

COVID-19 and Migrant Workers in the Construction Sector: A Bibliometric Analysis

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Abstract

Purpose- The impact of the COVID-19 pandemic on construction and migrant workers was examined using bibliometric analysis, providing insights into the research trends and key themes addressed in studies focused on these groups.

Design/methodology/approach- Documents were sourced from the Web of Science (WoS) database, and text-mining was used to analyze bibliometric connections related to construction workers, migrant workers, and the COVID-19 pandemic.

Findings- A bibliometric analysis quantitatively and qualitatively examined networks among construction-based and migrant workers during the pandemic, identifying key articles, journals, authors, and regions. Keyword trends and clustering revealed emerging concepts in migrant worker research related to pandemic impacts.

Research limitations/implications- The conclusions of this research can help professionals to develop practical strategies to address the COVID-19 impacts and other problems related to migrant workers.

Originality/value- This paper provides a preliminary bibliometric analysis of research on construction workers, migrant workers, and COVID-19, examining studies published between the year 2020 and 2024 to highlight major research trends and developments in the field.

Keywords: COVID-19, Construction workers, Migrant workers, Bibliometric analysis

1. Introduction

The construction sector was among the hardest hit during the COVID-19 pandemic, with substantial disruptions to projects, income instability, and heightened health risks for workers, especially migrant laborers. Lockdowns and restricted mobility led to immediate project suspensions and delays, severely affecting the income and job security of construction workers worldwide (Galea et al., 2020). Migrant workers in particular faced additional vulnerabilities, as many were stranded without social protections or access to healthcare, compounding their financial insecurity and welfare challenges (Moyce & Schenker, 2020). Studies indicate that the absence of robust health and safety policies in the construction sector left workers at increased risk of COVID-19 transmission, due to crowded working conditions and limited access to personal protective equipment (PPE) (Jha, 2021; Bou Hatoum, 2021). The pandemic also highlighted the sector's reliance on informal labor, leading scholars to call for stronger social safety nets and improved policy frameworks to protect workers during crises (Chowdhury et al., 2020; Kumar & Chandrasekar, 2021).

Construction workers, including migrant workers, play a critical role in driving economic growth and development. They form the backbone of infrastructure projects, contributing to the creation of roads, bridges, buildings, and other essential facilities that support modern economies (Jha & Kumar, 2025; Kamble & Sabanna, 2023). Migrant workers are particularly significant in the construction sector as they fill labour shortages in rapidly growing urban areas. Their mobility allows economies to adapt to fluctuating demands for skilled and unskilled labour, thereby maintaining productivity and cost efficiency in the industry (Gnimassoun, 2025). In countries like India, migrant construction workers account for a substantial portion of the workforce, contributing to GDP growth and rural-urban linkages (Deshingkar & Akter, 2009).

Construction and migrant workers are essential in reducing poverty and driving socio-economic development. Their remittances play a key role in supporting rural households, improving living conditions, and boosting local economies, creating widespread positive impacts (Srivastava, 2020). However, despite their vital contributions, these workers often face precarious working environments, low wages, and inadequate social protection. Addressing these issues is essential to ensuring their well-being and maximizing their potential as drivers of economic and social transformation.

During the COVID-19 pandemic, construction and migrant workers encountered significant challenges, exacerbating their already precarious living and working conditions. The sudden halts in construction activities due to lockdowns left many without income, pushing daily wage earners into financial insecurity (Srivastava, 2020). The psychological impact was also severe, with workers experiencing heightened stress and anxiety due to uncertainty about their livelihoods and separation from their families (Choudhari, 2020; Gupta et al., 2021). Furthermore, government relief measures often failed to reach these workers effectively due to poor implementation and a lack of targeted support, leaving them without basic necessities such as food and shelter (Adhikari et al., 2020). Additionally, scholars have pointed out critical policy gaps and the need for targeted measures to address migrant workers' vulnerabilities during such crises (Bhagat et al., 2020). To reduce the negative impacts on migrant workers and enhance their resilience during this or any future pandemic, it is vital to develop a clear understanding of how COVID-19 has affected their lives. A holistic approach addressing their economic stability, healthcare access, and social inclusion is crucial for safeguarding their well-being and ensuring their contributions remain effective during emergencies (Bhagat et al., 2020).

This study seeks to address the gap in quantitative overviews of the impact of COVID-19 on construction-based migrant workers by utilizing bibliometric analysis on a dataset of related research published between 2020 and 2024. Bibliometric techniques enable a systematic and quantitative evaluation of research trends and developments within a specific field (van Raan, 2005). The study focuses on assessing the consequences of COVID-19 on construction migrant workers to achieve two primary objectives: (1) to use bibliometric analysis to uncover developmental trends in pandemic-related construction migrant worker research, and (2) to identify and propose new avenues for research by mapping the existing body of literature. This analysis not only contributes to a deeper understanding of the evolving discourse on construction migrant workers during crises but also equips academics with insights to bridge gaps in the current literature. Moreover, it emphasizes the importance of exploring innovative approaches to understanding how the COVID-19 pandemic and future

crises may impact the socio-economic conditions, health, and livelihoods of construction migrant workers. The findings aim to inform policymakers and practitioners in designing targeted strategies to enhance resilience and support for this vulnerable workforce.

2. Research background and gaps in literature

Construction and migrant workers are indispensable to the modern economy, driving infrastructure development and economic growth. Their contributions extend to poverty reduction through remittances, which enhance rural living standards and foster economic resilience (Srivastava, 2020). However, the COVID-19 pandemic highlighted their vulnerabilities, such as job losses, food insecurity, and poor access to healthcare, often exacerbated by their precarious living conditions (International Labour Organization, 2021). Studies reveal that many workers lacked adequate social protection, increasing their exposure to economic and health risks (International Labour Organization, 2021). Efforts to address these challenges, including targeted support and policy interventions, remain critical for improving their livelihoods and ensuring equitable recovery (Srivastava, 2020).

The COVID-19 pandemic disrupted construction and migrant workers worldwide, with impacts varying by region. In India, lockdowns left millions jobless, forcing unsafe mass migrations back to rural areas (Rajan et al., 2020). In Gulf countries, migrant workers faced overcrowded accommodations, leading to high infection rates and restricted mobility due to border closures ((Nahari et al., 2024). In the United States, undocumented construction workers struggled with healthcare access and economic relief programs (Torres et al., 2013). These global challenges highlighted the necessity of inclusive policies addressing health, housing, and financial security for migrant laborers.

Professional organizations have assessed the long-term effects of COVID-19 on construction and migrant workers, highlighting both risks and opportunities. The pandemic has underscored the importance of robust labor protections and expanded social safety nets to safeguard vulnerable workers (Devereux & Cuesta, 2021). Studies suggest that accelerated digitalization in the labor market could open pathways for upskilling programs aimed at construction workers (Li, 2024). Additionally, efforts to formalize informal employment may improve economic security and resilience for these workers (Chen, Jhabvala, & Lund, 2002).

A bibliometric analysis specifically examining the combined effects of the COVID-19 pandemic on construction workers, migrant workers, and their broader implications has not yet been thoroughly conducted. While several studies have explored related topics, such as the economic, health, and social challenges faced by these workers, there is no comprehensive mapping of the scholarly research in this area. For example, Khanna (2020) have showed the impact of the pandemic on labor conditions and migration trends, focusing on job losses, health risks, and disruptions in worker mobility. Similarly, the ILO and OECD have highlighted vulnerabilities in migrant labor and called for reforms in policies regarding migrant rights and worker protections (Diller, 2022). These gaps underscore the need for further bibliometric studies to track and evaluate emerging trends and identify critical research areas for the future.

3. Research methodology

The methodological approach of this research study is presented in **Figure 1**.

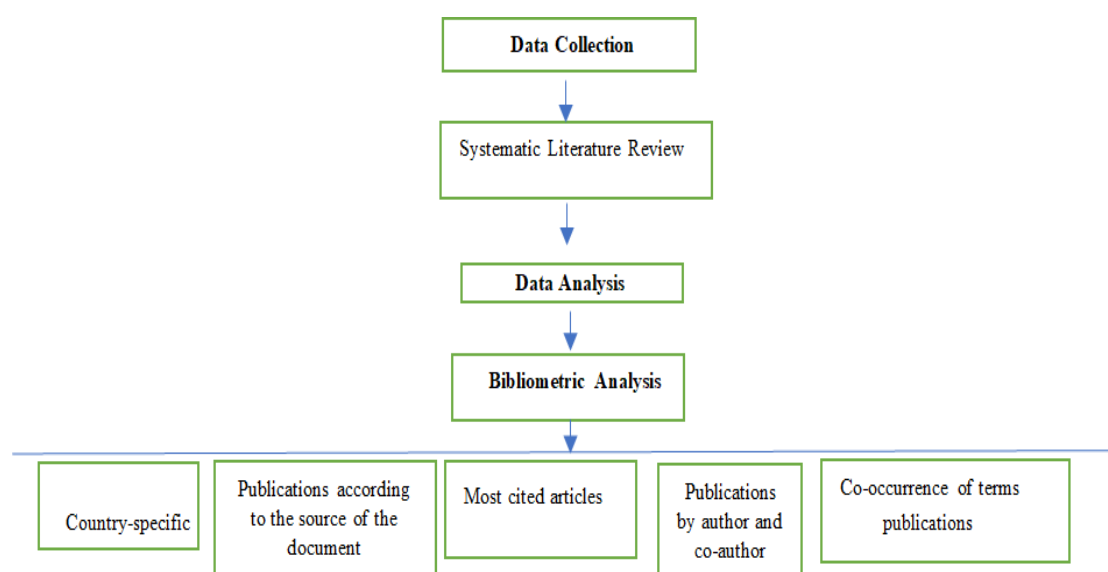


Figure 1:
Overall research methodology

3.1 Data collection

A systematic literature review (SLR) was conducted using the Web of Science (WoS) database, recognized for its extensive journal coverage and sophisticated citation-matching capabilities (Pranckutė, 2021). Compared to Scopus, WoS is often favoured for its robust bibliometric tools and reliability in providing high-quality citation data (Pranckutė, 2021). It excels in analyzing research trends, measuring academic impact, and normalizing bibliometric indicators effectively, making it an ideal resource for comprehensive literature analyses (Kumar, 2025).

A systematic literature review (SLR) is a structured research method used to identify, critically appraise, and synthesize relevant studies, ensuring a comprehensive and unbiased understanding of the topic (Pati & Lorusso, 2018). An SLR was conducted to explore the impact of COVID-19 on migrant workers (MW), leveraging this method to gather, evaluate, and analyze data systematically, ensuring the inclusion of diverse and high-quality sources (Hintermeier et al., 2024). This study conducted a systematic literature review (SLR) to investigate COVID-19's impact on construction workers and migrant workers (**Figure 2**).

The search command used to search the WoS database are as follows: (TI)= (“migrant workers” OR “construction workers”) AND “COVID-19”. The timeframes considered were January 2020 and 2024. The search yielded 114 publications on title search. The document type was articles and it included 94 in number. Based on specific research areas related to this paper, 67 articles were to be found. 57 articles were related to the (SSCI) and (A&HCI) from the web of science database. The articles have been downloaded as comma-separated values (CSV) files. All the obtained documents were reviewed as full text and 37 documents were removed. Final selection was made by reading the objective, abstracts and findings of all the papers to confirm that they were relevant. Thus, by applying the inclusion and exclusion parameters, a total of 27 articles was chosen for assessment. This data was also used to create co-occurrence networks and direct citation networks for bibliometric analysis.

3.2 Analysis of data

3.2.1 Bibliometric analysis

It is a quantitative technique that uses mathematical tools for evaluating research publications (Todeschini & Baccini, 2016), was applied to examine the impact of the COVID-19 pandemic on construction and migrant workers (MW). The VOSviewer text-mining tool was utilized to map and analyse bibliometric relationships within the dataset. The analysis focused on six key dimensions: (1) publication distribution by country, (2) publication distribution across document sources, (3) identification of the most cited studies, (4) author contributions and co-authorship networks, (5) co-occurrence patterns of keywords, and (6) identification of emerging research trends. This approach offered valuable insights into the academic discourse and evolving research priorities in this area.

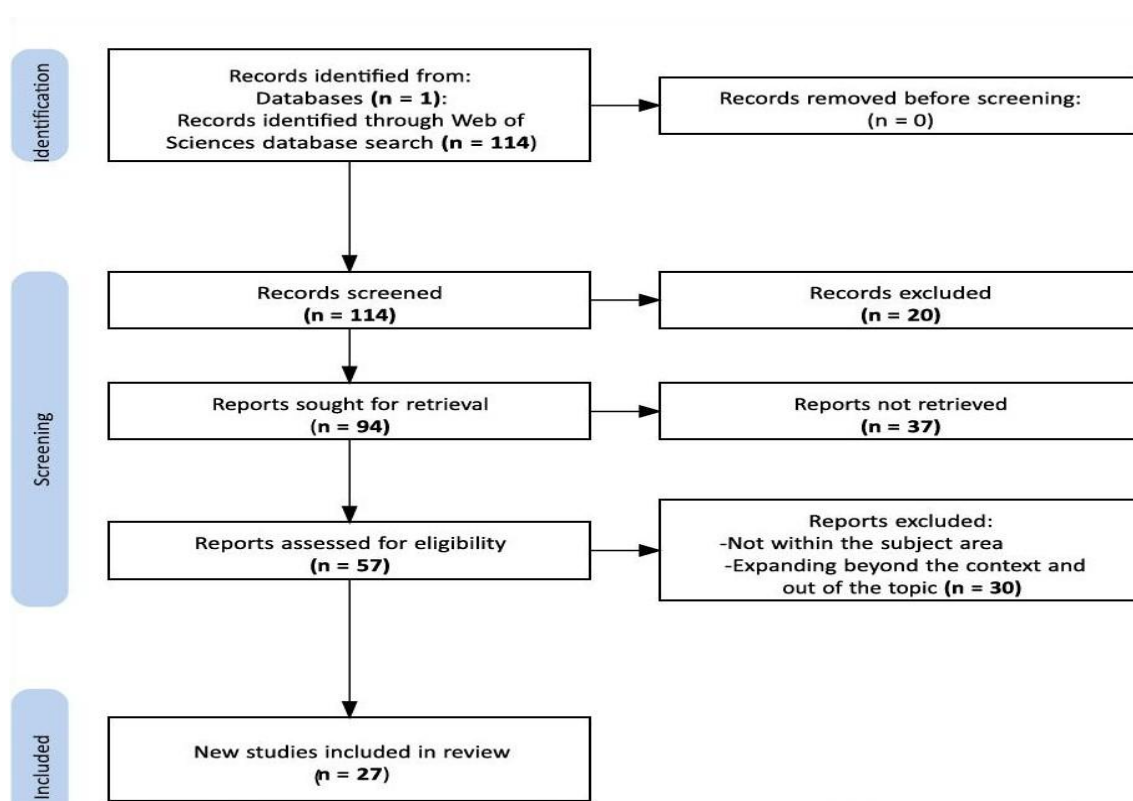


Figure 2. Flow diagram for SLR methodology

4.Results

Bibliometric analysis provides the basis of this review paper

4.1 Bibliometric analysis

4.1.1 Country-specific Publications

Table 1 lists the 15 nations where research on COVID- 19 and construction migrant workers was conducted, along with the distribution of research output by country. The highest contributors to the literature were China, with seven publications, followed by England, Canada and the USA, with six, five and four studies. Australia, Germany and Australia produced three publications.

Rank	Country	Number of publications	Number of citations	Total link Strength
1	USA	4	73	9
2	Kuwait	1	52	7
3	Bangladesh	2	76	4
4	England	6	24	4
5	Canada	5	106	2
6	Germany	3	3	2
7	Malaysia	1	10	2
8	Singapore	1	10	2
9	Thailand	2	16	2
10	Vietnam	1	8	2
11	Australia	3	79	0
12	Costa rica	1	4	0
13	Myanmar	1	22	0
14	Netherlands	1	22	0
15	People Republic of China	7	84	0

Table 1. Number of publications per country

4.1.2 Publications as per document source. The most prominent journals that publish construction and migrant workers pandemic-related studies were identified by analysing the number of papers in the dataset that were published in each journal. 19 publications were extracted and published in 21 journals. The sources with at least one published document about construction migrant workers and pandemic outbreaks from the dataset are included in **Table 2**. It can be observed in Table 2, “*International Journal of Environmental Research and Public Health*” is at the top of the list. One of the top built-environment journals, *IJERPH* had seven articles. Based on the highest total link strength, “*BMJ Global Health*” and “*International Journal of Environmental Research and Public Health*” are the top 2 journals.

Rank	Journal	Documents	Citations	Total link strength
1	<i>International Journal of Environmental Research and Public Health</i>	7	66	2
2	<i>Disasters</i>	1	1	1
3	<i>Agriculture And Human Values</i>	1	22	0
4	<i>American Behavioral Scientist</i>	1	16	2
5	<i>Bmj Global Health</i>	1	52	3
6	<i>Digital Health</i>	1	1	0
7	<i>Ethnic And Racial Studies</i>	1	16	0
8	<i>Feminist Economics</i>	1	22	0
9	<i>Frontiers In Public Health</i>	1	10	0
10	<i>Humanities & Social Sciences Communications</i>	1	2	1

11	<i>International Journal of Public Health</i>	1	2	0
12	<i>Journal of Construction Engineering and Management</i>	1	55	0
13	<i>Language In Society</i>	1	4	0
14	<i>Public Management Review</i>	1	3	0
15	<i>Social Science & Medicine</i>	1	4	0
16	<i>Social Work</i>	1	4	0
17	<i>Sociology of Health & Illness</i>	1	3	0
18	<i>Work- A Journal of Prevention Assessment Rehabilitation</i>	1	9	0
19	<i>World Development</i>	1	60	1

Table 2. Number of publications per source

4.1.3 Most cited articles and research methods

The most cited publications were chosen to find out the most relevant publication on pandemic impacts on migrant workers (MW) within the review period. **Table 3** presents the analysis of the articles that were mentioned at least once. The WoS dataset was used to obtain the number of citations. Twenty-five of the 27 publications have at least one citation. As per Table 3, the most cited articles discuss about socio-economic impacts of pandemic on migrant workers and also the health and wellbeing of construction workers during the pandemic. The hazards and difficulties faced by migrant labourers were brought to light by the epidemic. Studies closely analysed migrant workers' conditions, emphasizing health and social safeguards amid the pandemic. The old social welfare policies for migrant workers were again rediscussed greatly and improved with the pandemic effects, challenges and perceptions of the MW.

Table 3 lists the research methodological frameworks of the chosen articles. These fall into four main categories: qualitative, quantitative, mixed and review methodologies, with 14, 9, 1 and 1 articles using these approaches, respectively as presented in Table 3.

Rank	Source title	Number of citations	Research area	Research method
1	COVID-19's impacts on migrant workers from Bangladesh: In search of policy intervention (Karim et al.2020)	60	socio-economic impacts of pandemic on migrant workers	<i>Literature review</i>
2	Working from Home during the COVID-19 Pandemic: Health and Well-Being of Project-Based Construction Workers (Pirzadeh et al.2021)	55	health and wellbeing of construction workers during pandemic	Mixed method <i>Quantitative</i> <i>Qualitative</i>
3	COVID-19 stressors on migrant workers in Kuwait: cumulative risk considerations (Alahmad et al.2020)	52	risk of pandemic stressors on migrant workers	Qualitative method
4	Rurally rooted cross-border migrant workers from Myanmar, Covid-19, and agrarian movements (Borras et al. 2022)	22	situation of migrant workers during the pandemic	Qualitative method

5	To Return or Stay? The Gendered Impact of The Covid-19 Pandemic on Migrant Workers In China (Song et al.2021)	22	Gendered impact of pandemic on migrant workers	Quantitative method <i>Statistical analysis of survey data</i>
6	Essential: A Scoping Review of Migrant Workers' Access to Health Services and Social Protection during the COVID- 19 Pandemic in Australia, Canada, and New Zealand (Istiko et al.2022)	20	Health services and social protection during pandemic	Qualitative method <i>Exploratory research approach</i>
7	How COVID-19 may alleviate the multiple marginalization of racialized migrant workers (Isaac et al. 2021)	16	Alleviating marginalization of migrant workers through Pandemic	Qualitative method <i>Political perspective</i>
8	Centering the Margins: The Precarity of Bangladeshi Low- Income Migrant Workers During the Time of COVID-19 (Jamil et al. 2021)	16	experiences and disparities of migrant workers	Qualitative method <i>Digital ethnography</i>
9	Impact of COVID-19 Pandemic Perception on Job Stress of Construction Workers (Liang et al. 2022a)	10	Pandemic perception of construction workers	Qualitative method <i>Structural Equation Modeling</i>
10	Access to Healthcare and Social Protection among Migrant Workers in Thailand before and during COVID-19 Era: A Qualitative Study (Kunpeuk et al. 2022)	10	Health and social welfare policies for migrant workers	Qualitative method <i>Thematic analysis</i>
11	Work Resumption Rate and Migrant Workers' Income During the COVID-19 Pandemic (Li et al.2021)	10	Work resumption rates and income of migrant workers	Quantitative method <i>Predictive modeling and scenario analysis</i>
12	Exploring the risk-taking tendency among migrant workers in the COVID-19 pandemic: The role of ontological security (Yang et al. 2021)	9	Risk taking tendency of migrant workers	Quantitative method <i>Experimental method</i>
13	Demographic Influences on Perceived Stressors of Construction Workers during the COVID-19 Pandemic (Liang et al. 2022b)	8	Stressors of construction workers during the pandemic	Quantitative method <i>Descriptive statistics</i>
14	Factors Related to Health Risk Communication Outcomes among Migrant Workers in Thailand during COVID-19: A Case Study of Three Provinces (Papwijitsil et al.2021)	6	Health risk of migrant workers during pandemic	Quantitative method <i>Descriptive statistic</i>

15	A natural experiment in social security as public health measure: Experiences of international students as temporary migrant workers during two Covid-19 lockdowns (Ullah et al.2022)	4	Social security of temporary migrant workers	Quantitative method <i>Descriptive statistics</i>
16	Informality, Social Citizenship, and Wellbeing among Migrant Workers in Costa Rica in the Context of COVID-19 (Poirier et al.2022)	4	Socioecological wellbeing of migrant workers during pandemic	Qualitative method
17	The language of suppression: Muslims, migrant workers, and India's response to COVID-19 (Nagar et al.2023)	4	Language reinforced muslim migrant workers	Qualitative method <i>Critical discourse analysis</i>
18	Breaking Isolation: Social Work in Solidarity with Migrant Workers through and beyond COVID-19 (Alcaraz et al.2022)	4	Social workers in solidarity with temporary workers	Qualitative method
19	Understanding interlocal collaboration for service delivery for migrant workers during the COVID-19 pandemic: evidence from Guangdong, China (Wang et al.2024)	3	Service delivery for migrant workers	Quantitative method <i>Directed dyadic analysis</i>
20	Health risks at work mean risks at home: Spatial aspects of COVID-19 among migrant workers in precarious jobs in England (Miles et al.2024)	3	Migrant workers experiences at work	Qualitative method <i>Thematic analysis</i>
21	Dimensions of wellbeing and recognitional justice of migrant workers during the COVID-19 lockdown in Kerala, India (Mathews et al.2023)	2	Wellbeing of migrant workers during the pandemic	Qualitative research <i>Semi-structured interview</i>
22	Investigating the conditions of vulnerability experienced by migrant workers during the COVID-19 pandemic in Kerala, India (Mcgowran et al.2024)	1	Vulnerabilities experienced by migrant workers	Qualitative method <i>Thematic narrative analysis.</i>
23	Exploring low-income migrant workers' health information- seeking behavior during COVID-19 in Taiwan: A qualitative study (Lee et al.2022)	1	Health literacy of migrant workers	Qualitative method <i>Thematic narrative analysis.</i>
24	Social Support for Acculturative Stress, Job Stress, and Perceived Discrimination Among Migrant Workers Moderates COVID-19 Pandemic Depression (Kim et al.2022)	2	Social support for migrant workers	Quantitative method <i>Cross-sectional descriptive study</i>

25	COVID-19 Stressors on Migrant Workers in Vietnam: Cumulative Risk Consideration (Bui et al.2021)	8	Vulnerabilities of migrant workers	Quantitative method <i>Cross-sectional study design</i>
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Table 3. Number of most cited documents

4.1.4 Publication per author and co-author

A co-authorship analysis was performed using VOS viewer to determine the networks of writers who have collaborated on research on the impact of pandemics on construction and MW. There are 122 writers in the 27 documents that were evaluated. As observed in **Table 4**, 94 authors met the threshold when the VOS viewer analytical feature was set to a minimum of 3 citations per author. Table 4 lists the authors who have contributed significantly to COVID-19, construction, and migrant workers research, and have the most documents and citations in the research field.

No	Author	Number of documents	Number of citations	Total link strength
1	ayeb-karlsson, Sonja	2	3	0
2	julchoo, sataporn	2	16	12
3	liang, huakang	2	18	6
4	liu, tianhong	2	18	6
5	phaiyaron, Mathudara	2	16	12
6	sinam, pigunkaew	2	16	12
7	suphanchaimat, Rapeepong	2	16	12
8	xia, fan	2	18	6
9	yang, wenqian	2	18	6
10	agnew, Jacqueline	1	52	5
11	alahmad, barrak	1	52	5
12	alcaraz, nellie	1	4	3
13	anh thi my bui	1	7	5
14	barraza, douglas	1	4	5
15	borras, saturnino m., jr.	1	22	27
16	caxaj, c. Susana	1	4	5
17	chai, nana	1	10	5
18	chu, baoju	1	10	5
19	colonna, kyle	1	52	5
20	dau, ze	1	22	27
21	dhungel, rita	1	4	3
22	dong xiao-yuan	1	22	3
23	duc minh duong	1	7	5
24	durham, jo	1	19	2
25	dutta, uttaran	1	15	1
26	elliott, lana	1	19	2
27	elrick, Jennifer	1	16	1
28	fox, mary a.	1	52	5
29	franco, jennifer c.	1	22	27

30	gasana, Janvier	1	52	5
31	ha thi thu bui	1	7	5
32	hard, Julie	1	4	5
33	harrigan, nicholas m.	1	4	1
34	htwe, lway htwe	1	22	27
35	huo, jiale	1	9	2
36	isaac, maïke	1	16	1
37	islam, mohammad tarikul	1	60	2
38	istiko, satrio nindyo	1	19	2
39	jai, naw seng	1	22	27
40	jamil, raihan	1	15	1
41	jay, lway poe	1	22	27
42	ju, khu khu	1	22	27
43	jumper, mi pakao	1	22	27
44	kamoon, mi	1	22	27
45	karim, mohammad rezaul	1	60	2
46	khine, nwet kay	1	22	27
47	kosiyaporn, hathairat	1	6	75
48	kramer, tom	1	22	27
49	kunpeuk, watinee	1	10	7
50	kurdi, hussam	1	52	5
51	li, jiaxiang	1	10	5
52	lingard, helen	1	55	1
53	loganathan, Tharani	1	10	7
54	lorenzetti, liza	1	4	3
55	martinez, ana maria	1	4	5
56	mirzoev, tolib	1	7	5
57	mon, nai sawor	1	22	27
58	montoya, felipe	1	4	5
59	nagar, ila	1	4	0
60	naing, tun tun	1	22	27
61	oo, khun	1	22	27
62	oo, mary	1	22	27
63	ou, feiya	1	10	5
64	papa, nila	1	22	27
65	papwijitsil, ratchadaporn	1	6	5
66	phyu, mi	1	22	27
67	phyu, phwe	1	22	27
68	pirzadeh, payam	1	55	1
69	poine, mi saryar	1	22	27
70	poirier, mathieu j. p.	1	4	5
71	pudpong, nareerut	1	10	7
72	quang ngoc la	1	7	5
73	ra, doi	1	22	27

74	reang, lway hlar	1	22	27
75	shell, kyar yin	1	22	27
76	shi, Baofeng	1	10	5
77	soe, thu maung	1	22	27
78	song yueping	1	22	3
79	talukder, bymokesh	1	60	2
80	thanh quoc pham	1	7	5
81	thomas, sarah	1	4	3
82	thu, kyaw	1	22	27
83	ullah, faiz	1	4	1
84	vervest, pietje	1	22	27
85	wang zhili	1	22	3
86	wang, chunyu	1	22	27
87	wang, xuechun	1	3	1
88	wu hantao	1	22	3
89	wu, bi	1	10	5
90	xi, yue	1	9	2
91	xu, yunan	1	22	27
92	yang, qiang	1	9	2
93	ye, jingzhong	1	22	27
94	yi, huso	1	10	7

Table 4. Number of documents per author

The most productive authors were examined, and the results showed that liang, huakang (2 documents, 18 citations), julchoo, sataporn (2 documents, 16 citations), islam, mohammad tarikul (1 document, 60 citations), agnew, jacqueline (1 document, 52 citations) and alahmad, barrak (1 document, 52 citations) were the most productive authors in this domain.

4.1.5 Co-occurrence keyword analysis

Keywords are important terms that help as a point of reference and make it easier to understand concepts in research (Bloor & Wood, 2006). In recent years, many topics and ideas have developed in studies about COVID-19, construction, and migrant workers (MW). A keyword map was created using VOSviewer, based on data from the Web of Science (WoS) database, to explore these trends. The map shows how keywords are connected, with their closeness indicating how often they appear together and how similar they are in meaning (Bhattacharyya et al. 2011).

4.1.5.1 Keyword co-occurrence clusters

Keyword co-occurrence analysis identifies clusters research topics related to COVID-19 and migrant workers (MW), highlighting the most significant areas of study. These clusters reveal the categories, themes, and research directions within the field.

A co-occurrence network with 189 keywords was created using the VOSviewer program. A minimum of two co-occurrences was required for keywords to be included; 21 keywords met this requirement. Four keyword clusters were found using clustering. **Figure 3** shows a network visualization map that illustrates the four keyword clusters. With 67 links, its overall link strength is 93. The size of the nodes in Figure 3 indicates how frequently the keyword appears. A bigger

node denotes a keyword that appears more frequently. Furthermore, the co- occurrence link between nodes is indicated by the thickness of the lines. The association is stronger when the lines are thicker (Lozano et al., 2019). In Figure 3, keywords were categorized into topics based on related research fields based on the co-occurrence of keyword analysis. Keywords from related or comparable research areas are shown closer to one another when using VOSviewer. Additionally, these keywords are connected by lines, making understanding simpler.

Cluster 1 (red) includes keywords associated with *impact on migrants and construction workers during pandemic*, such as “access,” “consequences,” “construction workers,” “health,” “home,” “impact,” “migrants” and “scale” (8items). Cluster 2 (green) involves keywords related to *labor and migrant workers during pandemic* such as “agency,” “labor,” “migrant workers,” “networks” and “pandemic,” “politics,” “resources” (7items). Cluster 3 (blue) involves keywords related to migration and migrant worker during Covid-19 such as “citizenship,” “covid-19”, “migrant worker” and “migration” (4items). Cluster 4 (yellow) focuses on *policies and protections* with keywords such as “health policy” and “social protection” (2items).

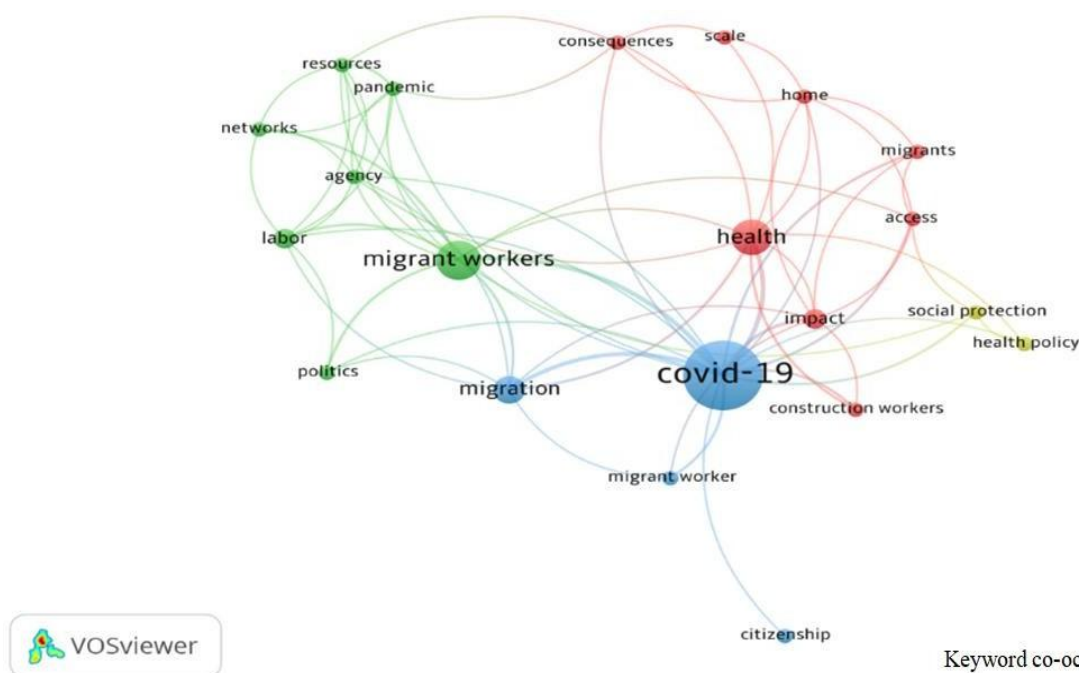


Figure 3.
Keyword co-occurrence analysis
Network visualization

The most frequently occurring keywords from the co-occurrence keyword analysis are listed in **Table 5** for the 27 examined documents. Two co-occurring keywords were recognized as the criteria for ranking. With 18 instances, “COVID-19” was the most popular keyword, followed by “migrant workers” (8 occurrences) and “health” (7occurrences).

Rank	Keyword	Occurrences	Total link strength
1	Covid-19	18	42
2	Migrant workers	8	21
3	Health	7	19
4	Migration	5	16
5	Impact	3	11
6	Labor	3	9
7	Access	2	8
8	Agency	2	8
9	China	2	8
10	Citizenship	2	3
11	Consequences	2	7
12	Construction workers	2	5
13	Coronavirus	2	5
14	Health policy	2	3
15	Home	2	8
16	Immigration	2	6
17	Migrant worker	2	5
18	Migrants	2	5
19	Networks	2	6
20	Pandemic	2	8
21	Politics	2	5
22	Resources	2	8
23	Scale	2	5
24	Social protection	2	6
25	Temporary foreign workers	2	3

Table 5. Keywords occurrences and total link strength

4.1.5.2 Annual trends of research topic analysis.

Figure 4 shows a visualization created with VOSviewer that tracks how research topics related to COVID-19 evolved from 2020 to 2024, based on co-occurring keywords. During the initial year of the pandemic, research primarily addressed broad themes such as health policies and their impacts. By late 2021, research began to explore specific issues, such as migrant workers, construction workers, health, citizenship, social protection, and politics. From 2022 onward, keywords like migration, impact, home, resources, and pandemic appeared more often together. Recently, there has been growing interest in topics like labour access, agency, and networks.

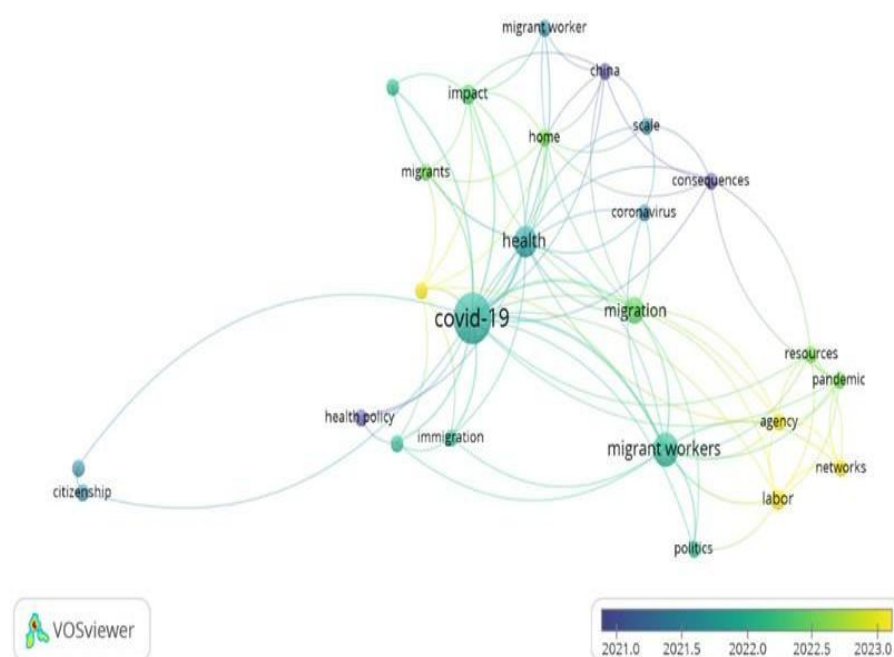


Figure 4.
Overlay visualization
of research topics- a network map of
research themes,
based on keywords.

5. Research Implications

The COVID-19 pandemic has highlighted the multi-layered socio-economic vulnerabilities of migrant workers in the construction sector, particularly income loss, delayed work resumption, and employment insecurity. The prominence of these themes indicates the need for adaptive labour market frameworks that ensure income continuity, employment re-entry, and economic stability for temporary and circular migrant workers during large-scale disruptions.

A substantial body of research focuses on the health, wellbeing, and psychosocial stressors faced by migrant construction workers. Emphasis on health risks, stress, health literacy, and socioecological wellbeing suggests that worker protection must integrate occupational health, mental wellbeing, and public health preparedness. Strengthening health services, communication, and preventive care is essential to reduce crisis-induced health inequalities. Research trends also reveal structural and intersectional disparities, including gendered impacts and religious or linguistic marginalisation. These findings imply that labour governance and social protection systems must adopt inclusive and equity-sensitive approaches that address differentiated worker experiences. Targeted interventions are required for women migrants and marginalised groups within the construction workforce.

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Another key implication concerns social protection, service delivery, and institutional support mechanisms during crises. Evidence shows that fragmented and non-portable welfare systems intensify vulnerability. Future research and policy should prioritise portable social security, coordinated service delivery, and stronger institutional accountability for mobile and temporary migrant workers.

Finally, the focus on migrant workers lived experiences, risk perceptions, and coping behaviours underscores the importance of worker-centred research and participatory policy frameworks. Incorporating workers' perspectives can improve labour regulations, communication strategies, and emergency preparedness, contributing to more resilient construction labour systems in future public health and economic shocks.

6. Conclusions

The COVID-19 pandemic's consequences on MW have drawn the attention of several research papers worldwide, which have examined them using a variety of research approaches. The analysis of the issues raised by the epidemic was the main goal of this research. To gain an understanding of the literature on the pandemic's impacts on construction and MW, we employed bibliometric analyses. By using bibliometric analysis, we were able to identify the most productive authors, nations and significant trends based on the quantity of publications and citations. Additionally, a graphical representation of the bibliometric data from the co-authorship of authors, nations, and cooccurrence of keywords was produced using VOSviewer tools. Bibliometric analysis is a useful tool for gaining a thorough grasp of a certain field of study. As per this data, with three publications, Hesam Kamalipour and Nastaran Peimani are the most productive authors. Egypt, Jordan and India are the top three nations contributing to research on MW and the COVID-19 pandemic, according to the survey of nations. Four important clusters were identified during the pandemic research, and the visualization of the co-occurrence of the keywords also helped us in identifying the connections and their COVID-19 impact on migrant workers 93 strengths between the interconnected communities in the domain of MW. Future research will address the shortcomings of this research. The research period (2020-2024). We expect that new topics, ideas, and methods may be developed as a result of the evolving nature of migration, which might drastically change the study's conclusions. Furthermore, because the research relies on data from the WOS database, it might also be subject to the database's shortcomings. Future research should thus make use of additional datasets, such as Science Direct and Scopus, or a mix of databases.

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