel  
44 restrictions as well as to tourists' growing attention to risk, hygiene-related safety, and  
45 cleanliness. For example, Bae and Chang (2021) examine tourists' cognitive and affective risk  
46 perceptions in relation to behavior and concluded that travelers preferred "untact" tourism in  
47 South Korea due to travel restrictions and social distancing. Additionally, the pandemic's long  
48 duration has offered opportunities to closely examine tourists' behavior during crises and  
49 disasters, a topic that was previously overlooked. For example, Zhang, et al. (2020)  
50 conceptualize risk as a shared emotion that mediates tourists' responses to disadvantaged price  
51 inequality during the pandemic. Cai and Leung (2020) Rather than simply describing the  
52 pandemic's impact on individuals, Zheng, Luo, and Ritchie (2021) take a further step and  
53 contended that "travel fear" can evoke different coping strategies, thereby increasing tourists'  
54 psychological resilience and cautious travel behavior. More generally, Cai and Leung (2020)  
55 investigate how the interplay of a construal mindset and message frames affects consumers'  
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4 purchase intentions around online food deliveries during the pandemic. They also explore the  
5 moderating effects of risk propensity.  
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8 Many studies delved into how incoming tourists will influence residents' risk perceptions during  
9 the COVID-19 era. A protective mindset to mitigate perceived risk from "outsiders" (i.e.,  
10 tourists) in local communities appears common in the COVID-19 literature. Topics include  
11 residents' discrimination against tourists (e.g., Tse, So, & Sin, 2006), being unwelcoming  
12 towards certain tourists (e.g., cruise tourists) (e.g., Renaud, 2020), and being sympathetic  
13 towards international travelers (Thyne, Woosnam, Watkins, & Ribeiro, 2020). The pandemic  
14 also triggered reflections on research pertaining to risk and tourism-related diseases: Chen, Law,  
15 and Zhang (2021) analyze 115 articles related to the risk of tourism-related diseases and observe  
16 the absence of a theoretical framework for studies on disease risk management.  
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20 ***Well-being and Mental Health.*** Many negative emotions are associated with the COVID-19  
21 outbreak and can affect people's well-being and mental health. These are also associated with  
22 risk perception studies, particularly when social distancing and travel restrictions coincide with  
23 isolation and loneliness. While such emotions affect mental health and well-being, few studies  
24 have examined tourists' emotional responses and coping strategies related to (non-)travel during  
25 the pandemic. One exception came from Buckley and Westaway (2020), who argue that  
26 walking-in-nature tourism products for women have psychotherapeutic benefits.  
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30 Others investigate the roles of employees' feelings, emotions, and well-being under the stress of  
31 COVID-19. Mao, He, Morrison, and Andres Coca-Stefaniak (2020) suggest that the risks and  
32 challenges of the pandemic can be more effectively addressed through joint efforts from  
33 companies and staff. They also examine the effects of tourism-related CSR on employees'  
34 psychological capital during times of crisis, claiming that CSR positively influences employees'  
35 self-efficacy, hope, resilience, and optimism. In acknowledging the importance of safety  
36 procedures in mitigating customers' risk perceptions, Hu, Yan, Casey, and Wu (2021) explore  
37 how organizations can carefully comply with safety measures in the hospitality industry to  
38 facilitate employee compliance and enhance employees' well-being.  
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42 ***Motivation and behavioral intention*** are integral aspects of consumer psychology and underlie  
43 individuals' perceptions, emotions, and ultimate behavior. Motivation-related tourism research  
44 has often involved discussions of risk, threats, and uncertainty regarding crises and disasters. The  
45 motivations behind many tourist activities were previously rooted in sociality and the interaction  
46 of people and places. However, as social distancing, quarantines, and global travel restrictions  
47 become increasingly embedded in everyday life, the ways tourists interact with people and places  
48 through travel are being altered and in turn shaping behavioral intentions. Tourism commentaries  
49 describe these risk-related motivations. For example, Bhati, Mohammadi, Agarwal, Kamble, and  
50 Donough-Tan (2020) discuss health-protective motivations and behavior. Rachmawati and  
51 Shishido (2020) address travelers' motivations to travel abroad amid COVID-19. A few  
52 empirical studies explore specific motives during the pandemic: Kock, Nørfelt, Josiassen, Assaf,  
53 and Tsionas (2020) apply evolutionary psychology to underline disease avoidance as the main  
54 tourist motivation during the pandemic. Relatedly, Huang and Liu (2020) assess the effectiveness  
55 of corporate social responsibility (CSR) marketing in terms of COVID-19-inspired altruism on  
56 past tourists' donation intentions.  
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6 **4.2 Responses, strategies, and resilience: Organization and government**

7 As discussed above, the COVID-19 pandemic relates to both crisis and/or disaster management  
8 perspectives. Prominent themes in the keyword co-occurrence analysis, as shown in the left  
9 central portion of Figure 2, include *Crisis*—a frequently used concept in relation to *Management*  
10 that also connects with *Health* and *Impact*, specifically economic impact. *Management*  
11 represents a large and central node, connecting to *Destination*, *Strategy*, and *Recovery*, which  
12 subsequently links to *Policy*. Relatedly, the theme of *Resilience* occasionally appears in studies  
13 on destination management and recovery strategies; however, this theme is more often used in  
14 relation to future sustainability.  
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18 Businesses and governments are increasingly recognizing resilience as a crisis/disaster  
19 management tool that helps them respond to pandemic-related challenges. Resilience suggests  
20 that destination recovery depends on destinations’ ability to adapt to external disturbances  
21 (Cochrane, 2010). Tourism resilience also applies beyond destinations, including to  
22 organizations, communities, and other stakeholders (Filimonau, Derqui, & Matute, 2020).  
23 Unsurprisingly, resilience is something of a buzzword in COVID-19 research. Sharma, Thomas,  
24 and Paul (2021) propose a resilience-based framework for revitalizing the global tourism  
25 industry and moving towards a sustainable future. This section reviews organizational and  
26 government responses, where resilience is often embedded within these responses to facilitate  
27 recovery from various angles.  
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31 **Governments** across different nations have been working diligently to aid the industry and  
32 support various initiatives guiding a return to “normal.” The success or failure of tourism is  
33 largely a function of political and administrative action (Richter, 1989). The resilience of  
34 organizations and destinations during the pandemic is accordingly contingent on government  
35 responses and policy. Social distancing, travel restrictions, and quarantines emerge in nearly all  
36 discussions of COVID-19, including tourism. Hence, many tourism studies have considered  
37 government responses to COVID-19 and argue for proactive government interventions to boost  
38 the economy (e.g., Hall, et al., 2020; G. D. Sharma, et al., 2021). Some commentaries reveal how  
39 governments have implemented innovative strategies during the pandemic (e.g., Choi, Lee, &  
40 Jamal, 2021; Collins-Kreiner & Ram, 2020). For example, Collins-Kreiner and Ram (2020)  
41 review national tourism strategies in seven countries during the pandemic and find that only a  
42 small proportion of UNWTO recommendations were fully implemented. Others discuss an  
43 indigenous-informed approach to enact socially sensible pandemic policies (e.g., Carr, 2020).  
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48 With respect to destination resilience, the aim is to bolster destination stakeholders’ resilience to  
49 better manage future disasters. Governments often play a supportive and coordinating role. Fong,  
50 Law, and Ye (2021) demonstrate that a host community could predict a swift tourism recovery if  
51 members perceived their government as controlling the pandemic well. Similarly, the increasing  
52 affective rate among cruise ships motivated Choquet and Sam-Lefebvre (2021) to analyze the  
53 legal framework for coastal governments to manage health-related risks and argue for inter-  
54 country cooperation to overcome pandemic conflicts. Others assume a destination marketing  
55 perspective to explore COVID-19’s effects on destination image and the implications for  
56 destination management (Ahmad, Jamaludin, Zuraimi, & Valeri, 2020). However, detailed  
57 empirical analysis of the public sector is relatively limited, including in terms of policy  
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4 implications for tourism businesses. Lessons on how to better manage future disasters, especially  
5 from a government perspective, must continue to be learned.  
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8 **Organizational responses.** As the pandemic has affected tourism on an unprecedented scale,  
9 many innovations have been developed to build business resilience. Non-technological responses  
10 are profiled here; innovative technological responses will be introduced later. In comparing crisis  
11 management practices in hotels between the initial and pandemic stages of COVID-19, Lai and  
12 Wong (2020) examine shifts in hotel managers' mentalities and their responses to COVID-19.  
13 Building emotional connections with tourists has also been deemed essential to pandemic-related  
14 marketing (Hang, Aroean, & Chen, 2020). Ratten (2020a) reviews the potential integration  
15 between crisis management and entrepreneurship from cultural, social, and lifestyle  
16 entrepreneurship perspectives.  
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20 Effective leadership is crucial during crises such as COVID-19. Leadership can bring individuals  
21 together in addition to modeling expected behavior during a pandemic. Im, Kim, and Miao  
22 (2021) analyze hospitality CEOs' letters to understand how leaders strove to respond to the  
23 pandemic. Alonso, et al. (2020) discuss coping strategies for hospitality managers facing the  
24 pandemic to foster business resilience. Others have explored how managers chose to oversee  
25 relationships in the tourism supply chain (e.g., González-Torres, Rodríguez-Sánchez, &  
26 Pelechano-Barahona, 2021). The ongoing nature of the pandemic has offered opportunities for  
27 comparative studies as well: Lai and Wong (2020) compare crisis management practices in the  
28 hotel industry between the initial and pandemic stages of COVID-19.  
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32 Upon reflecting on the pandemic's impacts, some researchers have called for stronger integration  
33 of organizations' CSR to promote resilience against future disruptions. Ou, Wong, and Huang  
34 (2021) illustrate the co-evolution of crisis for restaurant chains and their stakeholders, noting the  
35 importance of collaborating for recovery. Qiu, Park, Li, and Song (2020) suggest that  
36 community-related CSR in particular has a rapid positive effect on businesses' financial recovery  
37 during COVID-19.  
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#### 40 41 **4.3 Sustainable futures**

42 In the upper left quadrant of Figure 2, *Sustainability* is a large central node housing many themes  
43 in COVID-19 research, including *Climate Change*, *Equity*, *Hope*, *Resilience*, and *Opportunity*.  
44 The theme of *Sustainability* thus serves as a catch-all to elevate many research areas in the  
45 context of the pandemic. Indeed, COVID-19 studies of sustainability often implore scholars to  
46 rethink their understanding of sustainability, to situate this concept within an ever-changing  
47 world, and to imagine an innovative and sustainable future. This research examines questions  
48 related to power dynamics, the ex/inclusivity of current socioeconomic and political systems, and  
49 why the pandemic might present an opportunity for systemic change. The themes *Transformative*  
50 and *Hope* also apply to sustainability-related tourism studies, linked with the themes *Inclusive*  
51 and *Equity* as shown in Figure 2.  
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56 **Sustainability** has long been a core tenet of tourism industry ambitions. It has inspired rigorous  
57 research and heated debate around the term's meaning, principles, and benchmarks. Thus, it is  
58 unsurprising that this topic appears repeatedly in the COVID-19 literature. In the earliest days of  
59 the pandemic, when flights were canceled, work-from-home orders were issued, and borders  
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4 closed, many people around the world observed improvements in air quality and reductions in  
5 noise pollution. These immediate changes inspired Cooper and Alderman (2020) to assert that  
6 the industry must take triple bottom line sustainability more seriously. A reduction in greenhouse  
7 gases is essential to the future of the planet, but in advocating a triple bottom line approach, they  
8 also remind this must be balanced alongside the maintenance of resilient local economies (see  
9 also Jones & Comfort, 2020; Newsome, 2020). Galvani, Lew, and Perez (2020) take this stance a  
10 step further by arguing that, to achieve sustainability, the concept must be valued in individuals'  
11 everyday lives, who then embody its principles in their own businesses and political decisions  
12 (see also Corbisiero & La Rocca, 2020).  
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16 While overtourism was among the trendiest topics pre-COVID, the consequences of the  
17 pandemic have led some to reflect on the longevity of the phenomenon. Similar to the line of  
18 thinking that the cessation of travel presents an opportunity for introducing more sustainable  
19 systems at the destination level (Swaikoski, 2020), researchers of overtourism highlight the  
20 importance of curbing the impacts of too many tourists for destination infrastructure and building  
21 back community resilience (see Koh, 2020). The previous pervasiveness of overtourism has been  
22 complemented by a series of articles on undertourism and destinations' socioeconomic  
23 dependency on tourism (Romagosa, 2020). Considering this discussion around the need for  
24 change to support future sustainability, what practical implications can be drawn from the  
25 literature? Much of what has been written to date is largely descriptive and conceptual. While  
26 important for inspiring conversation and future studies, this level of abstraction leaves  
27 stakeholders with few actionable ideas.  
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32 The more common approach in this literature has been to argue that the current thinking about  
33 sustainability is simply insufficient: scholars must rethink their conceptualizations and  
34 theoretical assumptions. Higgins-Desbiolles (2020) states that more responsible approaches will  
35 not be enough to drive this "reset" forward. Instead, tourism stakeholders need a community-  
36 centered framework that prioritizes the rights and aspirations of destination communities with  
37 specific attention to tourism as a public good (Higgins-Desbiolles, 2020). Carr (2020)  
38 recommends that turning to indigenous knowledge (e.g., the Maori) for resilient solutions is  
39 paramount. Doing so will enable practitioners to attend to the social needs and cultural values  
40 that are critical for building a "more positive global society." Similarly, Everingham and  
41 Chassagne (2020) propose an alternative to the neoliberal, capitalist, neocolonial framing of  
42 tourism through a "Buen Vivir" approach, which espouses a degrowth strategy emphasizing  
43 social and environmental well-being.  
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48 ***Inclusivity.*** In addition to the cluster of literature on rethinking sustainability models and  
49 frameworks, there is also a critical mass of tourism scholarship highlighting the significance of  
50 greater inclusivity to sustainable tourism futures. In particular, Tomassini and Cavagnaro (2020)  
51 suggest that a return to Massey's (2005) theorization of power geometry sheds light on the  
52 inequalities of the pandemic's effects. In critiquing neoliberal capitalism, Massey (2005)  
53 presented an understanding of space as a multi-relational network of power dynamics. Applying  
54 this perspective, Tomassini and Cavagnaro (2020) argue that the imbalance in power relations  
55 held by the global tourism industry has rendered local relations fragile in the face of the  
56 pandemic, thereby necessitating a refocus on local-level wellbeing, safety, security, and a (re-)  
57 activation of local networks. Relatedly, Ratten (2020b) contends that the COVID-19 crisis has  
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4 opened destination communities to stronger dialogue on social policy and support for value co-  
5 creation through local entrepreneurship. An example of such value co-creation is explored by  
6 Pardop and Ladeiras' (2020) project "Tourism in flight mode: Thinking together through post  
7 Covid-19 tourism", which was a digital platform for participants to offer potential tourism  
8 recovery products.  
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11 ***Hopeful and transformative approaches.*** Rather than a natural phenomenon, there has been a  
12 strong response among political ecologists to affirm COVID-19 as a socioeconomic disaster.  
13 Denaturalizing the pandemic, argues Mostafanezhad (2020), opens an opportunity for hopeful  
14 scholarship. Rather than human or natural "error," the crisis is an opportunity to shed light on  
15 structural inequalities and work towards a more just society. This hopeful perspective can be  
16 found among several Covid-19 publications.  
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20 Hopeful scholarship, according to Pernecky (2020), has evolved out of the moral imperatives of  
21 sustainability and the acceptance that researchers are value-driven producers of knowledge with  
22 an eye towards a more inclusive, equitable, and sustainable society. Pernecky (2020) identifies  
23 several types of hopeful research—critical hope, hope-as-utopia, transformative hope, radical  
24 hope, and pragmatic hope—and contends that the pandemic, as a moment of crisis, has evoked a  
25 renewed sense of care, mindfulness, and anti-consumerism. More specifically, Crossley (2020)  
26 identifies a reactions of "ecological grief" as society witnessed lower air pollution, animals'  
27 reclamation of urban spaces, and collective reflection on social media-driven lifestyles. This  
28 ecological grief, she argues, suggests a greater interest in environmental healing, which ties into  
29 broader agendas of hopeful tourism.  
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33 Hopeful tourism shares some commonalities with transformative and regenerative tourism, more  
34 broadly. Rowen (2020) recommends incorporating the creative, pro-social aspects of  
35 transformational festival culture, often associated with events such as Burning Man, with tourism  
36 post-Covid. The resulting transformational tourism would push beyond responsible and  
37 sustainable practices, to encourage the breakdown of host-guest divides through a shared sense  
38 of humanity which prioritize participatory action and civic responsibility. Ateljevic (2020) and  
39 Cave and Dredge (2020) expand upon this notion by advocating for regenerative tourism.  
40 Ateljevic (2020) identifies a "silent revolution" driven by public good and conscious citizenship,  
41 in which personal (inner) transformation is being reflected outward in everyday practices. Yet, in  
42 conceptualizing regenerative tourism, Cave and Dredge (2020), focus more on the complexity of  
43 the economics, suggesting not for complete dismantling of capitalism but rather diverse  
44 economies – the co-existence of capitalism, alternative capitalism, and non-capitalist agendas –  
45 as offering more opportunities and therefore more resilience to destination communities.  
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#### 50 51 ***4.4 Impact monitoring, valuation, and forecasting***

52 As the pandemic has brought unprecedented challenges to the global tourism industry, timely  
53 impact monitoring and valuation are vital for decision-making at different levels. These activities  
54 constitute a prominent area of interest across much of the sample, as seen in the lower central  
55 area of Figure 2: *Impact* connects with *Crisis* and *Economic*. Centrally in Figure 2, *Forecasting*  
56 and *Demand* each connect to *Recovery*. Some studies present a comprehensive overview of  
57 COVID-19's potential effects on tourism. Using a tourism systems approach, Bausch, Gartner,  
58 and Ortanderl (2020) develop an impact grid to understand the pandemic's consequences on  
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4 tourism among subjects (e.g., tourists and locals) and objects (e.g., destinations and  
5 intermediaries). This tool can help practitioners better monitor and evaluate the effects of  
6 policies and interventions on the tourism system. Sigala (2020) details the impact of COVID-19  
7 on tourism from the perspectives of three major tourism stakeholders (i.e., tourism demand,  
8 tourism operators, and destinations and policymakers) at the pandemic's response, recovery, and  
9 reset stages. The author argues that innovative and explanatory research serve different  
10 stakeholders' needs. Yang, Altschuler, et al. (2020) devise a COVID19tourism index to monitor  
11 the pandemic's impact on the global tourism industry, including five sub-indices to track  
12 COVID-19's effects on different aspects of tourism activities. Using this tool, destinations can  
13 evaluate their recovery status, produce rigorous forecasts, and benchmark themselves against  
14 possible competitors.  
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19 ***Economic impact analysis*** can help identify economic losses associated with the pandemic and  
20 how these losses affect interconnected economic sectors and parties. Traditional economic  
21 impact analysis tools, such as econometric analysis and macro-economic models, have been  
22 applied to calibrate COVID-19's economic impact across regions. Huang, Makridis, Baker,  
23 Medeiros, and Guo (2020) use econometric analysis to examine the effects of the pandemic and  
24 intervention policies on the US labor supply in tourism-related industries. Business closures  
25 result in a decline in employment and small business operations in the hospitality industry. Khan,  
26 Bibi, Lyu, Latif, and Lorenzo (2021) model the impact of COVID-19 on employment patterns in  
27 tourism-related sectors in the US; museums and historical places, performing arts, and sports  
28 appear most vulnerable. Other econometric studies evaluate consequences based on stock market  
29 data from tourism-related firms. For example, Sharma and Nicolau (2020) assess the pandemic's  
30 impact by estimating how the infection and fatality rates influence US stock returns of tourism-  
31 related industries; cruise lines were most substantially affected. Kaczmarek, Perez, Demir, and  
32 Zaremba (2021) gather stock market data from tourism-related companies across 52 countries,  
33 revealing that low-valuation, limited-leverage, and high-investment companies are less  
34 influenced than others. Moreover, firms in countries upholding certain closure policies are more  
35 resilient to the negative effects of COVID-19. In terms of macro-economic modeling, Yang,  
36 Zhang, and Chen (2020) develop a dynamic stochastic general equilibrium model to understand  
37 COVID-19's impact as an external economic shock. Policies subsidizing tourism consumption  
38 were useful in alleviating associated consequences.  
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44 ***Non-economic impact analysis.*** In addition to economic impact modeling, several studies  
45 calibrate the socio-cultural effects of the pandemic. R. T. R. Qiu, et al. (2020) estimate residents'  
46 willingness to pay for pandemic risk reduction and calibrate the social costs of pandemic risk  
47 resulting from tourism activity in three major Chinese cities. Likewise, Yang and Wong (2020)  
48 examine tourists' decline in social well-being following perceived discrimination due to COVID-  
49 19. This effect was further moderated by COVID-19-related anxiety and social media use.  
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53 ***Tourism forecasting.*** Scholars also levy tourism forecasting to project tourism recovery based  
54 on the patterns and evolution of pandemic-related impacts. Polyzos, Samitas, and Spyridou  
55 (2020) employ a deep learning artificial neural network model to estimate such effects and  
56 predict the recovery of tourist arrivals. They also incorporate historical insights from the 2003  
57 SARS epidemic into their model. Fotiadis, Polyzos, and Huan (2021) apply a neural network and  
58 a generalized additive model to generate various tourism demand forecasts. According to the  
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4 results, the pandemic will regress global tourism growth by as much as 15 years. Škare, et al.  
5 (2021) use a heterogeneous PSVAR model to forecast global tourism demand; COVID-19's  
6 impact is captured as both a common shock and idiosyncratic shock. Findings indicate a loss of  
7 4.1–12.8 trillion USD in GDP contributed by travel and tourism.  
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#### 10 **4.5 Technology adoption**

11 The right side of Figure 2 presents several large thematic nodes, all related to the effects of  
12 *Distancing on Education and Innovation* as well as *Robot, Technology, Service, and Artificial*  
13 *Intelligence*. Technology plays a core role in tourism resilience. It has especially offered  
14 solutions to various direct and indirect COVID-19–related issues in the global tourism industry  
15 amid the pandemic (Gretzel, et al., 2020).  
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19 **Technology for service innovation.** Technology connects people (potential tourists and tourism  
20 employees) and settings in novel ways (Fennell, 2021; Kwok & Koh, 2020). With high demand  
21 from customers and organizations, some technologies have enjoyed greater popularity during the  
22 pandemic, such as virtual tours (Fennell, 2021), service robotics (Zhao & Bacao, 2020), drone  
23 delivery services (Kim, Kim, & Hwang, 2021), and mobile payment (Khanra, Dhir, Kaur, &  
24 Joseph, 2021). In particular, COVID-19–related travel restrictions accelerated the penetration of  
25 extended reality, which is expected to provide personalized experiences to overcome physical  
26 travel impediments (Kwok & Koh, 2020). Fennell (2021) provides a sample virtual surrogate  
27 ecotourism experience—a personalized, interactive, real-time tour—which affords tourists  
28 experiences in vulnerable destinations and minimizes the environmental impacts of travel. All  
29 fees charged would benefit the destination. At the organizational level, Mizrachi and Gretzel  
30 (2020) discuss how travel tech companies can help the tourism industry combat COVID-19:  
31 hygiene, traffic control, and immediate communication technologies are needed in the short  
32 term, while technological foundations that integrate different technologies hold promise as long-  
33 run solutions. Lau (2020) reviews new technologies adopted in China's tourism sector during the  
34 pandemic; examples include live-stream promotions, facial check-in with AI temperature checks,  
35 and service robots. Privacy protection is highlighted as a major concern when using new  
36 technology to collect user information. At the destination level, Choi, et al. (2021) explore  
37 government innovation related to smart technologies, such as a self-quarantine app and  
38 coronavirus tracing app, that could support tourism's resilience during the outbreak.  
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44 Several empirical studies address users' adoption of various technologies during the pandemic.  
45 Zhao and Bacao (2020) identify satisfaction, perceived task–technology fit, trust, effort  
46 expectancy, and social influence as main determinants of customers' intentions to continue using  
47 food delivery apps during the pandemic. Wan, Chan, and Luo (2020) confirm that consumers'  
48 perceptions of lower interpersonal interaction with robotic services would reduce their perceived  
49 infection risk, ultimately leading to higher visit intentions. Customers may prefer robotic services  
50 during the pandemic; however, these services are not always technically and financially feasible  
51 for businesses to implement based on firms' resource availability, demand type, and value  
52 chains. Seyitoğlu and Ivanov (2020) develop a conceptual framework for service delivery system  
53 design and offer guidelines to facilitate hospitality and tourism firms' decisions about three  
54 service systems: robotic service, human-based service, and mixed service.  
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59 **Technology and remote education.** The pandemic has disrupted tourism education as well. Stay-  
60 at-home orders and social distancing forced many educational settings to move online, which has  
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4 implications for students' learning experiences. As remote education became a prominent  
5 alternative during the pandemic, many articles consider how technology can be embraced to  
6 deliver better education and keep students engaged in a virtual setting. Tiwari, Séraphin, and  
7 Chowdhary (2020) find that as tourism educators and students became familiar with distance-  
8 learning technologies, online teaching was increasingly accepted. However, in developing  
9 countries with poor telecommunication infrastructure, remote education introduced major  
10 challenges. Tuma, Stanley, and Stansbie (2020) examine the use of Zoom as a synchronous  
11 tourism teaching modality and point out various digital engagement strategies when using this  
12 technology. Qiu, Li, and Li (2020) compare the advantages and disadvantages of three online  
13 teaching approaches based on distinct technologies: a basic model with a small private online  
14 course, an advanced model for synchronous online broadcasting, and an expansion model with  
15 MOOC resources.  
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## 21 **5. Discussion**

### 22 *5.1 Theoretical contributions amid the COVID-19 pandemic*

23 Following the analysis of 249 articles related to tourism and the pandemic, several theoretical  
24 concerns underpin this literature. COVID-19 represents a crisis or disaster that functions as more  
25 than simply a research context (see Section 2 for a detailed discussion). Rather than uncovering  
26 the conceptual basis for a specific topic, the COVID-19 literature to date has offered numerous  
27 opportunities to ponder how the pandemic has shaped the conceptual foundations of many topics  
28 in the field. As one of the most impactful events to have hit global society, COVID-19 has borne  
29 enormous effects on the tourism industry. However, to what extent will this event change the  
30 industry? Can COVID-19 research inspire meaningful theoretical contributions and advance the  
31 field? These questions need to be addressed.  
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36 Similar to existing research agendas and commentaries related to crises/disasters or to COVID-  
37 19 (e.g., Ritchie & Jiang, 2019; Zenker & Kock, 2020), the influx of pandemic-related tourism  
38 literature raises questions about corresponding theoretical contributions. According to Tribe  
39 (1997), the interdisciplinary nature of tourism has led to the absence of a specific disciplinary  
40 approach in this domain. Fragmented disciplinarity thus persists. To seize publication  
41 opportunities, many descriptive articles and commentaries have been published quickly—some  
42 within less than a week. While such papers may illuminate gaps in knowledge about COVID-19  
43 in a tourism context, they have arguably made the field more fragmented than ever. Few engage  
44 with “good theory,” which is arguably internally consistent, risky, and abstract (Smith, Xiao,  
45 Nunkoo, & Tukamushaba, 2013; Wacker, 1998).  
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49 To address this, it is important to revisit some core ideas regarding theoretical contributions and  
50 the role of the research context. Many social science scholars struggle to generate new theories  
51 and instead aim to improve upon existing frameworks. What constitutes a value-added  
52 contribution to theory development? Whetten (1989) posed this same question and posited that  
53 scholars should not focus simply on adding variables to existing models. Instead, uncovering  
54 relationships among theoretical constructs can be more meaningful than incorporating additional  
55 variables. Relatedly, “trivial or obvious predictions are not marks of good theory” (Smith et al.,  
56 2013, p. 878). Unexpected findings that current theories cannot explain or that challenge existing  
57 rationales are particularly insightful. Theory-building research seeks to find similarities across  
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4 many different domains to increase its abstraction level and its importance (Wacker, 1998).  
5 Corley and Gioia (2011, p. 17) similarly argue that “contribution arises when theory reveals what  
6 we otherwise had not seen, known, or conceived” (p. 17). Originality is indeed an important  
7 criterion for article publication in top-ranked academic journals. As such, applying an available  
8 model to a new context and indicating that it applies as expected is not instructive in itself. Yet  
9 many current COVID-19 publications fall into this category. For example, much research has  
10 shown that minimizing disease or risk perceptions will influence travel behavior—yet these  
11 findings are already well-established in other crisis or disaster literature.  
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15 Neither Whetten (1989) nor Corley and Gioia (2011) overlook the importance of the research  
16 setting with respect to theoretical contributions; put simply, meaning is derived from context. In  
17 this vein, Rousseau and Fried (2001, p. 1) contend that “contextualizing entails linking  
18 observations to a set of relevant facts, events, or points of view that make possible research and  
19 theory that form part of a larger whole” (p. 1). Here, contextualization refers not only to  
20 environmental factors but also (and perhaps more) to the nature of the focal setting, which can  
21 alter the meaning of theories or concepts. The COVID-19 pandemic represents a salient context.  
22 Contextualization is therefore necessary, but scholars need aiming for novel theoretical  
23 contributions rather than merely applying available models to the pandemic with little  
24 incremental value. A few studies have sought to do so: for instance, in contextualizing identity  
25 theory amid the pandemic, Zhang, Wang, and Rickly (2021) stated that COVID-19 has  
26 challenged the fundamental desire for social interaction in international tourism. This shift  
27 towards non-interaction is further linked with identity-based changes.  
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### 32 ***5.2 War over tourism: “New normal” vs. “back to normal”***

34 It is widely recognized that COVID-19 will change the state of tourism knowledge as well as the  
35 tourism industry itself (Sigala, 2020). A binary discussion between industry recovery and reform  
36 has begun (e.g., Higgins-Desbiolles, 2020). On one hand, destinations and tourism businesses  
37 have been searching for, developing, and internalizing innovative ways to expedite the industry’s  
38 full recovery. Early COVID-19 researchers investigated various topics to facilitate post-  
39 pandemic recovery, including travelers’ perceptions and behavior; industry professionals’ efforts  
40 to ensure safety, capitalize on technological developments, and adopt effective managerial  
41 approaches; and host communities’ attitudes towards incoming tourists. Resilience and an  
42 eagerness to return to “normal” have continued to make headlines in the media. Most tourism-  
43 related coverage on getting “back to normal” has featured potential revenue-boosting strategies.  
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47 On the other hand, researchers have more often treated COVID-19 as a chance to rethink the  
48 current tourism paradigm and argue for a transformative and sustainable future (Sigala, 2020). In  
49 this vein, a sustainable “new normal” with limits on how the industry can operate ongoing  
50 forward has been prioritized. The cessation of tourism has also revealed the environmental  
51 impacts of travel, thus inspiring many questions: will a sustainable approach be a part of industry  
52 resilience in the post-pandemic period? Has COVID-19 eliminated some unsustainable  
53 practices? It will likely be necessary to strike a balance via holistic approaches. One-size-fits-all  
54 approaches and mutually exclusive mindsets are more likely to stagnate rather than promote  
55 tourism’s resilience. This may be a global industry, but it operates in diverse places and contexts.  
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4 More broadly, the questioning of “normality” in the industry and its future state has opened up  
5 dialogues of hopeful and transformative tourism. Such perspectives are often informed by critical  
6 theories and shed light on the inequities of the global tourism industry, which is in itself a  
7 worthwhile endeavor. Yet, in advocating for a “new normal” in the wake of COVID-19, few  
8 offer a clear path forward for the industry. Besides technological advances that might foster  
9 environmental sustainability, the publications are built on impractical assumptions and limited  
10 empirical evidence. COVID-19 has brought new awareness to vulnerable populations,  
11 inclusivity, and diversity, but social justice is an ever-shifting landscape of new movements and  
12 ideals that change more quickly than the tourism industry. Scholars must take care not to conflate  
13 the pandemic with evolving societal values. It is recommended that such scholarship be more  
14 reflective of the role of the pandemic in transformative tourism rather than aiming for  
15 transformation as an outcome of the pandemic.  
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### 20 **5.3 Research methods**

21 Among quantitative studies, several methodological aspects of COVID-19–related tourism  
22 management research merit discussion. First and foremost, given the ad hoc nature of many  
23 cross-sectional empirical studies, quantitative results only reflect circumstances in the early or  
24 middle stage of the pandemic with comparatively little insight into future scenarios. Longitudinal  
25 studies, in which data are examined at multiple time points (see Lee, Lockshin, Cohen, & Corsi,  
26 2019), can reveal time-varying impacts over different crisis stages to project the industry’s  
27 responses and evolution. Such work can therefore produce more reliable and generalizable  
28 results. Second, many tourist behavior studies rely heavily on measures of behavioral intention, a  
29 subjective evaluation, to scrutinize the impact of COVID-19. However, this construct can suffer  
30 from notable biases in the form of various COVID-19-related constraints (e.g., mobility  
31 limitations and affordability). As a result, behavioral intention is a poor proxy for actual behavior  
32 (Kock, et al., 2020). Third, with the growing availability of secondary data related to the  
33 pandemic, econometric models prevail in the sample. Yet, many fail to provide rigorous  
34 causality inferences, yielding less reliable results regarding the causality between variables. For  
35 example, Granger causality (Uzuner & Ghosh, 2020) can only offer findings related to Granger-  
36 type causality instead of authentic causality. Also, a clearer understanding of the structural form  
37 of economic equations can help specify the reduced form model and identify potential  
38 instrumental variables to alleviate endogeneity. Fourth, online platform–based experiments,  
39 especially from Amazon Mechanical Turk, dominate experimental studies in the sample.  
40 However, the validity of these results can be compromised by the presence of “professional  
41 online respondents” as well as other challenges related to internal, construct, and external  
42 validity issues (Aguinis, Villamor, & Ramani, 2020). Field experiments do not receive sufficient  
43 attention despite showing promise in COVID-19–related studies which manipulate interventions  
44 in real-life settings (Viglia & Dolnicar, 2020).  
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52 Only a small number of papers in the sample adopt qualitative approaches to COVID-19 tourism  
53 research, and these are largely descriptive. Further, they tend to reflect on what has been done  
54 instead of exploring precisely *why*. Despite being popular in tourism studies more broadly, visual  
55 and critical approaches are largely absent within pandemic tourism research. Specifically, visual  
56 imagery and geographic imaginaries could be altered by the pandemic, and critical discourse  
57 analysis or critical incident techniques would be appropriate methods to provide a reflexive  
58 understanding of the pandemic.  
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6 Mixed methods employ a combination of qualitative and quantitative approaches. A recent  
7 systematic review of mixed methods research in tourism demonstrates that scholars have often  
8 adopted sequential mixed methods rather than concurrent ones (Khoo-Lattimore, Mura, & Yung,  
9 2019). Only one paper in the sample adopted mixed methods, and it is suggested that this is a  
10 result of the greater time constraints related to undertaking mixed or multi-study research.  
11 Specifically, Brizek, et al. (2021) apply the traditional sequential mixed method approach by  
12 performing a survey followed by qualitative interviews to supplement their qualitative findings.  
13 In addition, Khoo-Lattimore, et al. (2019) propose mixed method considerations, arguing that  
14 researchers should identify ways to offer comprehensive views on topics related to the pandemic.  
15 Multi-method/multi-study research includes more than one study in a single paper and often  
16 involves multiple methodologies, which appear particularly promising in COVID-19–related  
17 work (e.g., Gallego & Font, 2020; Kock, et al., 2020). The pandemic has introduced nuanced and  
18 dynamic impacts on the global tourism industry. Compared with a single-study investigation,  
19 multi-study research strengthens findings’ applicability (and replicability) and reinforces the  
20 theory–method interplay (Hochwarter Wayne, Ferris Gerald, & Johnston Hanes, 2011).  
21 Moreover, multi-study research can rectify the methodological weaknesses associated with a  
22 single research method while enhancing generalizability.  
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28 A particularly striking methodological observation is the prevalence of descriptive commentaries  
29 in the sample. A large proportion of these were published in the early days of the pandemic in  
30 response to specific calls for commentaries with quick turnaround times that did not employ peer  
31 review. The authors often labeled their commentaries as “conceptual”—but are all non-empirical  
32 studies conceptual? Xin, Tribe, and Chambers (2013) assert that conceptual research focuses on  
33 the systematic clarification of concepts. In other words, such studies trace a concept’s origins and  
34 development while addressing its current use, specification, and differentiation. Based on this  
35 definition, review papers are not necessarily conceptual, while some empirical work can be  
36 deemed conceptual. However, many self-claimed conceptual papers or short commentaries in the  
37 sample are descriptive. They offer limited insight into concepts’ historical development and  
38 particularly how COVID-19 has influenced these ideas. The sample includes papers discussing  
39 the pandemic’s impact on food tourism, natural tourism, adventure tourism, mountain tourism,  
40 and so forth. However, this emphasis on potential effects is overwhelmingly speculative.  
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45 Additionally, papers use the pandemic to advocate for possible research agendas, but in so doing,  
46 few provide a historical and contemporary discussion of these ideas and the relevance of  
47 COVID-19 for advancing them. Thus, it is worth asking whether such articles are in fact  
48 commentaries? Defining commentaries in *Annals of Tourism Research*, Schweinsberg (2019)  
49 argues that most commentaries represent feedback on a newly published article to avoid  
50 knowledge stasis. Additionally, *Annals of Tourism Research* publishes Research Notes, which  
51 highlight the specific theoretical or methodological potential for the field, often accompanied by  
52 preliminary findings and a possible research agenda. In *Journal of Travel Research*,  
53 commentaries can be submitted as Letters to the Editor that consider research-based problems.  
54 No matter how conceptual research and commentaries are defined, the contribution to the field of  
55 study remains paramount. COVID-19 has unequivocally affected the state of tourism research,  
56 which makes framing its significance to theoretical and/or methodological development ever  
57 more important.  
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6 **5.4 Future areas of study**

7 **Psychological effects and behavior.** An imbalance exists in the literature regarding the  
8 pandemic's psychological effects on tourism stakeholders. Many studies have focused on  
9 perceptions and motivation stimulated by risk, threats, and fear (Sembada & Kalantari, 2021),  
10 with scant effort devoted to integrating specific aspects of tourists' risk perceptions and well-  
11 being. Several potentially important features of cognition and affect have thus been overlooked,  
12 most notably uncertainty, isolation, stress, and anxiety. A topic to consider is one's  
13 understanding of self and group identity through tourism (C. X. Zhang, et al., 2021): how might  
14 economic, sociopolitical, and cultural uncertainty brought on by the pandemic influence one's  
15 understanding of the self and others? Such questions do not only involve changes in how people  
16 view and treat others but also how others view and treat them. This research focus extends  
17 beyond the host–guest relationship to address fundamental questions of how socially constructed  
18 boundaries between “us” and “them” based on social classifications such as gender, culture, and  
19 race/ethnicity are influenced by the pandemic and the re-opening of tourism. These lines of  
20 inquiry also have strong ethical ramifications which could also contribute to the moral turn in  
21 tourism and associated research.  
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26 Crises and disasters generally underscore the importance of motives for affiliation, acceptance,  
27 and belonging (e.g., Collins, 2012). Commentaries about research agendas have expressed  
28 similar thoughts (e.g., Zenker & Kock, 2020); however, no empirical research has yet supported  
29 such claims. Furthermore, conflicting events have occurred locally and globally, casting doubt  
30 on the roles of these motives during the pandemic. Future empirical research might therefore  
31 consider such concepts amid COVID-19, as findings can also shed light on the collective and  
32 social resilience that has emerged through shared memories of this crisis.  
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37 **Response, strategies, and resilience.** The crisis and disaster management literature suggests that  
38 governments play essential roles in all stages of crisis management, from planning to recovery  
39 and prevention. Many scholars focus on how governments can enhance destination resilience and  
40 facilitate destination recovery. Cooperation, financial support, and updated information are  
41 clearly needed when the public sector faces a crisis (Ritchie & Jiang, 2019). However, it is  
42 necessary to determine how tourism stakeholders can improve their planning for and prevention  
43 of future crises and disasters. Multilevel governance during times of crisis is relatively  
44 unfamiliar, as are its implications for local, national, and internal policy. How the government  
45 interacts with the public and private sectors to issue effective policies is important to understand  
46 as well. Besides practical measures, the result indicates growing attention to the involvement of  
47 the government and private sector in terms of sustainable development. COVID-19 presents an  
48 unprecedented opportunity to (re)consider how societies operate and are governed. A long-term  
49 analysis of such efforts is thus needed.  
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54 In terms of corporate responses and strategies, many studies involve large hospitality  
55 corporations. Business resilience, capacity building, and coping strategies among small- and  
56 medium-sized tourism businesses, which account for a large percentage of the industry's supply  
57 side, remain underexplored. Management scholars can uncover foundational management skills  
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4 and strategies to cope with future crises and disasters upon reflecting on and synthesizing lessons  
5 learned from COVID-19.  
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8 ***Sustainable, inclusive futures.*** Intellectually, COVID-19 has presented an opportunity to  
9 consider tourism from a new perspective. It has revealed broader societal vulnerabilities along  
10 with those specific to tourism. However, most COVID-19 research related to sustainable tourism  
11 futures has been advocacy-driven and is more speculative than empirical. This leaves many  
12 questions to be addressed in subsequent work. In particular, it would be worthwhile to revisit  
13 destinations or specific tourism enterprises to determine how, and to what degree, inclusivity  
14 measures have been incorporated following the pandemic. What has prompted or impeded these  
15 initiatives' implementation and their longevity? Relatedly, longitudinal studies on the  
16 effectiveness of inclusivity and/or diversification measures around post-COVID-19 resilience or  
17 regeneration would offer revelatory information on future market potential. More importantly,  
18 when (or if) COVID-19 fades from prominence as a force of change in the industry, how do  
19 researchers untangle these ideals from the pandemic and continue to advance them in the  
20 industry?  
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25 ***Impact monitoring, valuation, and forecasting.*** Although impact estimates can aid decision  
26 makers in allocating resources for tourism recovery, scenario analysis or simulation in impact  
27 modeling can usually produce more actionable guidance to formulate strategies and policies  
28 combating the pandemic. Different impact valuation models can provide varied impact estimates  
29 with distinct structures and assumptions (Pham, Dwyer, Su, & Ngo, 2021). Researchers must  
30 then compare model estimates and evaluate the benefits and drawbacks of each. Furthermore,  
31 although some commentary papers discuss the environmental impact of COVID-19, rigorous  
32 environmental valuation analysis has yet to be undertaken. Environmental impact models (e.g.,  
33 ecological footprint analysis and carbon footprint analysis) are recommended to better evaluate  
34 the pandemic's environmental effects on the tourism system. Empirical studies have considered  
35 the prediction accuracy of tourism forecasting models (Fotiadis, et al., 2021; Zhang, Song, Wen,  
36 & Liu, 2021); nevertheless, it is crucial to assess potentially effective predictors of tourism  
37 demand (e.g., digital footprints, travel sentiments, and vaccination rates) during times of great  
38 uncertainty.  
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43 ***Technology adoption.*** Many conceptual and empirical papers have put forth short-term solutions  
44 for pandemic concerns (Sharma, Shin, Santa-María, & Nicolau, 2021). Only a few have  
45 pondered the longer-term paradigm shift regarding technology adoption. More comprehensive  
46 frameworks are needed to map the development of the technology landscape in tourism.  
47 Although the critical circumstances of the pandemic have spurred the adoption of new and  
48 existing technologies, the enduring effects of this uptake would be intriguing to consider. Many  
49 empirical studies on tourism technology feature ad hoc research questions based on emerging  
50 technology, providing limited insight into a given technology based on stakeholders' needs.  
51 Additional studies might better illuminate the direction of technology design by assessing  
52 demand from tourists and industrial professionals at the individual and organization levels.  
53 Technology is merely a tool; its success in tourism is contingent on the social and business  
54 environment (Dwivedi, et al., 2020). As a result, more studies are needed to better understand  
55 how to build an environment conducive to organizational technology adoption—including how  
56 this adoption can promote resilience in various ways.  
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### 5.5 Multi- and interdisciplinary studies

Tourism studies constitute a scientific object characterized by fragmented knowledge from a number of disciplines, such as management, geography, marketing, economics, sociology, psychology, environmental sciences, and regional studies (Tribe, 1997). Descriptive analysis confirms this multidisciplinary nature within COVID-19 tourism research. The complexity of tourism provides opportunities for collaboration across disciplines. According to Okumus, van Niekerk, Koseoglu, and Bilgihan (2018), collaboration across domains generates new epistemologies and methodologies. Cross-disciplinary cooperation also fosters creativity and innovation by synthesizing distinct perspectives. The COVID-19 pandemic brought an intense shift in the landscape of tourism demand and supply. Knowledge from different disciplines is hence required to clarify interrelated aspects of tourism. Multi- and interdisciplinary approaches can both be useful in this regard. Whereas multidisciplinary approaches explore research questions from two or more discipline-specific points of view, interdisciplinary methods marry two or more disciplines dynamically (Darbellay & Stock, 2012). For example, when researchers discuss resilience in response to crises such as COVID-19, numerous factors can apply from social, economic, geographic, environmental, and anthropological perspectives (Prayag, 2020). Also, in the context of a global pandemic, knowledge from epidemiology and public health informs individuals' sense of safety and risk—each of which is integral to tourism demand and supply. Therefore, cross-disciplinary dialogue, particularly between tourism and other disciplines, can better contextualize theories, methods, and models to delineate linkages between COVID-19 and tourism. Results can also provide useful recommendations for industry professionals and other stakeholders.

### 5.6 Research relevance and translational research

Tourism research has long been criticized for being overly theoretical and for lacking utility for industry stakeholders (Baum, 2019; Vong, 2017). The same issue can be observed in COVID-19-related research, such that a limited number of studies provide actionable insights to industrial practitioners and other stakeholders. Khan (2019) identifies several gaps between academic research and practice. Some have become particularly noticeable during the pandemic, such as the failure of research to provide timely information along with a communication lag between academia and industry. Certain implications can be influential in helping stakeholders better weather the COVID-19 crisis: best practices in (online) marketing strategies, government policies on alleviating negative consequences, and safety guidelines that can protect tourists without detracting from their experiences. Apart from providing immediate industry solutions, Baum (2019) highlights the importance of broader research impacts that can alter individuals' behavior, practices, resource use, or policies. To enhance relevance and impact, more dialogue between academia and industry is needed to plan mutually beneficial projects and maintain a cooperative relationship (Khan, 2019).

## 6. Conclusion

This paper introduces the Curated Collection of *Annals of Tourism Research* on coronavirus and tourism. The review has assessed 249 academic journal articles related to tourism and the COVID-19 pandemic that were published during the first year of the pandemic. It has aimed to take account of the major topics of research and reflect on future research opportunities.



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4 However, it is also acknowledged that the significance of COVID-19 to the industry and tourism  
5 scholarship will take years to fully comprehend. As a result, it is no surprise that many academic  
6 journals have begun requesting that authors reflect on the pandemic's effects on their research.  
7 However, there are also instances in which the value of pre-COVID data is questioned. So while  
8 the findings detailed above highlight that the pandemic is being incorporated into nearly every  
9 topic in the field, we must take caution to not let COVID-19 be the only lens through which we  
10 consider tourism research. Rhetoric around the pandemic ushering in a "new normal" for the  
11 industry should be countered with questions as to its longevity. All trends have a shelf life; what  
12 endures in academia are theoretical and methodological contributions. A lack of theoretical  
13 engagement is among the most notable and unfortunate trends from this review. It inspires the  
14 questions: What is new about COVID-19 research in tourism studies? What innovation can be  
15 gleaned from this flurry of research that can advance the field?  
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20 The fact that the answers to these questions are quite limited may be in large part an issue of  
21 timing. This review examined academic publications produced in the first year of the pandemic.  
22 Considering the time investments required to produce rich data, the sample simply would not  
23 have included such work. Indeed, the sample is in large measure comprised of commentaries and  
24 short communications. This is followed by quantitative research that used more accessible data  
25 sets. Qualitative research is rare in the sample, and mixed methods are only employed in one  
26 paper. Nevertheless, researchers are expected to contextualize their work in terms of theoretical  
27 and/or methodological contribution, and this review suggests that to date, such contributions are  
28 few. Nevertheless, there remain many opportunities for future research related to: psychological  
29 effects and behavior; response, strategies, and resilience; sustainable, inclusive futures; impact  
30 monitoring, valuation, and forecasting; technology adoption; multi- and interdisciplinary studies;  
31 and translational research.  
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36 Finally, some additional limitations that may temper the generalizability of the review are  
37 noteworthy. Related to the above point, COVID-19 research that has been inspired by latter  
38 pandemic developments has received limited representation in the sample. For example, research  
39 has recently started to examine how vaccination facilitates tourism recovery (Wang,  
40 Kunasekaran, & Rasoolimanesh, 2021); this topic was barely covered in the literature produced  
41 in the first year of the pandemic. Further, this review focused exclusively on English-language  
42 studies to the neglect of those in other languages, such as Chinese, French, and Russian. This  
43 creates an opportunity for future reviews to assess geographic trends in the production of  
44 COVID-19 research.  
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Table 1. Summary table of literature

Category	Number of papers	Percentage
<b>Journals of publication</b>		
<i>International Journal of Hospitality Management</i>	33	13.3
<i>Current Issue in Tourism</i>	30	12.0
<i>Tourism Geographies</i>	29	11.7
<i>Annals of Tourism Research</i>	21	8.4
<i>Anatolia</i>	11	4.4
<b>Countries/regions of research</b>		
<i>United States</i>	29	21.8
<i>China</i>	27	20.3
<i>India</i>	9	6.8
<i>Spain</i>	6	4.5
<i>Greece</i>	5	3.8
<i>Italy</i>	5	3.8
<i>Europe</i>	4	3.0
<i>Canada</i>	3	2.3
<i>Macao</i>	3	2.3
<i>South Korea</i>	3	2.3
<b>Unit of Analysis</b>		
<i>Individual</i>	93	37.4
<i>Organization</i>	26	10.4
<i>Destination</i>	41	16.5
<i>Industry</i>	89	35.7
<b>Research methods</b>		
<i>Conceptual</i>	121	48.6
<i>Mixed methods</i>	1	0.4
<i>Qualitative</i>	26	10.4
<i>Quantitative</i>	101	40.6

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Figure 1. Map of researched countries/regions

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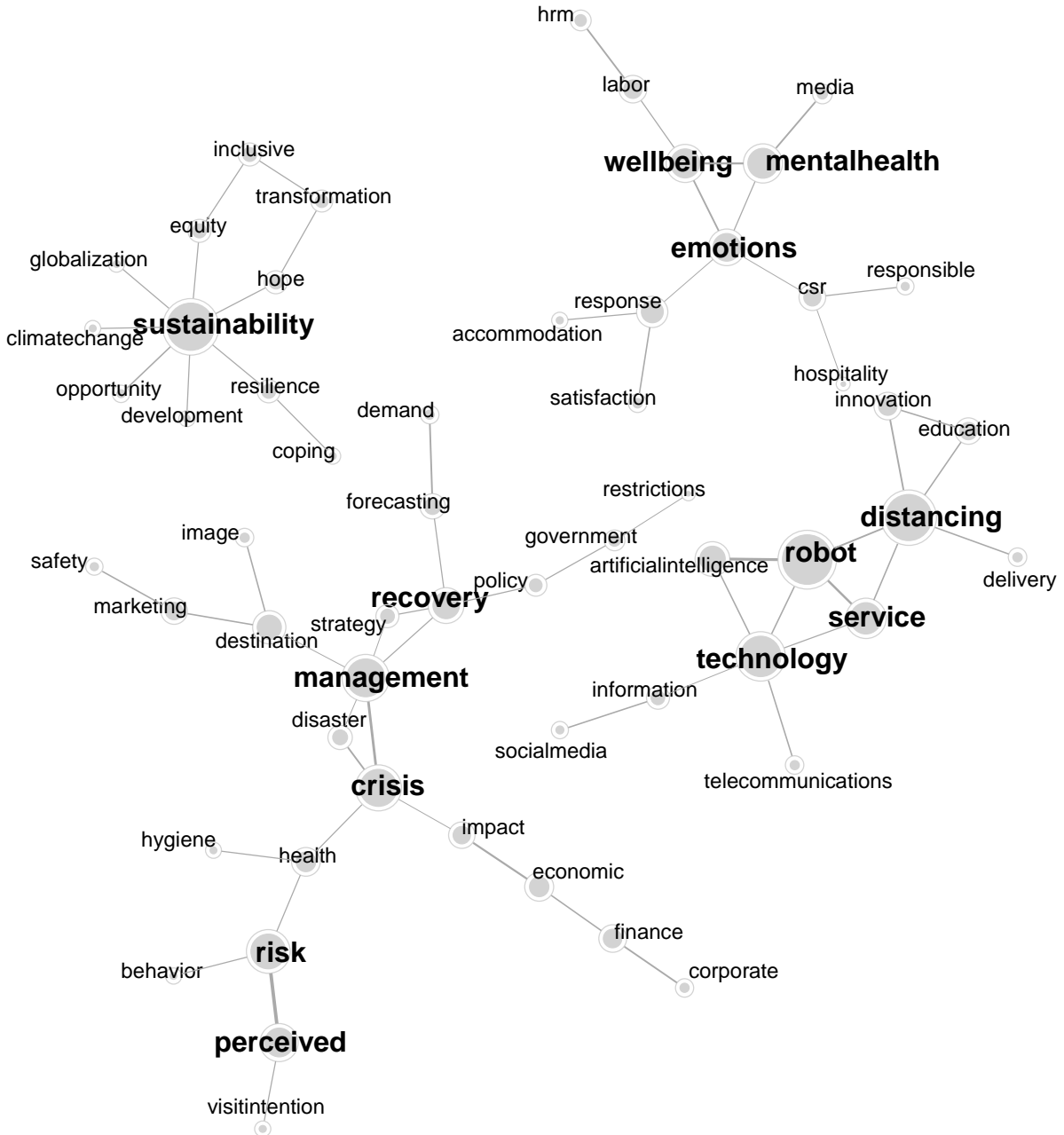


Figure 2. Keyword co-frequency visualization