

Occupational Safety and Informal Employment: A Study of Scaffolding Workers in the Construction Industry

Chaitali Lohakare

Research Scholar, Department of Social Work, SNDT Women's University, Mumbai

Rtd. Dr. Rohini Sudhakar

Department of Social Work, SNDT Women's University, Mumbai

Abstract

Employment is the need of an hour. The construction industry is one of the largest employment-generating sectors worldwide. However, a substantial proportion of its workforce operates under informal employment arrangements with limited regulatory protection. Among these workers, scaffolding labourers are particularly vulnerable due to the hazardous nature of their tasks, which involve working at heights, handling heavy materials, and operating in unstable environments. This study aims to explore the occupational safety conditions and lived experiences of scaffolding workers in the informal segment of the construction sector through a qualitative research approach. Data were collected using in-depth interviews and field observations to understand workers' perceptions of risk, availability of safety equipment, training practices, and employer accountability. The findings reveal that inadequate safety training, absence of protective gear, irregular wages, and lack of social security significantly increases the vulnerability of scaffolding workers. The study highlights the urgent need for stronger regulatory enforcement, awareness programmes, and inclusive labour policies to improve workplace safety and welfare for informal construction workers.

Keywords: Real Estate, Occupational Safety, Informal Employment, Scaffolding Workers, Construction Industry, Lived Experiences, Social Welfare

Submitted: January 22, 2026 Revised: February 25, 2026 Accepted: March 10, 2026 Published: March 15, 2026

DOI: [10.5281/zenodo.19288628](https://doi.org/10.5281/zenodo.19288628)



1. Introduction

The fortune of any economy depends on the infrastructure and socio-economic development and its standard of living. The real estate plays an important role in economic development by contributing to infrastructure development, employment generation and urbanization in India. It generates large-scale employment opportunities, particularly for migrant and unskilled labourers which operate within informal employment arrangements characterized by temporary contract absence of social security and limited regulatory provision. The skill development has a close association with the employment opportunity (Gaikwad, 2016). While construction labour is often discussed as a homogeneous category but the significant variations exist in nature of work and exposure to occupational risk across different occupations within the industry (Dhal et al., 2020). The construction industry is a critical sector in India, employing 36.12 million workers and representing a significant source of employment, particularly for migrant and unskilled labourers. Construction workers constitute 7.5% of the global labour force, with the industry being the largest economic activity in India after agriculture (Keshava Reddy M et al., 2023). The migrant workers face substantial occupational risks: studies show 35-70% self-report injuries or diseases annually (Akram et al., 2014). Common health hazards include musculoskeletal disorders, respiratory infections, and workplace accidents (Nirmala et al., 2019). Scaffolding workers face severe, systematically unaddressed occupational risks that expose them to significant physical harm and professional marginalization (Quadri et al., 2022) confirms scaffolding work involves critical safety challenges,

with structural issues like improper clamp and connector usage creating high accident potential further substantiates these risks, documenting construction workers' exposure to hazardous materials, harsh environmental conditions, and potential long-term health impacts including musculoskeletal disorders (Rebelo et al., 2019) underscores that the construction industry remains one of the most dangerous work environments, with scaffolding presenting particularly complex safety challenges.

Due to the nature of work Scaffolding worker expose to several occupational hazards such as falls, injuries caused by unstable structures, and long-term musculoskeletal disorders (Tiwary et al., 2011). Despite these risks, scaffolding workers often operate without adequate personal protective equipment, formal safety training, or access to welfare benefits. Their work remains largely invisible in labour policy discussions, which frequently treat construction workers as a homogeneous group, overlooking the specific vulnerabilities associated with scaffolding activities. Most existing studies on construction safety rely on quantitative indicators such as accident rates and injury statistics.

2. Review of Literature

Globally the construction industry is recognized as one of the most hazardous sectors because of high rates of workplace accidents, injuries, and fatalities. Work at height during construction work including scaffolding work is consistently identified as a major contributor to fatal accidents (Ayob et al., 2018). Studies conducted in developing countries highlight persistent gaps in safety training, inadequate provision of protective equipment, and weak enforcement of occupational safety regulations.

The evidences from multiple sources reveals alarming statistics found falls from heights account for 46.28% of fatal occupational injuries in Malaysia, while (Kaiko Mubita et al., 2021) estimate approximately 55,000 construction fatalities occur worldwide annually, roughly one fatal accident every ten minutes.

Developing countries face various challenges, (Mohd et al., 2015) like lack of safety regulations; low safety priority, insufficient training, and weak management systems further confirmed that most developing countries' construction safety remains misaligned with actual industry problems, underscoring persistent systemic safety gaps. Due to informal employment occupational safety risks systematically shift from employers to workers, and create a vulnerable workforce that assumes workplace hazards as a survival strategy (Umeokafor et al., 2022).

Benavides et al. (2022), stated that 61% of workers are in informal employment, with particularly high rates in developing regions. These workers are fundamentally lack protections, including social security and legal safeguards. Research on informal labour emphasizes how fear of job loss, wage insecurity, and absence of grievance mechanisms discourage workers from demanding safer working conditions (Levitsky et al., 2019).

3. Objectives of Study

- To examine the nature of occupational hazards and safety risks faced by scaffolding workers
- To explore the level of awareness and perceptions of scaffolding workers regarding occupational safety measures and workplace risk management
- To analyse the employment conditions and socio-economic vulnerabilities of scaffolding workers engaged in the informal construction sector

4. Research Methodology

The present study adopts a qualitative and descriptive research design to examine the occupational safety conditions and employment realities of scaffolding workers in the construction industry. The descriptive approach is used to provide a detailed understanding of the working environment, risk exposure, and safety practices experienced by scaffolding workers, particularly those engaged in informal employment (Ajibola Ibrahim Quadri et al., 2022). A qualitative research framework enables the researcher to explore workers' perceptions, experiences, and attitudes toward occupational hazards, safety equipment, and employer responsibilities.

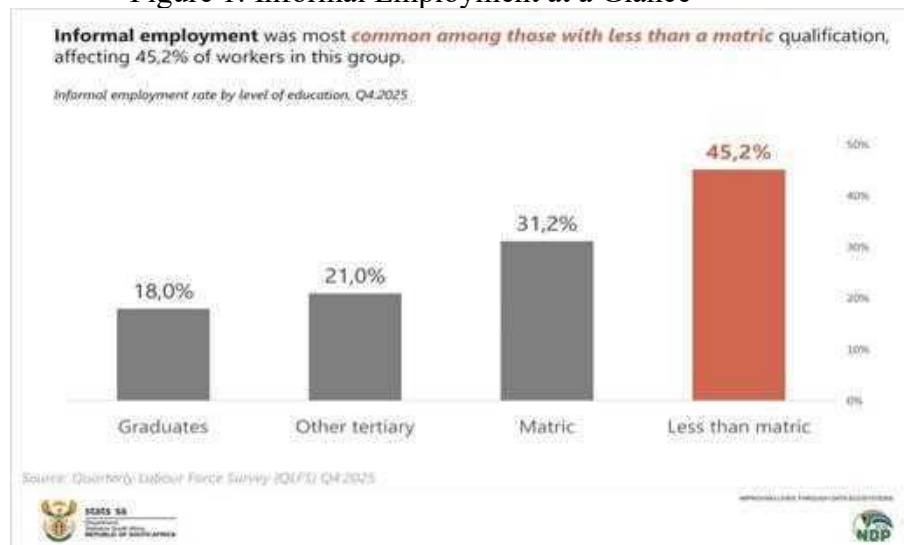
5. Discussion and Analysis

- **Theoretical Frameworks:** This study is grounded in interdisciplinary theoretical perspectives that explain occupational safety and informal employment within the construction industry. Theoretical frameworks drawn from labour studies, sociology of work, and occupational health provide the analytical lens to interpret the lived experiences of scaffolding workers. The following frameworks guide the analysis and interpretation of findings.
- **Labour Process Theory:** Labour Process Theory provides a foundational framework to understand how control over work, skill formation, and labour conditions are shaped by capitalist production systems (Braverman, 1974). In the context of scaffolding work, labour is organized through subcontracting and informal arrangements that prioritize speed and cost reduction over worker safety. Workers have limited control over work conditions, safety practices, or work pace, resulting in heightened exposure to occupational hazards.
- **In formalization of Work:** The concept of in formalization of work is central to understanding the employment conditions of scaffolding workers. In formalization refers to employment arrangements that exist outside formal regulatory frameworks, lacking contracts, social security, and legal protection. Scaffolding workers in this study operate within such informal labour markets, making them vulnerable to unsafe working conditions and employment insecurity (Castells & Portes, 1989).
- **Occupational Risk and Safety Culture:** The theory of safety culture emphasizes shared beliefs, norms, and practices related to workplace safety (Reason, 1997). In informal construction settings, safety culture is weak or absent due to lack of institutional commitment. Workers rely on personal experience rather than formal safety systems, leading to individualized risk management. This framework assists in understanding how unsafe practices become normalized and how responsibility for safety is informally transferred to workers. The absence of a safety culture further contributes to recurring accidents and long-term health problems.
- **Structural Vulnerability Framework:** Structural Vulnerability framework explains how social, economic, and political structures systematically expose certain groups to harm. Scaffolding workers experience vulnerability not because of individual choices but due to structural conditions such as informal employment, weak labour regulation, and limited access to healthcare (Quesada et al., 2011). This framework supports the study's argument that occupational safety challenges are rooted in systemic inequalities. It shifts the focus from individual behaviour to structural responsibility, reinforcing the need for policy-level interventions. These theoretical frameworks provide a comprehensive lens to analyse occupational safety among scaffolding workers. Work Construction workers face extreme occupational risks, with scaffolding work representing a critical safety crisis characterized by systemic protective equipment failures and regulatory negligence. (Lingard et al., 2013)reports that construction accounts for one in six fatal workplace accidents globally, with the sector experiencing fatal accidents every 10 minutes found that in Bangladesh, 87% of construction workers do not use safety equipment, and 57% have experienced work-related injuries. Specifically highlights scaffolding risks, noting that accidents from heights are increasingly prevalent due to factors like unmet deadlines, environmental conditions, and lack of skilled personnel.

Informal construction workers are systematically excluded from safety management systems through cost-driven subcontracting practices that normalize unsafe working conditions. Multiple studies provide strong evidence of this structural neglect. (Gervas et al., 2022) found that the precarious nature of construction work limits workers' power to demand occupational health and safety (OHS), effectively forcing them to accept workplace risks. Oswald et al. (2020) empirically demonstrated how cost-saving strategies lead to elevated safety risks, including cheaper equipment and employing

lower-paid migrant workers without appropriate safety investments (Ahmed et al., 2018). Previous research has emphasized that informal construction workers are often excluded from formal safety management systems due to cost considerations and subcontracting practices (Gurtoo & Williams, 2009).

Figure 1: Informal Employment at a Glance



The figure illustrates the relationship between education level and informal employment rates in Q4 2025. It shows that informal employment is highest among individuals with less than a matric qualification (45.2%), indicating that lower educational attainment is strongly associated with greater participation in informal work. Workers with matric education account for 31.2%, while those with other tertiary education represent 21.0% of informal employment. The lowest proportion is observed among graduates (18.0%), suggesting that higher education significantly reduces the likelihood of working in the informal sector.

6. Findings and Thematic Analysis

- The thematic analysis of in-depth interviews with scaffolding workers revealed five interrelated themes that collectively describe the everyday realities of occupational safety and informal employment in the construction industry. Fear of job loss discourages workers from voicing concerns, consistent with Standing's concept of the "precarariat," where employment insecurity suppresses resistance and collective bargaining. Similar findings have been reported in Indian construction studies, where daily wage dependency limits workers' ability to negotiate safety provisions (NCEUS, 2007).
- Economic insecurity fundamentally undermines workers' ability to negotiate safe working conditions, compelling them to accept hazardous employment environments out of fear of job loss. Multiple studies provide strong evidence for this phenomenon. (Lewchuk et al., 2013) found that the most precariously employed workers are least likely to exercise their health and safety rights.
- Health risks thus become cumulative, leading to long-term physical deterioration and reduced work capacity (Kalleberg et al., 2012). The invisibility of occupational injuries among informal workers has been widely documented, particularly in urban construction settings. The present study reinforces that health insecurity is deeply intertwined with employment informality, where workers bear the full cost of workplace hazards.

7. Limitations of Study

This study has certain limitations that should be acknowledged while interpreting the findings. First, the research is based on a qualitative approach with a limited number of scaffolding workers in Mumbai, which restricts the generalizability of the findings. The study focuses exclusively on male

scaffolding workers due to the absence of female respondents in the selected worksites (Selim Reza et al., 2020).

8. Future Scope of Study

Longitudinal studies examining the long-term health outcomes of scaffolding work would contribute to a deeper understanding of cumulative occupational risks. The future research may evaluate the effectiveness of government welfare schemes, safety training programs, and formalization initiatives in improving safety and livelihood security among informal construction workers. Comparative studies across cities or states could further inform policy interventions aimed at strengthening occupational safety in the construction sector.

9. Conclusion

This qualitative study examined occupational safety conditions and informal employment experiences of scaffolding workers in the construction industry, foregrounding workers lived realities within a highly precarious labour environment. The findings demonstrate that occupational safety challenges faced by scaffolding workers are not isolated technical issues but are deeply embedded within informal employment structures characterized by absence of written contracts, daily wage dependency, weak regulatory enforcement, and limited employer accountability. The study revealed that scaffolding workers routinely perform high-risk tasks at significant heights without adequate safety equipment or formal training. Occupational risks are normalized due to economic compulsion and fear of job loss, leading workers to accept unsafe working conditions as an unavoidable part of survival. Health problems, including chronic pain and untreated injuries, remain largely invisible due to lack of access to healthcare and the absence of wage protection during illness or recovery.

References

- 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.
- Ayob, A., Shaari, A. A., Zaki, M. F. M., & Munaaim, M. A. C. (2018). Fatal occupational injuries in the Malaysian construction sector: Causes and accidental agents. *IOP Conference Series: Earth and Environmental Science*, 140, 012095. <https://doi.org/10.1088/1755-1315/140/1/012095>
- Benavides, F. G., Silva-Peñaherrera, M., & Vives, A. (2022). Informal employment, precariousness, and decent work: From research to preventive action. *Scandinavian Journal of Work, Environment & Health*, 48(3), 169–172. <https://doi.org/10.5271/sjweh.4024>
- Dhal, M. (2020). Labour stand: Face of precarious migrant construction workers in India. *Journal of Construction Engineering and Management*, 146(5), 04020048. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001832](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001832)
- Gaikwad, S. R. (2016). To assess the present employability skills and impact of skill development initiatives on 'GenNext'. *International Journal of Economics and Commerce*, 1(3). https://scholar.google.com/citations?view_op=view_citation&hl=en&user=KufjkiwAAAAJ&authuser=1&citation_for_view=KufjkiwAAAAJ:u-x6o8ySG0sC
- Gervas, A., Kinyondo, G., Torm, N., & Anasel, M. G. (2022). Occupational health and safety in Tanzanian construction sector: Incompliance, informality, and power relations. *PanAfrican Journal of Governance and Development*, 3(1).
- International Labour Organization. (2005). *Global estimates of fatal work-related diseases and occupational accidents by World Bank regions*. ILO.
- International Labour Organization. (2009). *ILO standards on occupational safety and health: Promoting a preventative safety and health culture (International Labour Conference, 98th Session, Report III)*. ILO.

- International Labour Organization. (2017). *World social protection report 2017–2019: Universal social protection to achieve the Sustainable Development Goals*. International Labour Office.
- Kalleberg, A. L. (2012). Book review symposium: *The precariat: The new dangerous class* by Guy Standing. *Work, Employment & Society*, 26(4), 685–686.
- Lewchuk, W. (2013). The limits of voice: Are workers afraid to express their health and safety rights? *Osgoode Hall Law Journal*, 50(4), 789–812. <https://doi.org/10.60082/2817-5069.1001>
- Levitsky, M. (2019). Occupational health and informal work. In *Global occupational safety and health management handbook*.
- Lingard, H. (2013). Occupational health and safety in the construction industry. *Construction Management and Economics*, 31(6), 505–514. <https://doi.org/10.1080/01446193.2013.816435>
- Mohd, M. A., & Mahto, B. (2015). *Site safety and planning for building construction*.
- Nirmala, C., & Prasad, S. (2019). Occupational hazards and public health concerns of migrant construction workers: An epidemiological study in southern India. *International Journal of Community Medicine and Public Health*.
- Oswald, D., Ahiaga-Dagbui, D., Sherratt, F., & Smith, S. (2020). An industry structured for unsafety? An exploration of the cost–safety conundrum in construction project delivery. *Safety Science*, 122, 104535. <https://doi.org/10.1016/j.ssci.2019.104535>
- Quadri, A. I., & Fadugba, O. G. (2022). Risk assessment and safety precautions for construction site scaffolding.
- Quesada, J., Hart, L. K., & Bourgois, P. (2011). Structural vulnerability and health: Latino migrant laborers in the United States. *Medical Anthropology*, 30(4), 339–362. <https://doi.org/10.1080/01459740.2011.576725>
- Rebelo, M., Silveira, F., Czarnocka, E., & Czarnock, K. (2019). Construction safety on scaffolding: Building information modeling (BIM) and safety management—A systematic review. *U.Porto Journal of Engineering*, 5(2), 46–60. https://doi.org/10.24840/2183-6493_005.002_0006
- Reddy, K., & Tiwari, R. (2023). Occupational health hazards among construction workers in India. *International Journal of Science and Research*, 12(9). <https://doi.org/10.21275/SR23830143131>
- Reza, S. (2020). *The construction precariat*.
- Tiwary, G., & Gangopadhyay, P. K. (2011). A review on the occupational health and social security of unorganized workers in the construction industry. *Indian Journal of Occupational and Environmental Medicine*, 15(1), 18–24.
- Umeokafor, N., Umar, T., & Evangelinos, K. I. (2022). Bibliometric and scientometric analysis-based review of construction safety and health research in developing countries from 1990 to 2021. *Safety Science*.
- Yin, Z., & Caldas, C. H. (2020). Scaffolding in industrial construction projects: Current practices, issues, and potential solutions. *International Journal of Construction Management*, 22(13), 2554–2563. <https://doi.org/10.1080/15623599.2020.1711499>