

3. ULUSLARARASI
AKDENİZ
BİLİMSEL ARAŞTIRMALAR VE
İNNOVASYON KONGRESİ

19-20 AĞUSTOS 2023
ANTALYA

Editörler:
Doç. Dr. Sevcan YILDIZ
Selma GENÇEL

KONGRE KİTABI



CONGRESS ID

CONGRESS TITLE

3. INTERNATIONAL MEDITERRANEAN

SCIENTIFIC RESEARCH AND INNOVATION CONGRESS

DATE AND PLACE

26-27 AUGUST 2023, ANTALYA/TURKEY ONLINE PRESENTATIONS

ORGANIZATION

ISARC

INTERNATIONAL SCIENCE AND ART RESEARCH CENTER

GENERAL COORDINATOR

Uzm. Yasemin AĞAOĞLU

COORDINATOR

Gamze KÖYMEN

EDITOR

Assoc. Prof. Dr. Sevcan YILDIZ

Selma GENÇEL

ORGANIZATION COMMITTEE

Prof. Dr. Sevi ÖZ

Doç. Dr. Neslihan ŞAHİN

Doç. Dr. Reyhan DADAŞOVA

Dr. Aykan ÇOŞKUN

Dr. Bahar ALTUNOK

Dr. Gizem Hediye EREN

Dr. Merve BULDAÇ

Dr. Nevim TÜZÜN

Selma GENÇEL

ISBN:978-625-367-251-5

AUTHORS	TITLE	NO
Irina-Ana DROBOT	THE ROLE OF ANGELS IN THE FILM WINGS OF DESIRE (1987)	351-361
Ayşe YILDIRIM Mustafa GENÇ	AN INVESTIGATION ON THE DIFFERENT NEW DESIGNS OF TRADITIONAL UNDERFLOOR CARPET	362-372
Fabrissa Cotrim PIRES Danyella Santos SILVEIRA Polyane Alves SANTOS	ENVIRONMENTAL EDUCATION IN ACTION: WOMEN IN ENGINEERING CULTIVATE SUSTAINABILITY AT SCHOOL	373
Sevcan YILDIZ Yasin Oğuz ÖZMENEKŞE	A STUDY ON THEORIES OF NEGATIVE ORGANIZATIONAL BEHAVIOR	374-390
Sevcan YILDIZ Yasin Oğuz ÖZMENEKŞE	A CONCEPTUAL STUDY ON CORPORATE AGILITY AND TOURISM MARKETING	391-403
Abraham Ngalouo - ANTISO	A CONCEPTUAL STUDY ON CORPORATE AGILITY AND TOURISM MARKETING	404
Maria das Graças Bittencourt Ferreira Urânia Auxiliadora Santos Maia de Oliveira Polyane Alves Santos Marcos Messias da Silva Emerson Gean Sousa Vieira	SOCIAL INNOVATION AND COLLABORATIVE LEARNING: THE DISSEMINATION OF KNOWLEDGE IN THE PRACTICE OF JIU-JITSU AND THE TRANSFORMATION OF THE INDIVIDUAL	405
Osman Nuri DEMİREL	YOUTH AND VALUES IN TURKEY	406-407
Eman Salem KHAFRAF Fatima HASSAN MOHAMMED	THE PSYCHOLOGICAL AND SOCIAL CAUSES FOR DIVORCE IN MOSUL CITY	408
Fahad ASIM Lubna SHAKIR Rizwana RAHEEL Mah-ru-nisa ATIF	EVALUATION OF MEDICATION KNOWLEDGE, ATTITUDES AND SELF MEDICATION PRACTICES AMONG PHARMACY STUDENTS	409
Fahad ASIM	ANTIHYPERLIPIDEMIC ACTIVITY OF DIFFERENT EXTRACTS OF PUNICA GRANATUM'S LEAVES IN RATS	410
Gharbi AMIRA Dridi MANEL Hamlaoui YUCEF	STUDY OF NICKEL ELECTROPLATING PROCESS ON COPPER	411
Hina KHALID Lubna SHALIK Ali RAZA Malaika QADEER	A STUDY OF PREVALENCE OF SIDE EFFECTS CAUSED BY DIFFERENT SKIN WHITENING TREATMENTS AND ITS ADJUVANT THERAPY	412
Abdullahi A. Shuaibu U. Muhammad H.U. Ahmed I. I. Jibrin S.	ASSESSMENT OF FARMERS' ADAPTATION STRATEGIES TO FLOOD RELATED LOSSES IN ZONE ONE AREA OF EKITI STATE, NIGERIA	413-424
Shuaibu, U. Abdullahi, A. Jibrin, S.	GENDER ANALYSIS OF RESOURCES-USE EFFICIENCY AMONG SESAME FARMERS IN AGRICULTURAL ZONE ONE AREA NIGER STATE, NIGERIA	425-436

AUTHORS	TITLE	NO
Hanane TOUDAMRINI Ahmed ALGOUTI Abdellah ALGOUTI	MODELING GROUNDWATER POTENTIAL USING NOVEL GIS-BASED MACHINE-LEARNING ENSEMBLE TECHNIQUES CHICHAOUA, MOROCCO	437
Dung Rondong MANGAI Rasheed Babatunde ISA Abdulkabir Opeyemi BELLO	LIVING CONDITION OF WORKERS IN THE CONSTRUCTION INDUSTRY: A SYSTEMATIC LITERATURE REVIEW AND BIBLIOMETRIC ANALYSIS	438-454
Messaouda BELOUADAH Zine EL Abidine RAHMOUNI NadiaTEBBAL	DURABILITY IN AGGRESSIVE ENVIRONMENTS OF CONCRETE INCORPORATING GLASS POWDER	455
Hamzat Mohammed AWWAL Abdullahi IDRIS Abdulkabir Opeyemi BELLO Adefemi AKA	ASSESSING THE CHALLENGES HINDERING THE ADOPTION OF CIRCULAR ECONOMY IN THE NIGERIA CONSTRUCTION INDUSTRY	456-467
Alexander PLAKIDA Olga IUSCHKOVSKA	CHANGES IN IMMUNOLOGICAL PARAMETERS IN ULTRAMARATHON RUNNERS DEPENDING ON THE DURATION OF THE LOAD	468
Sándor FÖLDVÁRI	“CONFESSIONALIZATION” IN EASTERN EUROPEAN CULTURES: DIVERGENCES BETWEEN THE FORMS OF ORTHODOXY IN THE EARLY MODERN AGE	469-472
Komolafe, Ige Joseph Fajobi, Adeniyi Oluwadare Akinlalu, Akintunde Oluseto Ogunsusi, Mayowa Dare, Christianah Adebimpe Morakinyo, Adetoun Elizabeth Oyedapo, Oluokun Oluboade	ANTIOXIDANT POTENTIALS AND AMELIORATING EFFECTS OF METHANOL EXTRACT AND DICHLOROMETHANE FRACTION OF ROOT-BARK OF GARCINIA KOLA (HECKEL) ON GENTAMICIN-INDUCED NEPHROTOXIC RATS	473-474
HABBAR Ghania MAIZIA Abdelhakim HOCINE Abdelkader RIBEIRO João	RENEWABLE HYDROGEN TRANSPORTATION SAFETY ANALYSIS USING COMPOSITE SANDWICH PIPES UNDER FIRE RISK	475
Abbadî ABDELHADI Omar TANANE	MISE EN PLACE UNE LEAN MANUFACTURING DANS LA LIGNE PRODUCTION POUR OPTIMISATION DES DÉCHETS À BASE DE CUIVRE	476-477
Ashoke DUTTA Binod Chandra TRIPATHY	STATISTICAL CONVERGENCE IN NON-NEWTONIAN CALCULUS	478
Mansoor AHMED	ROLE OF SCIENTIFIC INNOVATIONS FOR WOMEN EMPOWERMENT IN PAKISTAN 1947-1977	479
Muhammad Umar ANDREANTO Jihan Mifta SABILA	AMBITION TO MAKE INDONESIA A CENTER FOR HALAL COSMETICS	480
Amadou SALAMI Israël Sunday DOTCHAMOU Kevin Agossa DAHEOU	INVESTIGATING THE IMPORTANCE OF TEACHING TRANSLATION IN UNIVERSITIES: CASE STUDY OF THE DEPARTMENT OF ENGLISH (CENTRE UNIVERSITAIRE D'ADJARRA)	481-491
Rock Gallacher NGOUAMI Armel MBON Didier Arcade Ange LOUMBOUZI	INTENT AND ACTION IN T.S. ELIOT'S MURDER IN THE CATHEDRAL	492-501
Habib DJOURDEM	HYBRID HADAMARD FRACTIONAL DIFFERENTIAL INCLUSION	502

AUTHORS	TITLE	NO
Murugan SHANTHAKUMAR Vidya PADMAKUMAR	EXPLORING CUTTING-EDGE APPROACHES FOR JERDON'S COURSER CONSERVATION AND RESEARCH	503-504
Moses Adeolu AGOI Solomon Abraham UKPANAHA Oluwanifemi Opeyemi AGOI	EXPLORING THE POTENTIALS OF ARTIFICIAL INTELLIGENCE IN SEMANTIC WEB TECHNOLOGY: A CONTEXTUAL STUDY ON WEB DEVELOPMENT	505-513
Rokhmatus SOLEKHA Fara LUSTIANI Winata PRASETYO Muhammad Sultan MUBAROK	CONSUMPTION ETHICS IN THE PERSPECTIVE OF ISLAMIC ECONOMIC PHILOSOPHY	514-515
Karomatul IZZAH Hendri Hermawan ADINUGRAHA	THE EFFECT OF USING DIGITAL CURRENCY ON MSME DEVELOPMENT IN PEMALANG	516-517
Nur Zalfa Rifqo NABILA Hendri Hermawan ADINUGRAHA	IMPACT OF UNEMPLOYMENT	518-519
Riska Naila ZULFA Riska Naila ZULFA	THE URGENCY OF ISLAMIC BUSINESS ETHICS	520
RISWANTI Hendri Hermawan ADINUGRAHA	THE EFFECT OF USING E-COMMERCE ON CONSUMER CONVENIENCE	521
Johan Saputra ALFALLA Muhammad Sultan MUBAROK Muhammad Taufiq ABADI	ISLAMIC ECONOMICS: ASPECTS OF MONEY, PRODUCTION, DISTRIBUTION, CONSUMPTION, AND LABOR	522-523
Johan Saputra ALFALLA Isna Arifatul FATWA Muhammad Sultan MUBAROK	SHARI'AH ETHICS AND THE FOUNDATIONS OF ONTOLOGY, EPISTEMOLOGY & AXIOLOGY	524-525
Ela AGELIA Hendri Hermawan ADINUGRAHA	THE COMBINED EFFECT OF WORK DISCIPLINE AND WORKLOAD ON EMPLOYEE PERFORMANCE	526
Emilia ALFIESYAH Muhammad Taufiq ABADI Muhammad Sultan MUBAROK Wilda Yulia RUSYIDA	BUSINESS FEASIBILITY ANALYSIS LIKE MIE AND COFFEE IN BATANG	527-533
Mubashir ASIF Rehman KHAN	DESIGN AND FABRICATION OF LINE FOLLOWER ROBOT	534-546
Hilal ANDIÇ	FAMILY CONSTELLATION AS A PHILOSOPHICAL HEALING PRACTICE	547-560

LIVING CONDITION OF WORKERS IN THE CONSTRUCTION INDUSTRY: A SYSTEMATIC LITERATURE REVIEW AND BIBLIOMETRIC ANALYSIS

Dung Rondong MANGAI

Rasheed Babatunde ISA

Abdulkabir Opeyemi BELLO

Department of Building, Federal University of Technology, Minna, Nigeria

ABSTRACT

The construction industry is the backbone of global development, providing essential infrastructure and shaping the urban landscape. However, amidst this progress, the living conditions of construction workers have become a pressing concern. This study presents a systematic literature review and bibliometric analysis to shed light on the current living conditions faced by construction workers globally. The research adopts a systematic approach to identify relevant studies published in peer-reviewed journals and conference proceedings using the SCOPUS database. A robust search strategy, "*living AND condition AND of AND workers AND in AND the AND construction AND industry,*" is employed to collect a wide range of publications related to the living conditions of construction workers. The bibliometric analysis complements the systematic review, quantitatively assessing keywords, article sources, and citation patterns. The review encompasses a diverse array of factors impacting the living conditions of construction workers, including housing conditions, wages, working hours, occupational safety, healthcare access, and social support systems. The study uncovers several critical issues affecting construction workers' living conditions. Inadequate housing facilities emerge as a prevalent concern, with substandard accommodations often leading to health hazards and reduced productivity. Low wages and irregular payment systems perpetuate financial instability, adversely affecting workers' overall quality of life. Unsafe working conditions and insufficient access to healthcare services contribute to increased accident rates and occupational health risks. Cultural and societal norms also play a significant role in shaping the treatment of construction workers, with some societies lacking the necessary legal protections and social support mechanisms. The findings of this study highlight the urgent need for comprehensive policy reforms, industry-wide initiatives, and collaborative efforts from stakeholders to improve the living conditions of construction workers. Enhanced regulations, provision of affordable and safe housing, fair wage structures, and improved access to healthcare are among the suggested measures to address the identified challenges.

Keywords: Construction industry, Healthcare access, Living conditions, Workers, Wages

1.0 INTRODUCTION

1.1 Background to the Study

The construction industry is a fundamental pillar of modern society, providing essential infrastructure and contributing significantly to economic growth and development. However, behind the towering skyscrapers and bustling cityscapes lies an often-overlooked aspect: the living conditions of construction workers. These labourers form the backbone of the industry, working tirelessly to shape the urban landscape. However, they frequently face challenging circumstances that affect their well-being and quality of life. The living conditions of construction workers have long been a concern for policymakers, labour rights advocates, and researchers (Celik & Budayan, 2016; Mathew et al., 2016). As construction activities continue to expand worldwide, the significance of this issue becomes even more pronounced. Several studies have explored aspects of the living conditions of construction workers in various contexts. Existing research has investigated housing conditions, wages, working hours, access to healthcare, and social support systems (Adsul et al., 2011; Kumar, 2013; Mathew et al., 2016). However, the vast body of literature on this topic lacks coherence, potentially leading to gaps in understanding the situation.

Workers' performance in the construction industry is intricately linked to their living conditions, as these conditions significantly influence their physical and mental well-being (Ge et al., 2022), job satisfaction, and overall productivity. Firstly, inadequate housing conditions Pérez-Hernández et al. (2018) can lead to physical discomfort, lack of restful sleep, and increased stress among construction workers. Overcrowded or substandard living spaces may exacerbate health issues, impacting their ability to perform physically demanding tasks (Varshney et al., 2022). Additionally, long commuting hours from distant and affordable housing options can result in fatigue and reduced energy levels, ultimately hampering their on-site efficiency and focus (HBR, 2021). The financial strain caused by low wages and irregular payment systems can negatively affect workers' morale and motivation HBR, 2021. Financial instability may lead to stress and anxiety about meeting daily living expenses, further diverting their attention from work-related tasks (Ryu & Fan, 2023).

Consequently, construction workers may feel demotivated and less committed to their jobs, leading to decreased job satisfaction and a decline in overall performance. Moreover, occupational safety is a critical aspect impacted by the living conditions of construction workers (Mathew et al., 2016). When housing facilities lack proper sanitation and hygiene, the risk of illness and infections increases, potentially affecting workers' ability to work

regularly (WHO, 2018). Unhealthy living conditions can weaken their immune system, making them more susceptible to workplace accidents and injuries (Techera et al., 2016). Furthermore, living near construction sites or hazardous areas without adequate protective measures can lead to occupational health hazards and exposure to harmful substances, compromising worker safety and performance. Access to healthcare services is another vital factor influencing the performance of construction workers (WHO, 2010). Limited access to medical facilities and healthcare resources can delay the diagnosis and treatment of health issues, leading to prolonged absences from work. Workers who cannot access timely medical care may be less productive on-site due to illness or untreated health conditions (Zhang et al., 2015).

Moreover, living conditions that lack basic sanitation and hygiene facilities can increase the risk of infectious diseases spreading among workers, resulting in absenteeism and reduced overall workforce efficiency. Social support systems foster a positive work environment and enhance worker performance. Inadequate living conditions isolating construction workers from their families and communities can contribute to loneliness and disconnection (Celik & Budayan, 2016). Lack of social support can lead to increased stress and mental health issues, ultimately affecting concentration and focus on the job. Conversely, when workers have access to supportive living environments that foster community and camaraderie, they are more likely to experience higher job satisfaction and perform better on construction projects. This study on the living conditions of workers in the construction industry aims to contribute to the existing body of knowledge, highlighting the importance of worker well-being in the construction sector. The primary objectives of this study are as follows:

- i. Conduct a systematic literature review to gather and synthesise existing research on the living conditions of workers in the construction industry.
- ii. Examine the critical factors affecting the living conditions of construction workers.
- iii. Identify keywords and citations patterns using a bibliometric technique
- iv. Propose policy recommendations and industry-wide initiatives aimed at improving the living conditions of construction workers

This research endeavours to provide valuable insights for policymakers, industry stakeholders, and researchers by conducting a systematic literature review and bibliometric analysis. Ultimately, the findings and policy recommendations seek to foster a construction industry that prioritises the welfare and dignity of its workforce, paving the way for sustainable and equitable development.

2.0 METHODOLOGY

This study adopts a mixed-methods approach, combining a systematic literature review and a bibliometric analysis to comprehensively examine the living conditions of workers in the construction industry. The systematic literature review allows for an in-depth synthesis of existing research. At the same time, the bibliometric analysis offers a quantitative assessment of publication trends and their impact on the academic discourse. The systematic literature review follows the guidelines proposed by Tranfield et al. (2003) and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Moher et al., 2009). The bibliometric analysis was conducted using the software VOSviewer (Van Eck & Waltman, 2010). This analysis identifies keywords trends, article sources, and countries' contributions to the living conditions of construction workers. The article selection process is shown in Figure 1.

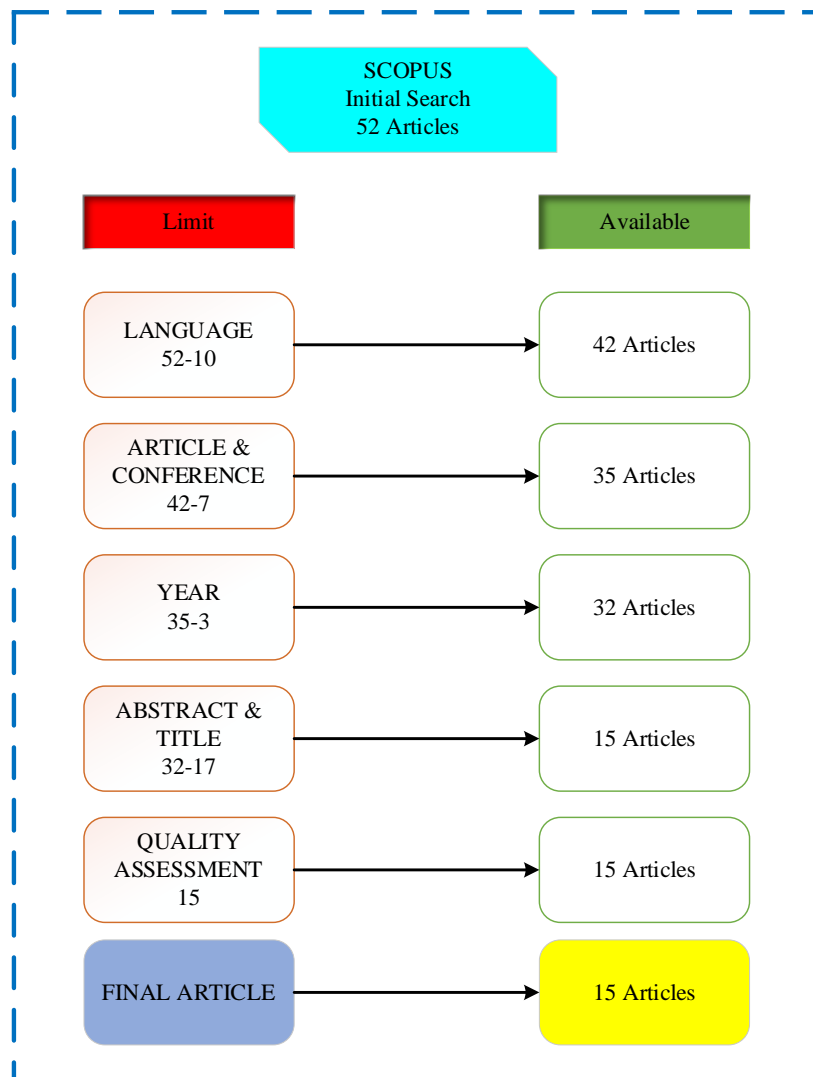


Figure 1: Article selection process

3.0 ANALYSIS

3.1 Bibliometric Analysis

The bibliometric analysis of all keywords provides insights into the distribution and link strength of various keywords in the study. The minimum number of keywords occurrence was set at 2, with 24 keywords meeting the threshold out of the 172 keywords result. Among the most frequently occurring keywords, "construction industry" appears seven times, while "human" appears six times. Both keywords have a high link strength, with "human" having 50 and "construction industry" having 26, indicating their significant influence and interconnectedness in the research. "Adult," "India," and "male" occur five times each, with link strengths of 43, suggesting their relevance in the study. Keywords related to construction workers are also prominent, with "construction workers" appearing four times and having a link strength of 16. Other relevant keywords include "construction worker," "cross-sectional study," "female," "humans," "questionnaire," "building industry," "occupational disease," "occupational health," "prevalence," "quality of life," "statistics and numerical data," and "trade unions," each appearing two times with varying link strengths. Some keywords, such as "construction," "employment," "human experiment," "living conditions," "migrant construction workers," and "article," occur two times but have relatively lower link strengths. The keyword "migrant construction workers" has the lowest link strength of 1, indicating limited connections in the research.

The bibliometric analysis highlights the key themes and concepts in the study, with "construction industry" and "human" being the most prevalent and influential keywords, reflecting the central focus of the research on the construction industry and its impact on human workers.

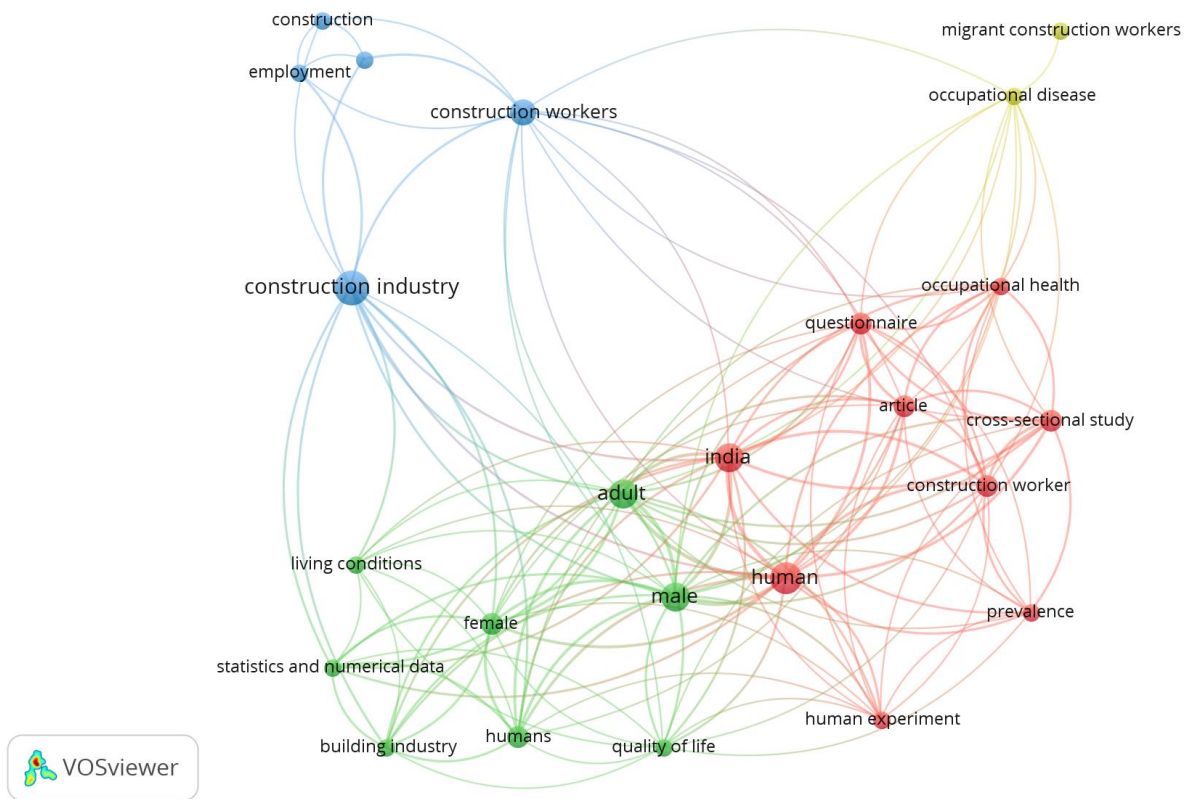


Figure 2: Keywords

3.2 Citations Source by Countries

The bibliometric citation by country result shows the study's distribution of documents and citations across different countries. A minimum number of documents of a country (1), the minimum number of citations of a country (1), and among the seven countries, only 5 meets the threshold. India has the highest number of documents (7) and citations (28), indicating a substantial contribution to the research in this field. The United States and the United Kingdom also have notable contributions, with 2 and 1 document(s) and relatively high citation counts (19 and 9, respectively). Portugal follows with two documents and six citations. China has 1 document with two citations. Since the total link strength is 0 for all countries, it indicates no direct connections or citations between the documents from different countries. This means that the publications from different countries in this bibliometric analysis have not cited each other or established direct collaborative links. The lack of link strength suggests that this field's research is currently less interconnected or that the publications from different countries have not yet established strong citation relationships.

Table 1: Ranking of countries based on citation

ID	Country	Documents	Citations	Total link strength
1	India	7	28	0
2	United States	2	19	0
3	United Kingdom	1	9	0
4	Portugal	2	6	0
5	China	1	2	0

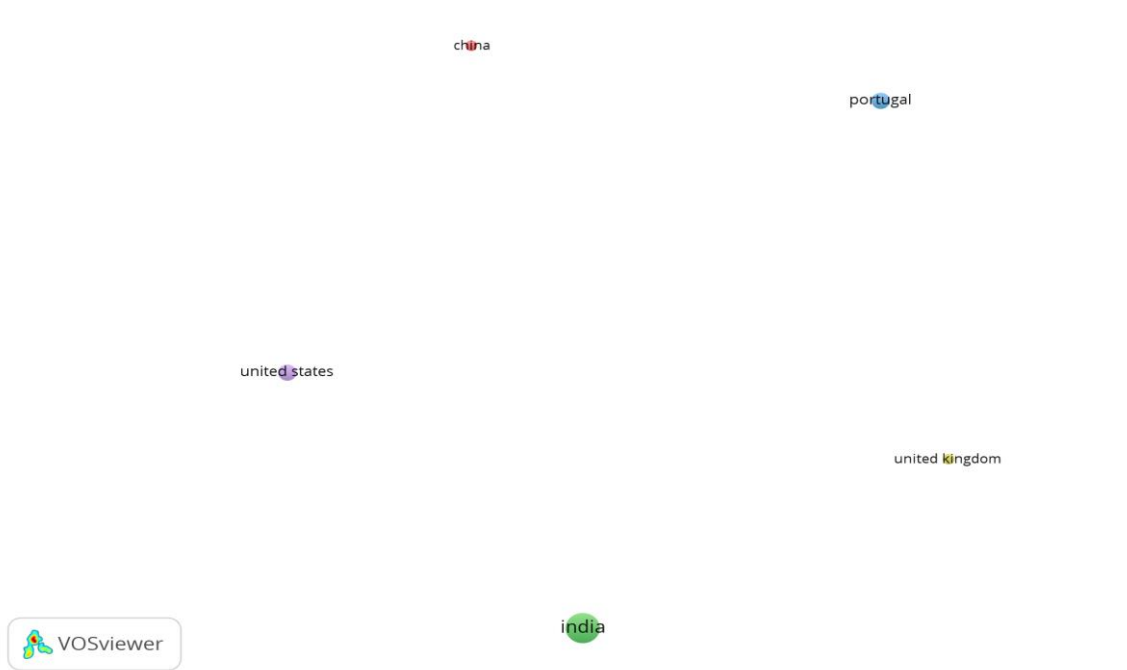


Figure 3: Countries' citation

3.3 Citation by article source

The bibliometric citation by source result provides an overview of the study's distribution of documents and citations across various academic sources. Out of the 15 sources, 11 meets the threshold with a minimum number of document and citation set at 1. Each source is represented by one document, and they have received citations ranging from 2 to 10. Notably, "Geoforum" and "Journal of Construction Engineering and Management" are the most cited sources, with ten citations each, suggesting their significant influence in this research area. "BMC Public Health" follows closely with nine citations. Several other sources, such as the "Indian Journal of Occupational and Environmental Medicine," "Mobilities," and "Gender and Development," have received 6 or 5 citations, indicating their relevance in the field. The remaining sources have received four or fewer citations. Despite the variation in the number of citations, all sources have a total link strength of 0, which implies that there are no direct connections or citations between the documents from different sources. Further analysis of the

individual documents and their citation patterns may shed light on the specific contributions and collaborations among the sources in this field.

Table 2: Citation by source

ID	Source	Documents	Citations	Total link strength
1	Geoforum	1	10	0
2	Journal of construction engineering and management	1	10	0
3	BMC public health	1	9	0
4	Indian journal of occupational and environmental medicine	1	6	0
5	Mobilities	1	6	0
6	Gender and development	1	5	0
7	Journal of clinical and diagnostic research	1	4	0
8	Work (reading, mass.)	1	4	0
9	Journal of environmental and public health	1	2	0
10	Management and labour studies	1	2	0
11	Social change	1	2	0

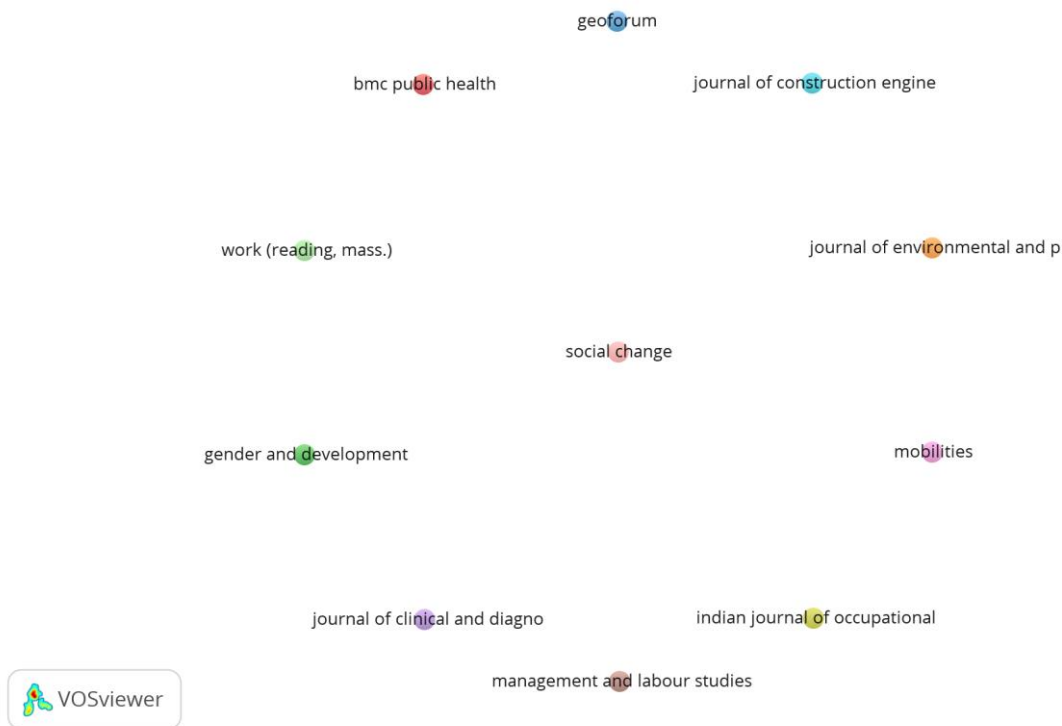


Figure 4: Citation by source

4.0 Discussion of Literature

4.1 Living Conditions of Workers in the Construction Industry

Singh (2016) examines the living conditions of construction workers in Gandhinagar City, revealing a slight improvement in their economic situation. However, their demographic, social, and living conditions remain distressing and vulnerable. Migrant workers play a significant role, managed through a contract system. The industry is predominantly male, with female workers occupying unskilled roles. The Harris-Todaro model partially applies to the rural-to-urban migration process. Unlike government employees, construction workers lack social security and other benefits. Achieving decent work for migrant workers remains a significant challenge in the industry. Another study by Marques et al. (2021) examines the political economy of posting in the European Union, focusing on Portuguese construction workers' working and living conditions posted to other EU Member States. The study uncovers abusive and exploitative practices involved in posting, contributing to the (de)regulation of labour in the construction sector. Despite the goal of a free labour movement, posted workers face limited social rights in the host country. The research, conducted as part of the 'EU Post Lab' project, utilises document analysis and interviews to shed light on the challenges posted workers face and aims to promote cooperation and awareness in the posting field.

The study of Menzil (2016) aims to understand the health status and habits of 200 male construction workers in Bangalore. Most workers (90.5%) are migrants, and 26.5% engage in smoking and alcohol consumption, potentially increasing their vulnerability to accidents and health issues. Respiratory infections (16%) and musculoskeletal problems (9%) were prevalent. Improving safety measures at construction sites and providing better housing away from the sites are recommended to address these issues. A cross-sectional study was conducted among 404 male construction workers to assess their QOL and probable psychological distress (Mathew et al., 2016). The study used the World Health Organization (WHO) QOL-BREF and the 12-Item General Health Questionnaire (GHQ-12). The results revealed poor QOL scores in the environmental domain, highlighting the need for better living conditions, healthcare access, and recreational facilities for these workers. Additionally, a significant prevalence of probable psychological distress was observed, warranting attention to the mental well-being of construction workers.

Dhar (2014) focuses on low-income construction workers from a small construction company in eastern India, particularly from Jharkhand. Ethnography, photo elicitation, and in-depth

interviews were used to collect qualitative data from twelve families residing at the construction site. The research identified four themes: Daily Rituals, Living Conditions, Quality of Food, and Health and Hygiene. The findings revealed pitiful living conditions attributed to acute poverty among the workers. The study emphasises the need for policymakers and philanthropists to use research findings to improve low-income construction workers' status and quality of life. Similarly, Rahaman & Rahman (2021) focus on the quality of work-life (QWL) of construction workers in Bangladesh, given the inhumane working conditions and living standards they endure while contributing significantly to the country's economic development. Employing a mixed-method approach, the researchers conducted one-to-one interviews, focus group discussions, and structured questionnaires. The findings indicate high dissatisfaction among construction workers regarding their working conditions, pay, accommodation, food, education, health, and safety. The study emphasises the need for policies to improve workers' well-being. It highlights its significance in enhancing academic literature related to the current condition of construction workers in Bangladesh's construction industry. This study is noted as the first of its kind in Emerald Insight publishers, shedding light on the overall inhuman work-life of construction workers in Bangladesh.

Nivedita et al. (2019) conducted research with women construction workers in Ahmedabad, Gujarat, one of the world's fastest-growing cities, representing India's exclusionary economic growth. The study involves collaboration with a migrant construction workers' union to shed light on the experiences of female migrants in the city. The women members of the union utilise a method to bring visibility to their struggles as migrants, facing challenges with men, local authorities, and employers. They aim to draw attention to the additional burdens they endure due to a neglectful state and industry, advocate for improved working and living conditions, and raise awareness of gender inequalities that should be incorporated into the demands of the workers' union. Berseneva et al. (2019) focus on the methods used to select personnel for work shifts in extreme conditions of the Far North at a construction enterprise. The study suggests ways to provide psychological support to candidates during the selection process. The paper proposes methods and means of psychological support for the adaptation period of shift workers based on the analysis of changes in efficiency and the psychofunctional state of staff in the severe northern region. Recommendations are given to improve the adaptation process to extraordinary living conditions at different stages of a shift work period. The research investigates the correlation between personnel efficiencies and various factors, such as adaptation time to shift work, temperament, physical qualities, psycho-

emotional state, and age of candidates. Additionally, the paper proposes teaching personnel self-control skills and highlights the main components of psychological support for staff adaptation. In conclusion, the paper identifies the main risk groups when selecting candidates for senior positions of personnel working shifts in the conditions of the Far North.

Dhal (2020) explores the labour process of these unique informal construction workers' assemblies, comprising around 15,000 labourers daily. It investigates their employment conditions, labour relations, and the role of trade unions and the government in regulating this employment relationship. The study is based on a field study involving observation, interactions with 84 migrant construction workers, and 118 photographs. The findings reveal the precariousness experienced by these labourers due to irregular work, food shortages, significant family burdens, living in slums, and harassment from goons and contractors, with minimal support from trade unions and the government. Employers often neglect their legal obligations. Ge et al. (2022) study focuses on the impact of a knowledge-based employee incentive mechanism (EIM) on innovation performance in Shihezi, Xinjiang Uygur Autonomous Region. Through a questionnaire survey of knowledge-based workers (KBWs) in typical enterprises, the research explores the relationship between psychological capital (PsyCap), EIM, and employee innovation performance (EIP). Results reveal a high overall score of KBWs on PsyCap, EIM, and EIP scales. Knowledge-based EIM significantly influences EIP and PsyCap, with PsyCap positively impacting EIP. The study highlights the importance of innovative management practices for KBWs in Shihezi enterprises. It provides valuable insights for enhancing collaborative innovation performance in the region.

Fei (2020) investigates the compound labour regime (CLR) in Chinese construction projects in Africa, focusing on the spatial dynamics of management and workers' agency. It examines the unique form of "living at work" experienced by Chinese workers in African mining compounds and dorms, shaped by transnational, national, and local factors. A case study of a Chinese infrastructure project in Ethiopia reveals internal fragmentation within the seemingly integrated CLR due to subcontracting, outsourced labour, and the employment of expatriate and local workers. This fragmentation leads to negotiated despotism for expatriate workers and cautious precarity for local recruits, highlighting the complexity and contradictions of Chinese investment in Africa. Betancourt et al. (2013) investigate the challenges faced by India's estimated 40 million migrant workers and their children in the construction industry. Despite the country's economic growth, child protection issues persist for this vulnerable population. Using a rights-based model of child protection called the SAFE model. The

research combines case study methods and interviews with stakeholders, experts, and focus group discussions with workers and their children. The findings reveal complex stressors, including limited access to healthcare, education, and unsafe living conditions, impacting the health and well-being of migrant families. The study emphasises the need for enhanced corporate and government accountability and child-focused policies to safeguard the rights and protection of this invisible and highly mobile population. Mohankumar et al. (2018) investigated morbidity among 312 urban construction workers in Kancheepuram District, India. Around 80.1% had health-related issues, with musculoskeletal problems being the most common (71.5%), followed by skin, eye, abdominal, respiratory problems, and external injuries. Significant associations were found with smoking, alcohol consumption, other tobacco use, work type, marital status, and diet. The study underscores the need for awareness about health and safety issues in construction work, health insurance coverage, and health screening services to enhance worker well-being and productivity. Akram's (2014) cross-sectional study from western Uttar Pradesh examines the occupational diseases, treatment patterns, and public health concerns of MCWs in urban areas. Data is collected through semi-structured interviews and ethnographic observation using multi-stage cluster sampling. The findings show that 35% of MCWs reported injuries, and 70% reported diseases in the last year. Public health facilities are lacking on most construction sites, exacerbating the burden of occupational diseases on migrant workers. Policy interventions are needed to improve the conditions of MCWs and reduce disparities in economic and social development among regions and states, thereby regulating unproductive migration.

Construction workers face numerous critical issues that significantly impact their living conditions. Poor working conditions expose them to hazardous and challenging environments, leading to occupational hazards and health problems. Lack of access to proper health facilities exacerbates their vulnerability to occupational diseases and injuries. At the same time, inadequate living spaces, especially for migrant workers, resulting in overcrowding and unsanitary conditions. The absence of basic facilities like clean water and sanitation on many construction sites compounds these challenges. Additionally, the disparities in economic and social development between regions and states contribute to unproductive migration, further affecting the health and well-being of workers. Low wages are another pressing concern, as many construction workers earn meagre incomes despite arduous labour. These issues collectively highlight the urgent need for improved safety measures, better access to healthcare and public health facilities, fair wages, and policies that address the living conditions and overall welfare of construction workers in the industry.

5.0 CONCLUSION

This study delves into the living conditions and challenges construction workers face in the construction industry, specifically focusing on their well-being and overall quality of life. The research findings have shed light on the critical issues impacting these workers, highlighting the urgent need for policy interventions and improved working conditions. The study revealed that construction workers are confronted with numerous health hazards and occupational risks due to their work and the often-poor living conditions they experience. The prevalence of self-reported injuries and diseases among workers underscores the urgent need for enhanced safety measures and access to proper healthcare facilities at construction sites. Furthermore, the lack of public health facilities in many sites exacerbates the burden of occupational diseases on migrant workers, who often face additional challenges due to their migratory status. The presence of disparities in economic and social development among regions and states further compounds the challenges construction workers face, leading to unproductive migration and contributing to the overall vulnerability of these workers. The issue of low wages also emerged as a significant concern, as many construction workers are earning meagre incomes despite their hard work and contributions to the industry. Addressing these disparities and improving wage structures are essential to creating a fair and equitable working environment for all workers. The study also found that the living conditions of construction workers, especially migrant workers, are inadequate. The narrow and unhygienic living spaces contribute to the prevalence of health issues among workers and their families. There is a pressing need to create awareness among workers about their health and safety at the workplace and to provide improved living conditions and access to basic facilities. One of the crucial findings of the research is the lack of linkages and collaboration between documents and sources, as indicated by the total link strength of 0. This suggests room for improvement in research collaboration and knowledge-sharing among researchers and institutions. Encouraging more collaboration and exchange of ideas could lead to enhanced research outcomes and a more robust understanding of the challenges faced by construction workers. This study serves as a vital contribution to understanding the living conditions and well-being of construction workers in the construction industry. The research findings underscore the urgent need for policy corrections and measures to improve the conditions of these workers. Creating awareness about health and safety, providing access to proper healthcare facilities, and addressing the issue of low wages are essential steps in enhancing the quality of life and overall well-being of construction workers. Moreover, promoting research collaboration and

knowledge-sharing among institutions can lead to more comprehensive and effective interventions to address the critical issues facing construction workers.

5.1 Policy Recommendations and Industry-Wide Initiatives

i. **Raise Awareness and Sensitisation:** Conduct awareness campaigns and sensitisation programs to educate employers, workers, and the public about the rights and well-being of construction workers. Building a culture of empathy and understanding can lead to positive changes in the industry.

ii. **Improving the living conditions of construction workers** requires a multifaceted approach involving policy interventions, industry-wide initiatives, and collaborative efforts between the government, employers, and relevant stakeholders. Below are some key policy recommendations and industry-wide initiatives that can significantly impact.

iii. **Enforce and Strengthen Labour Laws:** Governments should enforce existing labour laws and introduce stricter regulations to ensure fair wages, safe working conditions, and reasonable working hours for construction workers. Penalties for violations should be stringent to deter non-compliance.

iv. **Provide Access to Healthcare Facilities:** Establishing and maintaining healthcare centres at construction sites will ensure prompt medical attention to injured or sick workers. Regular health check-ups and vaccination programs should also be implemented to prevent the spread of diseases.

v. **Affordable Housing Schemes:** Governments and private construction companies can collaborate to provide affordable housing options for construction workers near their worksites. Access to proper housing with basic amenities will significantly improve their living conditions and reduce the burden of long commutes.

vi. **Safe and Hygienic Living Spaces:** Employers should ensure that the temporary living spaces for migrant construction workers meet minimum safety and hygiene standards. Adequate sanitation facilities, proper ventilation, and clean drinking water should be provided.

vii. **Skill Development and Training:** Invest in skill development and training programs to enhance the skills and capabilities of construction workers. This will improve their employability and contribute to their overall well-being.

viii. **Social Security Measures:** Implement social security schemes, including health insurance, disability benefits, and pension plans, to provide financial support and stability to construction workers and their families.

- ix. Promote Mental Health Support: Address construction workers' mental health challenges by offering counselling services and support networks. Occupational stress and the transient nature of their work can take a toll on their mental well-being, necessitating proactive measures.
- x. Encourage Industry Collaboration: Foster collaboration among construction companies, trade unions, and non-governmental organisations to collectively address the living conditions of construction workers. Joint initiatives can pool resources and expertise for a more significant impact.
- xi. Promote Worker Participation: Encourage participation in decision-making through workers' committees or councils. Their involvement can provide valuable insights and adequately address their needs and concerns.

5.2 Future Studies Focus

- i. Investigate the long-term impact of policy and industry-wide initiatives on the living conditions of construction workers. Analyse how implementing various measures has influenced their well-being, safety, and job satisfaction over time.
- ii. Conduct comparative studies across different countries and regions to understand the variations in living conditions and challenges construction workers face. Identify successful practices and learn from best practices implemented in other contexts.
- iii. Explore the potential of technology in enhancing the living conditions of construction workers. Investigate the adoption of digital solutions, smart construction sites, and automation in promoting safer and more efficient working environments.
- iv. Impact of COVID-19: Analyse the impact of the COVID-19 pandemic on construction workers' living conditions and work arrangements. Study the measures taken to ensure their safety during the pandemic and identify strategies for building resilience in the post-pandemic era.
- v. Study the link between social and economic empowerment of construction workers and their living conditions. Explore how access to education, skill development, and financial inclusion can uplift their standard of living.
- vi. Study the role of worker voice and participation in decision-making processes. Analyse how involving construction workers in decision-making can lead to improved policies and better outcomes for their living conditions.

References

- Adsul, B. B., Laad, P. S., Howal, P. V., & Chaturvedi, R. M. (2011). Health problems among migrant construction workers: A unique public–private partnership project. *Indian Journal of Occupational and Environmental Medicine*, *15*(1), 29.
- Akram, M. (2014). Occupational disease and public health concerns of migrant construction workers: a social epidemiological study in western Uttar Pradesh. *Social change*, *44*(1), 97-117.
- Berseneva, M., Vasilovskaya, G., & Danilovich, E. (2019). Psychological support of fly-in/fly-out labour for construction companies working in Far North. In *IOP Conference Series: Materials Science and Engineering* (Vol. 687, No. 4, p. 044009). IOP Publishing.
- Betancourt, T. S., Shaahinfar, A., Kellner, S. E., Dhavan, N., & Williams, T. P. (2013). A qualitative case study of child protection issues in the Indian construction industry: investigating the security, health, and interrelated rights of migrant families. *BMC public health*, *13*, 1-12.
- Celik, T., & Budayan, C. (2016). How the residents are affected from construction operations conducted in residential areas. *Procedia engineering*, *161*, 394-398.
- Dhal, M. (2020). Labor stand: Face of precarious migrant construction workers in India. *Journal of construction engineering and management*, *146*(6), 04020048.
- Dhar, R. L. (2014). Understanding working class lives: An examination of the quality of life of low income construction workers. *Work*, *49*(1), 87-105.
- Fei, D. (2020). The compound labor regime of Chinese construction projects in Ethiopia. *Geoforum*, *117*, 13-23.
- Ge, Y., He, Y., Huang, Z., & Sun, X. (2022). Influence of knowledge-based employee incentive construction on innovation performance using psychological capital. *Journal of Environmental and Public Health*, 2022.
- HBR (2021). Retrieved from <https://hbr.org/2021/05/that-dreaded-commute-is-actually-good-for-your-health>
- Jayaram, N., Jain, P., & Sujatha Sugathan, S. (2019). No city for migrant women: Construction workers' experiences of exclusion from urban governance and discrimination in labour markets in Ahmedabad. *Gender & Development*, *27*(1), 85-104.
- Kumar, M. (2013). Inimitable issues of construction workers: Case study. *British Journal of Economics, Finance and Management Sciences*.
- Marques, J., Veloso, L., & Oliveira, C. S. (2021). Free mobility, locked rights: the posting of construction workers from Portugal. *Mobilities*, *16*(3), 404-422. <https://doi.org/10.1080/17450101.2020.1863552>
- Mathew, G., Ramesh, N., Shanbhag, D., Goud, R., Subramanian, S., Lobo, C., ... & Dasari, P. (2016). Quality of life and probable psychological distress among male workers at a construction site, Kolar district, Karnataka, India. *Indian Journal of Occupational and Environmental Medicine*, *20*(1), 54.
- Menzil, M., Anand, A. K., & Puttaswamy, M. (2016). Study of Morbidity Pattern among the Male Construction Workers. *Indian Journal of Public Health Research & Development*, *7*(4).

- Mohankumar, P., Gopalakrishnan, S., & Muthulakshmi, M. (2018). Morbidity Profile and Associated Risk Factors among Construction Workers in an Urban Area of Kancheepuram District, Tamil Nadu, India. *Journal of Clinical & Diagnostic Research*, 12(7).
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & PRISMA Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. doi:10.1371/journal.pmed.1000097
- Pérez-Hernández, B., Lopez-García, E., Graciani, A., Ayuso-Mateos, J. L., Rodríguez-Artalejo, F., & García-Esquinas, E. (2018). Housing conditions and risk of physical function limitations: a prospective study of community-dwelling older adults. *Journal of Public Health*, 40(3), e252-e259.
- Rahaman, M. S., & Rahman, M. M. (2021). Life of the Bangladeshi construction workers: an insight observation from the reality of the quality of an isolated community. *Journal of Enterprising Communities: People and Places in the Global Economy*, 16(5), 829-847.
- Ryu, S., & Fan, L. (2023). The relationship between financial worries and psychological distress among US adults. *Journal of Family and Economic Issues*, 44(1), 16-33.
- Singh, G. P. (2016). Plights of migrant construction workers. *Management and Labour Studies*, 41(3), 181-198.
- Techera, U., Hallowell, M., Stambaugh, N., & Littlejohn, R. (2016). Causes and consequences of occupational fatigue. *Journal of occupational and environmental medicine*, 58(10), 961-973.
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207-222. doi:10.1111/1467-8551.00375
- Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538. doi:10.1007/s11192-009-0146-3
- Varshney, K., Glodjo, T., & Adalbert, J. (2022). Overcrowded housing increases risk for COVID-19 mortality: an ecological study. *BMC Research Notes*, 15(1), 1-4.
- WHO Housing and Health Guidelines. Geneva: World Health Organization; 2018. 1, Introduction. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK535298/>
- World Health Organization. (2010). *Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations*. World Health Organization.
- Zhang, W., Sun, H., Woodcock, S., & Anis, A. (2015). Illness related wage and productivity losses: Valuing 'presenteeism'. *Social science & medicine* (1982), 147, 62-71. <https://doi.org/10.1016/j.socscimed.2015.10.056>