

EXPLORING COVID-19'S IMPACT ON MENTAL HEALTH IN THE WORKPLACE: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The objective of this paper is to examine important research areas and emerging development trends while highlighting the challenges and opportunities associated with them. This is accomplished through a methodical examination of publications pertaining to the mental well-being of employees during COVID-19. The authors analyzed 177 articles and contributions from the Scopus database, that were listed by the Australian Business Dean Council (ABDC), using the bibliometric tool VOS viewer. According to the data, there have been increasing trends in the study of mental health and its effects during COVID-19, and psychology and human resource management are also seeing an increase in the study of mental health. The authors who have been referred to the most are "Chawla N.," "Mccarthy J.M.," "Trougakos J.P." and "Li J". The journal "American Psychologist" has published a significant amount of research in the psychology field and the "International Journal of Hospitality Management" has maximum publications in human resource management field. Using efficient bibliometric techniques, the authors give readers a thorough grasp of the research topic, which will be helpful to anybody interested in the field, particularly newcomers. They advise that future studies concentrate on creating hybrid models to forecast trends in particular fields of psychology and human resource management, which is a new field of study.

KEYWORDS

COVID-19, technostress, psychological wellbeing, remote work, bibliometric analysis, VOS viewer

INTRODUCTION

The COVID-19 pandemic has disrupted global employee routines, but there is limited understanding of its impact on work, domestic, and well-being related outcomes [1]. The crisis has caused negative impacts on employees' job security, and it is crucial to examine ways in which organizations can ease these harmful effects [2].

Researchers use transactional theory to assess the psychological challenges of traveller undergoing quarantine during the COVID-19 outbreak, often in specific hotels for two weeks [3]. Other such theories include Uncertainty Reduction Theory [4] and Scarcity Theory [5]. Scarcity theory investigates the connection between stresses related to financial insecurity and job and employees' self-reported engagement in specific behaviors [2]. Equity and social exchange theory is applied to know how furloughs impact intentions of employees to leave a job [6]. The pandemic has necessitated organizational changes, but successful implementation often requires employee preparedness, despite limited research on mental factors promoting such readiness [7].

COVID-19 has significantly impacted remote work, making it a challenging component that requires better understanding and adaptation to ensure global well-being [8]. The shift towards remote work has posed significant challenges for organizations and employees, necessitating a reassessment of isolation as a primary challenge in today's technology-mediated work environment [9]. But overuse of modern technology for both professional as well as personal use can lead to "techno-stress" [1][10]. Workers' hesitation and unease regarding the usage of information and communication technology (ICT) and their reliance on smartphones can serve as distractions that impede their ability to accomplish work objectives efficiently [11] [12]. Since psychological well-being is as important as physical health, more research on this is required [13]. Most recent research have used Structural equation modelling to analyse their data.

To know the scope of the study, following questions have been asked:

- RQ1 What are the current research developments and countries contributing in the field of COVID-19 and mental health of employees?
- RQ2 Which are the literature's most renowned, noteworthy, and influential sources and contributors?

RESEARCH METHODOLOGY

On February 1, 2022, we conducted the search of the literature. To summarize the trends in research regarding the consequence of COVID-19 on cognitive wellbeing of employees, we employed bibliometric quantitative analysis and network visualization. We used the Scopus database to run the following search Figure 1):

FIGURE 1: SEARCH CRITERIA (AUTHOR'S OWN)

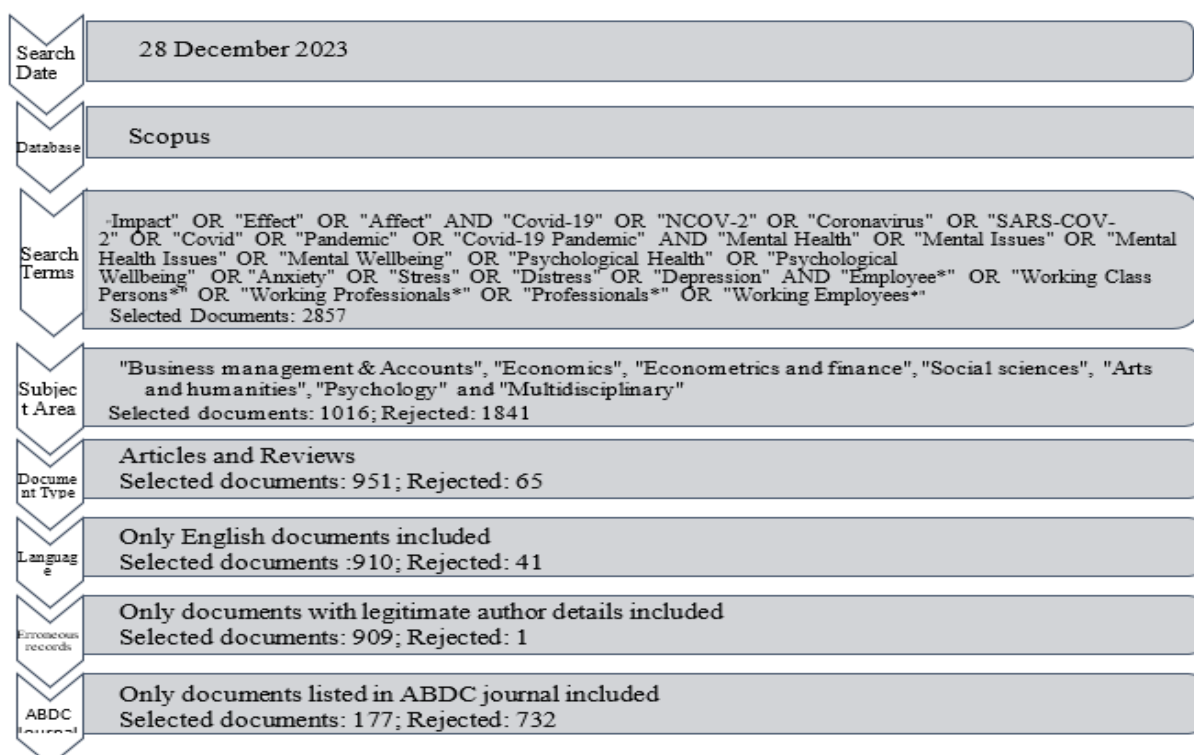
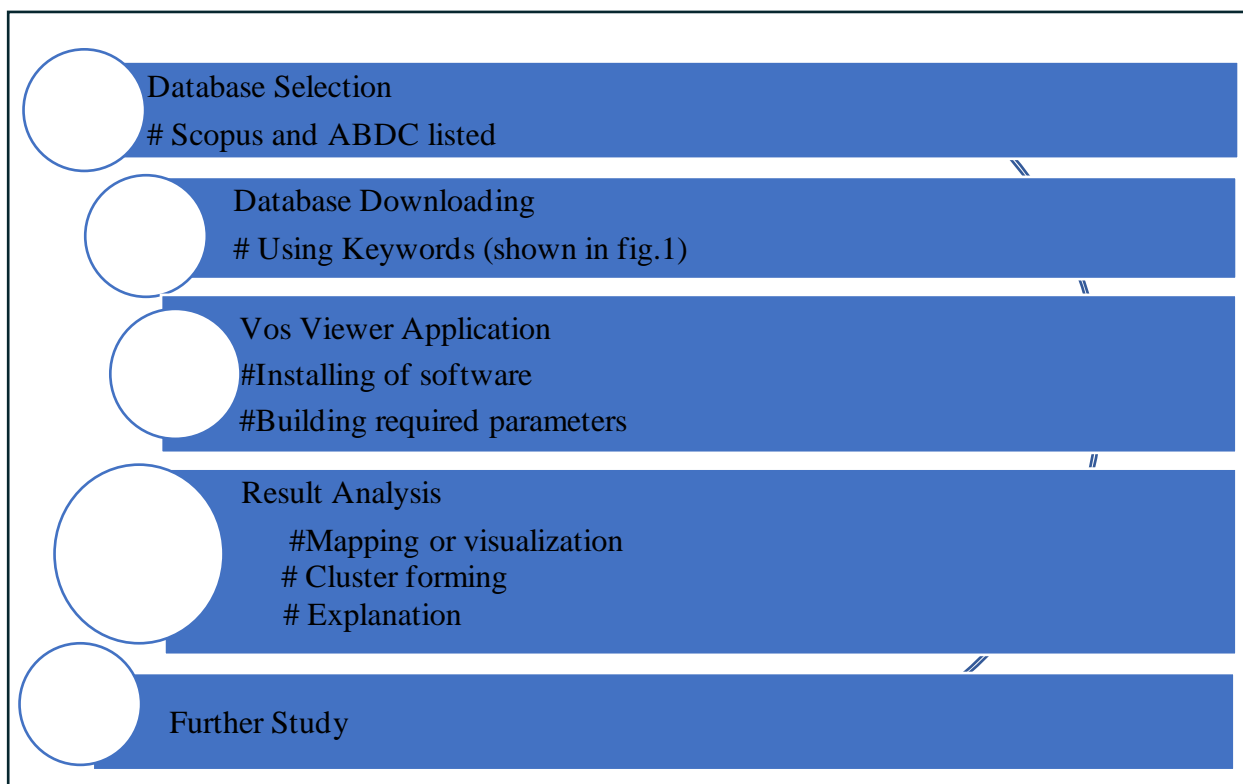


Figure 2 reveals the methodical process which is used to compile the final Scopus of (177 articles which are also ABDC listed papers) for evaluation. The search phrases were developed by brainstorming among the authors, who were methodological and subject-matter specialists.

RESEARCH TOOLS AND TECHNIQUES

Bibliometric analysis is a statistical technique used to evaluate published studies by analyzing citation links and their impact on other disciplines. It can be applied to data from other databases and is essential for scientific research. Bibliographic software like VOSViewer can provide accurate results and make finding relevant material easier. It is accessible for free, easy to use, and exhibit large bibliometric maps and interpret the presented clusters [14]. It is also pointed out that most computer applications for bibliometric analysis do not effectively display such maps. Further crucial conditions are outlined [15].

FIGURE 2: VOS VIEWER PROCESS (AUTHOR'S OWN)



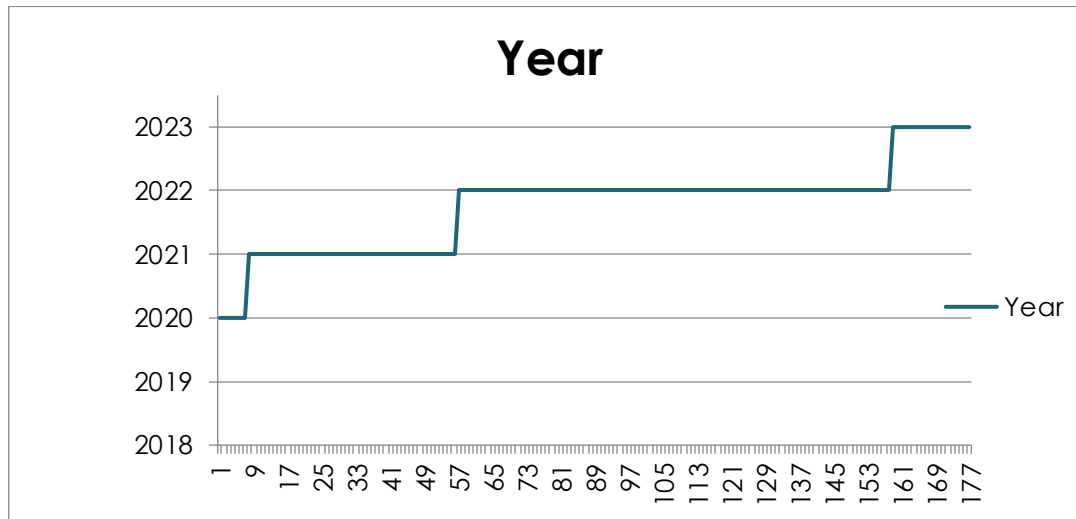
ANALYSIS AND FINDINGS

A. PERFORMANCE ANALYSIS OF 'COVID-19 AND MENTAL HEALTH OF EMPLOYEES'

1. Performance Analysis of Publications in 'COVID-19 and mental health of employees'

In Figure 3, the number of research papers is plotted against the years they were published to show the publishing trend of COVID-19, mental health, and employees. According to Figure 1, these have been used since 2005 but only recently, with the advent of COVID-19, the research in these fields exploded. The years with the most papers published are 2022 (102), 2021 (49) and 2020 (7). With 19 articles (or 18.6% of the overall count of published articles in 2022) already published in the first quarter of 2023, it is anticipated that this upward trend will last past 2023.

FIGURE 3: TREND IN PUBLICATION OF RESEARCH IN COVID-19 AND MENTAL HEALTH OF EMPLOYEES (AUTHOR'S OWN)



2. Citation Analysis: Leading authors, institutions, and countries of 'COVID-19, mental health of employees'

Table 1 lists the top authors, identifying the institutions and countries at the time of authorship. "Chawla, N."; "Mccarthy J.M" and "Trougakos J.P.", who have 212 citations, is by far the most significant and prominent author [1]. They have two publications together out of which "Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes"

TABLE 1: CITATION ANALYSIS (AUTHOR'S OWN)

TC	Authors	TP	TC	Institutions	TP	TC	Countries	TP
212	"Chawla N."	2	366	"Edith Cowan University, Australia"	1	1480	United States	62
212	"Mccarthy J.M."	2	366	"Dokuz Eylul University, Turkey"	1	1137	Australia	22
212	"Trougakos J.P."	2	366	"The University of Western Australia, Australia"	1	1035	Canada	15
155	"Li J."	2	366	"Universiti Sains Malaysia, Malaysia"	1	742	United Kingdom	21
122	"Shao Y."	2	177	"Texas A&M University, United States"	1	541	France	6
116	"Yu J."	2	177	"University of Toronto Scarborough, Canada"	1	531	Netherlands	6
102	"Han H."	5	150	"Dalhousie University, Canada"	1	471	China	25
101	"Wong A.K.F."	4	150	"Shanghai Maritime University, China"	1	410	Turkey	5
93	"Sun R."	3	150	"The University of Sydney NSW, Australia"	1	373	Malaysia	3
85	"Li G."	2	144	"Department of Economics and Center for Statistics and Data Science, United States"	1	198	South Korea	8
59	"Lee Y."	2	144	"Vancouver School of Economics, UBC, Canada"	1	192	Hong Kong	8

59	"Li J.-Y."	2	101	"Sejong University, South Korea"	4	169	Spain	7
59	"Tao W."	2	99	"University of Las Palmas de Gran Canaria, Spain"	1	153	India	27
57	"Probst T.M."	2	99	"University of Greenwich, United Kingdom"	1	124	New Zealand	5

Note(s): TC = "total citations". TP = "total publications". The research includes (i.e., author, institution, country) appear according to total citations in this table

(2020) is the most cited paper with 177 citations. They are followed by Li J. who has 155 citations and is also the most productive author in terms of publications with two publications. "Edith Cowan University" and "The University of Western Australia", Australia; "Dokuz Eylul University", Turkey; and "Universiti Sains Malaysia", Malaysia are the most influential of all with 366 citations with one paper published in 2021 named as "COVID-19: potential effects on Chinese citizens' lifestyle and travel". They are second most influential organization is Texas A&M University, United States with 177 citations through publishing only one article in ABDC listed Scopus indexed Journals. United States leads all other nations in terms of intellectual contributions with 62 papers and 1480 citations.

3. Top Journals for 'COVID-19, mental health, and employees'

Table 2 lists the major financial journals which are ABDC listed Scopus indexed and that have published COVID-19, mental health and employees related research papers. The two most significant journals in terms of citations are "American Psychologist" and "Journal of Applied Psychology", with 533 and 509 citations, respectively. However, with 13 and 7 publications, respectively, "Journal of Applied Psychology" and "International Journal of Hospitality Management" are the two most productive journals in terms of publications.

A current rising trend in publication about this review is seen in the comparison of publication output versus various time periods. It's interesting that according to the "Australian Business Deans Council's (ABDC)" 2023 Journal Quality List, 54.8% of the most important publications are given an "A*" or "A" rating. This shows that prestigious publications are open to publishing research on COVID-19 and mental health. Publications in prestigious journals spur scholarly interest, and these trends point to an increase in the significance of mental well-being and COVID-19 in human resource management research in the coming years [16][17].

However, if we focus on Table 3 and compare HR-classified (HR: Human Resource Management) journals to non-HR-classified journals (as categorized by the "2023 Academic Journal Guide"), we find that journals of HRM have been comparatively more proficient in publishing mental health, COVID-19 and employee's publications up to this point. The "International Journal of Hospitality Management" has published seven articles which is an A* journal in Human resource management domain in the most recent of our sub periods, i.e, in the first quarter of 2023.

TABLE 2: TOP JOURNALS (AUTHORS' OWN)

TC	Journals	TP	HRM	ABDC	2020	2021	2022	2023
533	"American Psychologist"	2		A*	1	1		
509	"Journal of Applied Psychology"	13		A*	2	10	1	
320	"International Journal of Hospitality Management"	7	X	A*		5	2	
188	"Safety Science"	3		A	1	2		
104	"Journal of Hospitality Marketing and Management"	2	X	A		2		
89	"International Journal of Contemporary Hospitality Management"	4		A		2	2	

62	"Technological Forecasting and Social Change"	4		A		1	3	
59	"Public Relations Review"	2	X	A		1	1	
26	"Journal of Hospitality and Tourism Insights"	2	X	C			1	1
25	"Computers in Human Behavior"	2		A			2	
23	"Journal of Hospitality and Tourism Management"	4	X	A		1	3	
17	"International Journal of Organizational Analysis"	4	X	B		2	2	
17	"Service Industries Journal"	2	X	B			2	
14	"Journal of Business and Psychology"	5	X	A			4	1
14	"Stress and Health"	2		A			2	

Note: ABDC refers to the 2023 Journal Rating List from the Australian Business Deans Council. Total Citations is TC. Total titles are TP. If a publication is listed in the 2023 Academic Journal Guide as covering "Human Resource Management," then HRM = X. The journals are listed in this table by the overall number of citations.

4. Top Articles for 'COVID-19' and 'mental health in employees'

The most frequently cited 'COVID-19' and 'mental health' in employees research articles are listed in Table 4. The most highly cited paper is "Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes" with 177 citations, followed by "The scientific literature on Corona viruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review" with 150 citations. CovH anxiety leads to emotional repression, which affects psychological needs and results in negative outcomes for work, home, and health. Frequent hand washing can mitigate the CovH anxiety effects because of increased repression of feelings and unmet psychological requirements [1]. "The scientific literature on Corona viruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review" focused on other aspects of safety concerns in health sector. Aside from medical and clinical concerns, the most attention has been paid to mental/psychological well-being and home safety, patient transport safety, occupational safety for healthcare workers, bio safety of laboratories and facilities, social safety, and food safety [18]. Other potential safety issues, such as supply-chain safety, economic safety, and cyber safety may require more attention in the future. The authors can go for a comprehensive, interdisciplinary approach to lessen the crisis's many safety effects, whose ramifications go beyond biomedical risks and prepare for future pandemics.

TABLE 3: TOP ARTICLES (AUTHORS' OWN)

Authors	Articles	Year	Cited By
"Trougakos J.P., Chawla N., McCarthy J.M."	"Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes"	2020	177
"Haghani M., Bliemer M.C.J., Goerlandt F., Li J."	"The scientific literature on Corona viruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review"	2020	150
"Probst T.M., Lee H.J., Bazzoli A."	"Economic stressors and the enactment of CDC-recommended COVID-19 prevention behaviors: The impact of state-level context"	2020	51
"Kniffin K.M., Narayanan J., Anseel F., Antonakis J., Ashford S.P., Bakker A.B., Bamberger P., Bapuji H., Bhave D.P., Choi V.K., Creary S.J., Demerouti E., Flynn F.J., Gelfand M.J., Greer L.L.,	"COVID-19 and the workplace: Implications, issues, and insights for future research and action"	2021	496

Johns G., Kesebir S., Klein P.G., Lee S.Y., Ozcelik H., Petriglieri J.L., Rothbard N.P., Rudolph C.W., Shaw J.D., Sirola N., Wanberg C.R., Whillans A., Wilmot M.P., Vugt M.V."			
"Wen J., Kozak M., Yang S., Liu F."	"COVID-19: potential effects on Chinese citizen's lifestyle and travel"	2021	366
"Chernozhukov V., Kasahara H., Schrimpf P."	"Causal impact of masks, policies, behavior on early COVID-19 pandemic in the U.S."	2021	144
"Aguiar-Quintana T., Nguyen H., Araujo-Cabrera Y., Sanabria-DÃfÃaz J.M."	"Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience"	2021	99
"Wong A.K.F., Kim S.S., Kim J., Han H."	"How the COVID-19 pandemic affected hotel Employee stress: Employee perceptions of occupational stressors and their consequences"	2021	88
"Yu J., Park J., Hyun S.S."	"Impacts of the COVID-19 pandemic on employees' work stress, well-being, mental health, organizational citizenship behavior, and employee-customer identification"	2021	82
"Agarwal P."	"Shattered but smiling: Human resource management and the well-being of hotel employees during COVID-19"	2021	56
"Tu Y., Li D., Wang H.-J."	"COVID-19-induced layoff, survivors' COVID-19-related stress and performance in hospitality industry: The moderating role of social support"	2021	52
"Jamal M.T., Anwar I., Khan N.A., Saleem I."	"Work during COVID-19: assessing the influence of job demands and resources on practical and psychological outcomes for employees"	2021	52
"Lee H."	"Changes in workplace practices during the COVID-19 pandemic: the roles of emotion, psychological safety and organisation support"	2021	51
"Li J.-Y., Sun R., Tao W., Lee Y."	"Employee coping with organizational change in the face of a pandemic: The role of transparent internal communication"	2021	49
"Lin W., Shao Y., Li G., Guo Y., Zhan X."	"The psychological implications of COVID-19 on employee job insecurity and its consequences: The mitigating role of organization adaptive practices"	2021	85

B. THEMATIC ANALYSIS: THEMATIC CLUSTERS OF 'COVID-19 AND MENTAL HEALTH OF EMPLOYEES'

The semantic connections between co-cited references found through co-citation analysis represent the knowledge foundation of a field (Figure 4). Remote work and Resilience (red nodes), Workplace stress and emotional exhaustion (green nodes), Challenges of Job satisfaction and employee well-being (dark blue/navy blue nodes), Positive Workplace environment (yellow nodes), Psychological health and COVID-19 pandemic (purple nodes), Financial stress and well-being (sky blue nodes).

TABLE 4: THEMATIC CLUSTER “COVID-19 AND MENTAL HEALTH” (AUTHORS’ OWN)

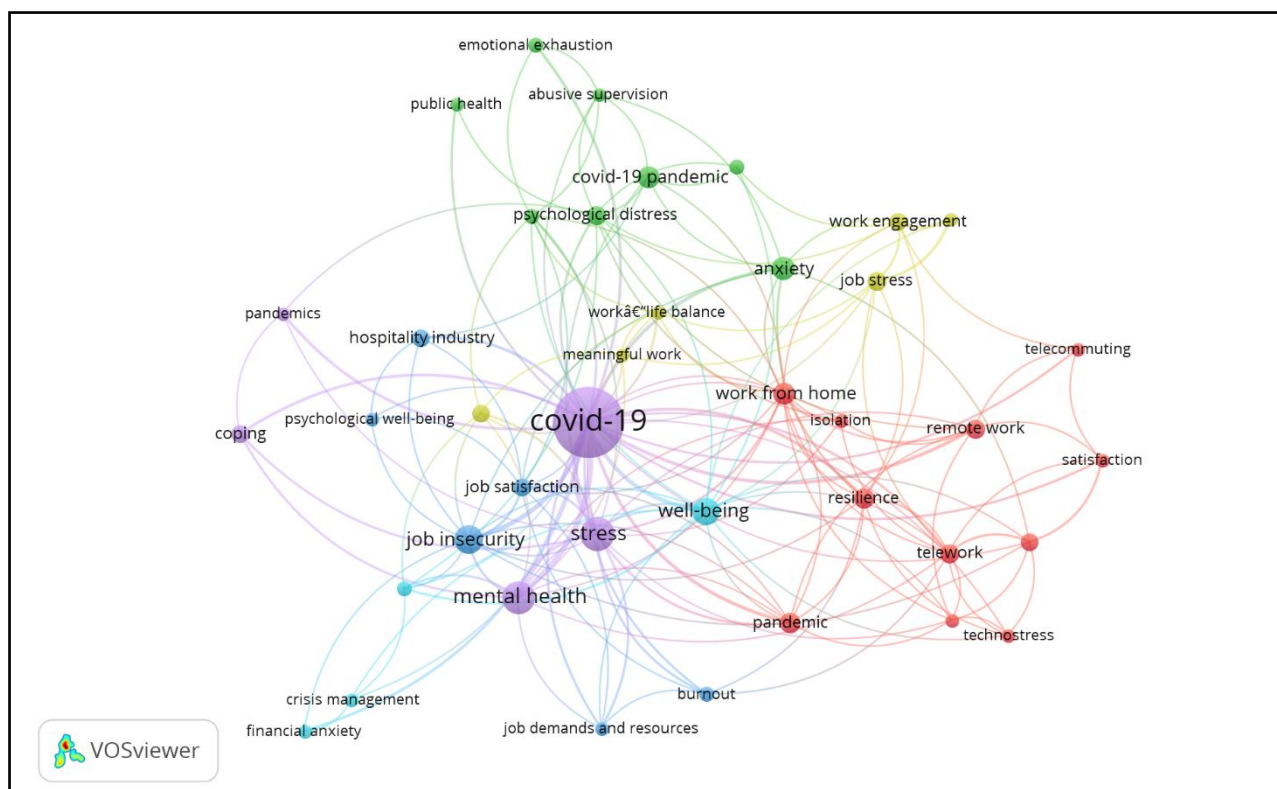
Theme	Authors	Title	TC
Remote work and Resilience	“Aguiar-Quintana T., Nguyen H., Araujo-Cabrera Y., Sanabria-DÃaz J.M.”	“Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience”	99
	“Shao Y., Fang Y., Wang M., Chang C.-H.D., Wang L.”	“Making daily decisions to work from home or to work in the office: The impacts of daily work- and COVID-related stressors on next-day work location”	37
Workplace stress and emotional exhaustion	“Wong A.K.F., Kim S.S., Kim J., Han H.”	“How the COVID-19 pandemic affected hotel Employee stress: Employee perceptions of occupational stressors and their consequences”	88
	“Charoensukmongkol P., Phungsoonthorn T.”	“The Interaction Effect of Crisis Communication and Social Support on The Emotional Exhaustion of University Employees during the COVID-19 Crisis”	35
	“Vo-Thanh T., Vu T.-V., Nguyen N.P., Nguyen D.V., Zaman M., Chi H.”	“COVID-19, frontline hotel employees' perceived job insecurity and emotional exhaustion: Does trade union support matter?”	26
Challenges of Job satisfaction and employee wellbeing	“Agarwal P.”	“Shattered but smiling: Human resource management and the wellbeing of hotel employees during COVID-19”	56
	“Jamal M.T., Anwar I., Khan N.A., Saleem I.”	“Work during COVID-19: assessing the influence of job demands and resources on practical and psychological outcomes for employees”	52
Positive Workplace environment	“Tu Y., Li D., Wang H.-J.”	“COVID-19-induced layoff, survivors' COVID-19-related stress and performance in hospitality industry: The moderating role of social support”	52
Psychological health and COVID-19 pandemic	“Kniffin K.M., Narayanan J., Anseel F., Antonakis J., Ashford S.P., Bakker A.B., <i>et.al.</i> ”	“COVID-19 and the workplace: Implications, issues, and insights for future research and action”	496
	“Wen J., Kozak M., Yang S., Liu F.”	“COVID-19: potential effects on Chinese citizens' lifestyle and travel”	366

	"Yu J., Park J., Hyun S.S."	"Impacts of the COVID-19 pandemic on employees' work stress, well-being, mental health, organizational citizenship behavior, and employee-customer identification"	82
Crisis, financial stress and wellbeing	"Karatepe O.M., Saydam M.B., Okumus F."	"COVID-19, mental health problems, and their detrimental effects on hotel employees' propensity to be late for work, absenteeism, and life satisfaction"	38
	"Vieira K.M., Potrich A.C.G., Bressan A.A., Klein L.L."	"Loss of financial well-being in the COVID-19 pandemic: Does job stability make a difference?"	7
	"Lai Y.-L., Cai W."	"Enhancing post COVID-19 work resilience in hospitality: A micro-level crisis management framework"	6

"TC: Total Citations"

A key component of bibliographic coupling is citing articles. This process takes into account cited articles and, as a result, represents groundbreaking knowledge by taking into account the most significant publications pertaining to COVID-19 and mental health in the field of human resource management [14][15]. The six subject clusters that inform the conceptual framework of COVID-19 and employee mental health research are summarized in Table 6 based on bibliographic coupling.

FIGURE4: VISUAL REPRESENTATION OF THEMES (AUTHOR'S OWN)



According to ABDC listed Scopus index, Cluster 1, denoted by red nodes, contains work on remote work and resilience. 79 papers on remote work and resilience are found in Cluster 1 of Scopus, with 585 citations. With 211 citations, "remote work" is the most used keyword in this cluster. The two authors with the most citations in this cluster are Aguiar-Quintana *et.al.* (2021) and Shao *et.al.* (2021) with 99 and 37 respectively [19] [20] "Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience" explained that employees' psychological health suffers when they are apprehensive about their jobs, but their task performance is unaffected [21]. The employee resiliency serves a vital purpose in reducing the detrimental effects of employment uncertainties on depression. Stresses related to job-family boundaries and job coordination are associated with working in the office, while workload stressors are associated with working from home [22]. Stress factors related to COVID-19 infection also lowered the impact of workload and technological pressures on where people choose to work.

The second cluster theme is "Workplace stress and emotional exhaustion" (green nodes) in which the top authors are Wong *et.al.* (2021), Charoensuk Mongkol *et.al.* (2022) and Vo-Thanh *et.al.* (2022) [22][23][24]. It consists of 49 papers with 1183 citations. Traditional job stresses, stressful work environments, and stressors from unethical labour practices are three different forms of stressors discovered during the pandemic [25]. The study titled "The Interaction Effect of Crisis Communication and Social Support on The Emotional Exhaustion of University Employees during the COVID-19 Crisis", examines that in private international organizations, communication during the COVID-19 crisis had an inverse effect on employees' perceived uncertainties and emotional tiredness. Support from coworkers lessens emotional weariness [24]. It is also evident that, support for labour unions lowers the job insecurity, whereas perceived COVID-19 health risks raise both perceived job insecurity and emotional exhaustion [26].

22 articles in Cluster 3 have received 388 citations. Challenges of Job satisfaction and employee wellbeing are there with 56 and 52 citations respectively [27][28]. Through the 3rd cluster (dark blue/navy nodes), it is proved that employee-centred HRM practices have a significant impact on employee welfare [27]. He recommends policymakers for managing people successfully during trying times. Employees experience exhaustion and stress because of a heavy workload, task interdependence, professional isolation, and home responsibilities, whereas autonomy, schedule flexibility, and enough technological tools enhance work-life balance, efficiency, effectiveness, and sense of accomplishment [28]. It is also investigated that how the COVID-19 outbreak, and subsequent layoffs affect employee performance in the hospitality sector [29]. The layoffs raise COVID-19-related stress in workers, which lowers performance in roles and outside of roles. These effects are reduced by perceived family assistance but amplified by the organisational support. This relation is depicted in cluster 4 in yellow nodes with Tu *et.al.* (2021) having highest citation (52 [27]). The 4th cluster is themed as "Positive workplace environment". 16 articles are found justifying this theme which have 217 citations in total.

Psychological health and COVID-19 pandemic theme are depicted by 5th cluster (purple nodes) with 'Kniffin *et.al.* (2021)' and 'Wen *et.al.* (2021)' as the topmost contributors (496 and 366 citations respectively) [30][31]. Emphasis is made on the modifications in the workplace procedures and their impacts on employees, including social isolation, stress, and unemployment, taking moderators such demographic traits, personality traits, and organizational norms [30]. It is suggested that through service design and distribution channels, the tourism sector can adapt to the changes in the pandemic [31]. This cluster covers the maximum number of articles and citations, i.e., 217 and 4605 respectively.

The last theme, "Crisis, financial stress and wellbeing" which is depicted by the 6th cluster (sky blue nodes), which is covered by 30 articles and 23 citations in total. The top authors are Karatepe *et.al.* (2021) and Lai & Cai (2023) [26][32] How the pandemic affected the psychological wellness, productivity, and quality of life of hotel staff is discussed [26]. It is suggested that a human-centred strategy for handling crises in the hospitality industry, emphasising building the resilience and intrinsic motivation of the service employees [32].

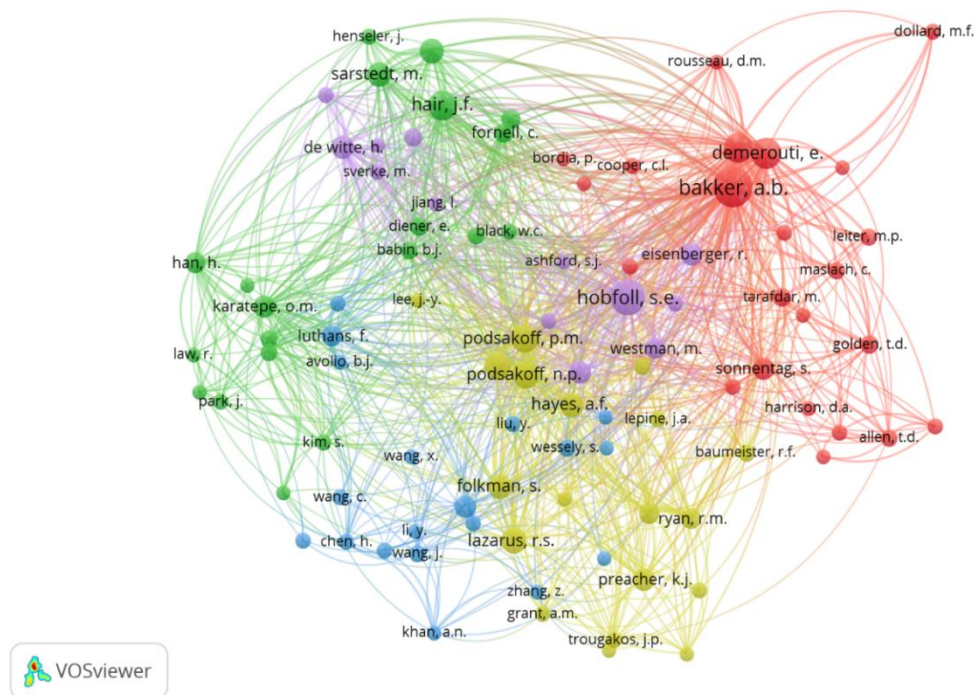
C. CO-CITATIONS OF JOURNALS, AUTHORS, AND REFERENCES ANALYSIS VISUALISATION

The final map displays the full-count approach, which counts each occurrence of a phrase in a document and includes journals, authors, and references analysis. The final map shows bubble fields of various sizes and colors connected at

2. Co-citation of Authors

In this section, we analyse the authors who have been cited and focus on the co-citation of authors, observing the quantity of citations and their collaboration. Using VOS Viewer, we can identify highly cited authors in the field of mental health of employees and COVID-19 research. Figure 6 is a visual representation of a co-citation network of authors, where the threshold value is set at 20, meaning that only authors cited at least 20 times will appear on the map. A total of 94 authors meets this criterion. The nodes represent the quantity of articles published by each author, and the connections signify cooperation between authors. The figure indicates that authors' research directions in COVID-19 and mental health of employees are closely connected with high level of connection and cooperation between them. Bakker *et al.* (2021) (157) has the highest number of cited publications [30]. Bakker, A.B. *et al.* is in the biggest cluster, i.e., red cluster containing 22 other widely cited authors [30]. Green cluster is second largest cluster with Hair, J.F. having 47 citations [34]. Other smaller clusters are represented by yellow and blue color. Dollard *et al.* (2021) is considerably distant from the rest, indicating a significant deviation in connection [35].

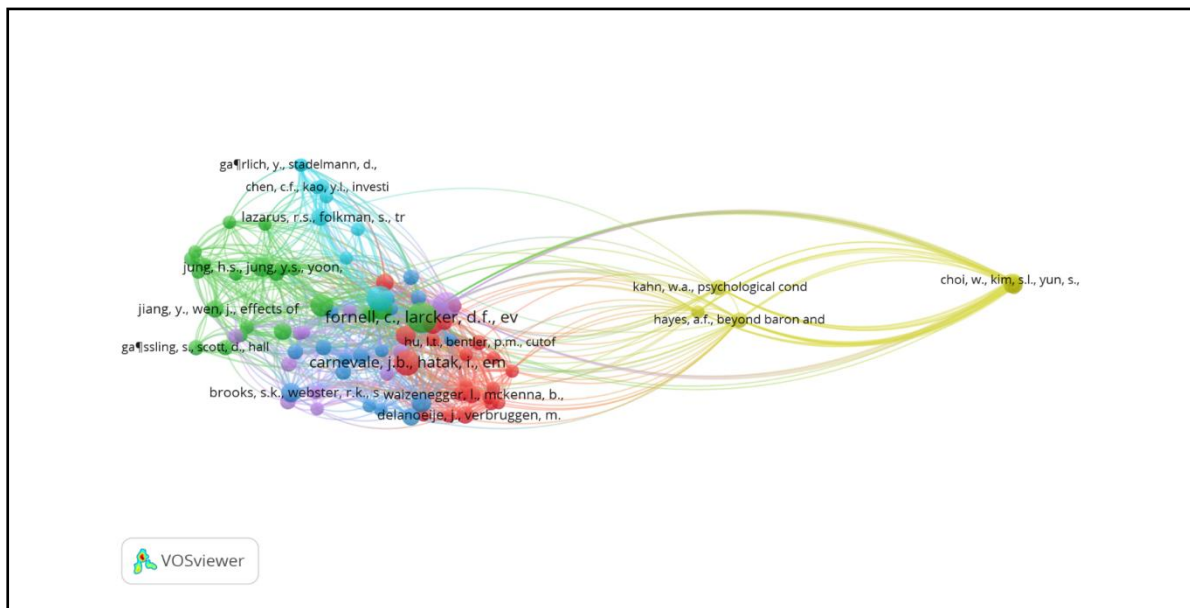
FIGURE 6: VISUAL REPRESENTATION OF CO-CITED AUTHORS (AUTHOR'S OWN)



3. Co-citation of references

This is another study on citations which examines a network of citations in articles on COVID-19 and mental health of employees that has human resource management and psychological implications. Cluster 1 (red nodes) and Cluster 2 (green nodes) are of same number of items (21). Yellow cluster (Cluster 4), which has 11 items, is distinctively placed which shows lowest connection with other clusters. Purple cluster has the same number of items as of the yellow cluster.

FIG. 7 VISUAL REPRESENTATION OF CO-CITED ARTICLES (AUTHOR'S OWN)



Other clusters are represented through sky blue (9 items) and navy blue (17 items). 90 of the papers that were examined met the requirement of having at least 3 citations each (Figure 7). Each node represented a single link, and the size of a node signified how many references a given document had. The strength of the quotations between the two mentioned articles was measured by the number of identical citations. The co-citation refers to how often two articles from earlier literature, as well as later literature, were referenced/cited.

SCOPE FOR MANAGERS

Promoting employee well-being is a major responsibility of managers, especially in times of emergency like the COVID-19 pandemic. Prioritizing mental health programs can help with problems like stress, anxiety, and emotional weariness. Policies supporting flexible remote work that promote work-life balance and lessen problems like isolation and techno-stress should also be established. Providing employees with focused training that builds resilience can aid them in navigating a variety of challenges, such as job instability. To prevent emotional burnout, managers should also include well-being into the culture of the company, maintain open lines of communication, and offer social and emotional support networks. To preserve trust and productivity, it's also critical to emphasize job security and justice. Managers must also exercise caution when it comes to how staff members utilize technology, providing assistance and training to minimize techno-stress while maintaining productivity. Managers can build a more resilient, healthy, and productive workforce during difficult times by concentrating on these areas.

LIMITATIONS OF THE STUDY

This bibliometric analysis has certain limitations. The data analyzed in the study were obtained only from Scopus, and its alternatives such as WOS, PubMed, or Google Scholar were not included. As a result, relevant articles that are readily accessible through other search engines have been overlooked. Furthermore, the study only includes publications in English language journals. The paper explores development in COVID-19, and the normal situation analysis is missing. The focus is on only employees. Lastly, the study only emphasizes on psychological wellness during the pandemic, and other potentially health aspects were not analyzed.

CONCLUSION

This article used bibliometric and information extraction methods to report on the state and impact of mental wellness research amidst the pandemic. The data was collected from Scopus database which were ABDC listed. These papers were used for trend and cluster analysis. The network analysis was performed on the compiled entities and relations. The results showed that mental health research during pandemic is increasing, with most studies focused on COVID-19, stress and resilience. The research was organized into six clusters, including remote work, psychological health, resilience, and positive work environment. The most commonly occurring entity was COVID-19, with a focus on mental health, stress, and anxiety. The relation extraction revealed that COVID-19 was most often associated with stress, mental health, techno stress, psychological well being, coping, job insecurity and resilience. United States and Australia are the most flourishing countries in terms of research in this area. The study provides useful information for researchers to understand the structure of the field and the relevant cross-disciplines and trends. The extracted entities and relations could also benefit physicians, patients, and their families in understanding and treating mental disorders. Furthermore, human resource managers and healthcare providers could use the data to design better policies and strategies to ensure sound mental health during such circumstances. Future studies could explore the effect of the global endemic on cognitive health and e-mental health.

References

1. Trougakos JP, Chawla N, McCarthy JM. Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes. *Journal of Applied Psychology*. 2020 Nov;105(11):1234.
2. Lin W, Shao Y, Li G, Guo Y, Zhan X. The psychological implications of COVID-19 on employee job insecurity and its consequences: The mitigating role of organization adaptive practices. *Journal of Applied Psychology*. 2021 Mar;106(3):317.
3. Pratt S, Tolkach D. Affective and coping responses to quarantine hotel stays. *Stress and Health*. 2022 Oct;38(4):692-707.
4. Ivanova O, Gnatyshina E, Uvarina N, Korneeva N, Savchenkov A. RETRACTED: The wheel of science: A model for managing scientific activities in higher education as a factor in developing flexible skills of the youth in the region.
5. Probst TM, Lee HJ, Bazzoli A. Economic stressors and the enactment of CDC-recommended COVID-19 prevention behaviors: The impact of state-level context. *Journal of Applied Psychology*. 2020 Dec;105(12):1397.
6. Bhowmik P, Padhi M, Pattnaik S. Does financial anxiety affect job insecurity? Exploring the relationship and moderation by gender, tenure and income in the Indian context during COVID-19. *Benchmarking: An International Journal*. 2022 Jan 24;29(7):2291-312.
7. Huffman AH, Albritton MD, Matthews RA, Muse LA, Howes SS. Managing furloughs: How furlough policy and perceptions of fairness impact turnover intentions over time. *The International Journal of Human Resource Management*. 2022 Aug 6;33(14):2801-28.
8. Roemer A, Sutton A, Medvedev ON. The role of dispositional mindfulness in employee readiness for change during the COVID-19 pandemic. *Journal of Organizational Change Management*. 2021 Sep 20;34(5):917-28.
9. Prodanova J, Kocarev L. Employees' dedication to working from home in times of COVID-19 crisis. *Management Decision*. 2022 Feb 22;60(3):509-30.
10. Singh P, Bala H, Dey BL, Filieri R. Enforced remote working: The impact of digital platform-induced stress and remote working experience on technology exhaustion and subjective wellbeing. *Journal of Business Research*. 2022 Nov 1;151:269-86.
11. Van Zoonen W, Sivunen AE. The impact of remote work and mediated communication frequency on isolation and psychological distress. *European Journal of Work and Organizational Psychology*. 2022 Jul 4;31(4):610-21.
12. Kumar, A., Sandhu, S. K., Madaan, G., Gupta, N., & Ahmed, S. (2023). Review of telemedicine and e-health: A bibliometric analysis. *Asia Pacific Journal of Health Management*, 18(2), 241-250.
13. Kumar, A., Pujari, P., Bhalerao, K., & Sagi, S. (2022). Lessons learned: Academia's tryst with the pandemic-mental and physical health impacts. *Asia Pacific Journal of Health Management*, 17(2), 1-7.]

14. Van Eck NJ, Waltman L. Bibliometric mapping of the computational intelligence field. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*. 2007 Oct;15(05):625-45.
15. Eck NJ, Waltman L. How to normalize cooccurrence data? An analysis of some well-known similarity measures. *Journal of the American society for information science and technology*. 2009 Aug;60(8):1635-51.
16. Baker, H. K., Kumar, S., & Pattnaik, D. (2021). Research constituents, intellectual structure, and collaboration pattern in the *Journal of Forecasting: A bibliometric analysis*. *Journal of Forecasting*, 40(4), 577-602.
17. Pattnaik, D., Kumar, S., & Vashishtha, A. (2020). Research on trade credit—a systematic review and bibliometric analysis. *Qualitative Research in Financial Markets*, 12(4), 367-390.
18. Haghani M, Bliemer MC, Goerlandt F, Li J. The scientific literature on Coronaviruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review. *Safety science*. 2020 Sep 1;129:104806.
19. Aguiar-Quintana T, Nguyen TH, Araujo-Cabrera Y, Sanabria-Díaz JM. Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience. *International Journal of Hospitality Management*. 2021 Apr 1;94:102868.
20. Shao Y, Fang Y, Wang M, Chang CH, Wang L. Making daily decisions to work from home or to work in the office: The impacts of daily work-and COVID-related stressors on next-day work location. *Journal of Applied Psychology*. 2021 Jun;106(6):825
21. Agarwal P. Shattered but smiling: Human resource management and the wellbeing of hotel employees during COVID-19. *International Journal of Hospitality Management*. 2021 Feb 1;93:102765.
22. Charoensukmongkol P, Phungsoonthorn T. The interaction effect of crisis communication and social support on the emotional exhaustion of university employees during the COVID-19 crisis. *International Journal of Business Communication*. 2022 Apr;59(2):269-86.
23. Wong AK, Kim SS, Kim J, Han H. How the COVID-19 pandemic affected hotel Employee stress: Employee perceptions of occupational stressors and their consequences. *International Journal of Hospitality Management*. 2021 Feb 1;93:102798.
24. Vo-Thanh T, Vu TV, Nguyen NP, Nguyen DV, Zaman M, Chi H. COVID-19, frontline hotel employees' perceived job insecurity and emotional exhaustion: Does trade union support matter?. *Journal of Sustainable Tourism*. 2022 Jun 3;30(6):1159-76.
25. Li, J. Y., Sun, R., Tao, W., & Lee, Y. (2021). Employee coping with organizational change in the face of a pandemic: The role of transparent internal communication. *Public relations review*, 47(1), 101984.
26. Karatepe OM, Saydam MB, Okumus F. COVID-19, mental health problems, and their detrimental effects on hotel employees' propensity to be late for work, absenteeism, and life satisfaction. *Current Issues in Tourism*. 2021 Apr 3;24(7):934-51.
27. Tu Y, Li D, Wang HJ. COVID-19-induced layoff, survivors' COVID-19-related stress and performance in hospitality industry: The moderating role of social support. *International journal of hospitality management*. 2021 May 1;95:102912.
28. Lee, H. (2021). Changes in workplace practices during the COVID-19 pandemic: the roles of emotion, psychological safety and organisation support. *Journal of Organizational Effectiveness: People and Performance*, 8(1), 97-128.
29. Jamal MT, Anwar I, Khan NA, Saleem I. Work during COVID-19: assessing the influence of job demands and resources on practical and psychological outcomes for employees. *Asia-Pacific Journal of Business Administration*. 2021 Jul 15;13(3):293-319.
30. Kniffin KM, Narayanan J, Anseel F, Antonakis J, Ashford SP, Bakker AB, Bamberger P, Bapuji H, Bhave DP, Choi VK, Creary SJ. COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American psychologist*. 2021 Jan;76(1):63.
31. Wen J, Kozak M, Yang S, Liu F. COVID-19: potential effects on Chinese citizens' lifestyle and travel. *Tourism Review*. 2021 Feb 26;76(1):74-87.
32. Lai YL, Cai W. Enhancing post-COVID-19 work resilience in hospitality: A micro-level crisis management framework. *Tourism and Hospitality Research*. 2023 Jan;23(1):88-100.
33. McCain KW. Mapping authors in intellectual space: A technical overview. *Journal of the American Society for Information Science (1986-1998)*. 1990 Sep 1;41(6):433.

34. Emerson, D. J., Hair Jr, J. F., & Smith, K. J. (2023). Psychological distress, burnout, and business student turnover: The role of resilience as a coping mechanism. *Research in higher education*, 64(2), 228-259.
35. Dollard MF, Bailey T. Building psychosocial safety climate in turbulent times: The case of COVID-19. *Journal of Applied Psychology*. 2021 Jul;106(7):951.