Analysis of the causes of accidents on construction sites in Malaysia: Case Studies of High-rise Buildings

AbdulLateef Olanrewaju[1], Joe Ann Ng[2] and Shalini Sanmargaraja[3]

[1,2,3] Faculty of Engineering and Green Technology
Universiti Tunku Abdul Rahman (UTAR)
Jalan Universiti Bandar Baru, 31900 Kampar, Perak, Malaysia
olanrewaju20002000@gmail.com

Abstract
The Malaysian construction sector ranks third in terms of the number of workplace accidents. Therefore, this study was undertaken to investigate the persistent and systemic problems contributing to accidents on the construction sites. Data for the study were collected from five active construction companies using structured survey-interview techniques. The major accident-factors are the lack of adequate training provided to workers, insufficient supervision by site managers, a lack of awareness or disregard for safety rules and regulations, and poor communication between various personnel on sites, particularly between workers and site supervisors or engineers. These factors are combined to create an environment where safety is compromised, and accidents are more likely to occur. A salient finding emerging from the study is that the majority of reported accidents on construction sites are associated with physical body injuries, indicating a failure to mitigate hazards through preventative measures. From an ontological perspective, the study emphasises that addressing construction site accidents requires more than administrative controls such as periodic inspections, regulatory compliance, and written safety codes. Instead, it advocates for a behaviour-based safety strategy, that focuses on shaping safety culture, attitudes, and individual responsibility. By the everyday behaviour and safety consciousness of workers, construction firms can significantly reduce the incidence of accidents and foster a safer, more resilient working environment.

Keywords
Construction companies; physical health, mental health; construction site, behavioural strategy

1. Introduction

The construction sector conceives, plans, constructs, alters, repairs, refurbishes, upgrades, and demolishes buildings, engineering and other structures. However, despite this glossy and impressive performance, the safety of the construction sector is poor. These are quantitatively supported by a study conducted by Olanrewaju, et al., (2022a) that found that 40% of construction workers suffered accidents on the sites. The vulnerability of construction workers to accidents is high. Construction accidents are unintentional, unexpected, and uncontrollable events that lead to injuries that are harmful to those on or near construction sites or that cause damage to properties on or near construction sites. The harmfulness may include physical or mental health harm to the victims. The costs of accidents on construction projects are huge and comprise of both latent and explicit costs. The explicit cost includes medical bills, compensation, and fines, while the latent cost includes lost productivity, the cost of retraining new staff, project delays, morale loss, social discrimination, and grief for the victims' families. This narrative is supported by Harper and Koehn (1998) when they found that a reduction in accidents on sites will lead to a reduction in worker's compensation, insurance rates, litigation charges, lost time and reduced productivity. An analysis of data on work-related illness in the UK by Lucas (2018) found that there was a loss of 1.9 million working days within the sector which to equate to around 8,000 construction workers being absent from work for a full year. In Malaysia, work is suspended for two months for every fatal accident. Like most fast-developing countries, while the performance of the Malaysian construction sector is robust, it is plagued with severe problems such as health and safety problems, delays, low profit margin, poor (Olanrewaju et al., 2022). For instance, the accident rate increased from 237 in 2015 to 206 in 2020 and

177 in 2021 (Department of Occupational Safety and Health (2022). It is misleading to assume that the accident rate dropped in 2020 and 2021 as compared to 2015. The decline is due to the decline in construction activities due to COVID-19. The pandemic saw a decline of more than 50% in construction outputs. In 2019, there were approximately 4.1 million working days lost in Malaysia due to workplace injuries (Social Security Organization, 2019). The benefits for industrial accidents increased from RM2,665.16 million in 2015 to RM4,147.68 million in 2019 (Social Security Organization, 2019). In 2019, the total payment for Temporary Disablement Benefit increased by RM35.95 million or 16.03% to RM260.15 million as compared to RM224.20 million in 2018 (Social Security Organization, 2019). The construction sector hugely contributed to these figures (Olanrewaju, et al., 2022a). Recognising the need to improve health and safety practises in the construction sector, various initiatives and measures have been taken. For instance, the health and safety of workers were identified as strategic components of the CITP (Construction Industry Transformation Programme, 2016) and the National Construction Policy 2030. The target of the CITP is to reduce worksite fatalities and injuries by more than 50% by 2020 (CITP, 2020). Although it is easy to assume that regulators can play a significant role in managing accidents on construction sites (Jaafar, et al., 2018), but regulations, codes, standards, and policies backed up by contract terms and conditions are not enough and effective in the long run (Olanrewaju, et al., 2022b). While research on accidents in the construction sector is increasing, research on accidents based on qualitative method on construction sites is scarce (Luo., 2022; Awwad, et al., 2016 and Ashebir, et al., 2020). Latest research on site accidents in Malaysia (Williams et al., 2017and Oni, et al., 2024a, b,c) raised many questions about the health and safety. Accidents on construction sites vary considerably in terms of their nature, complexity, impact, and the types of projects involved. Even within the building sector, the characteristics and severity of accidents differ significantly. In Malaysia, the rapid growth of high-rise construction is largely driven by urbanization and a demographic shift toward apartment living. The future trajectory of the construction sector is being shaped by advancements in technology, increasing emphasis on sustainability, and the pressing need to address challenges associated with aging building stock. However, alongside the expansion of high-rise projects comes an escalation in management complexities, particularly in health and safety practices. Despite the growing prevalence of high-rise construction, limited research has been undertaken to examine accidents specifically within this sector, leaving a critical gap in both academic knowledge and practical safety management.

2. Background and Theoretical Framework

The importance of the construction sector is unique among the major economic sectors in any country, regardless of whether the country is underdeveloped, developing, or developed. However, health and safety standards in the construction sector are generally low (Oni, et al, 2024a and Zhou et al., 2015). The reason for this is simple. More than 80% of the construction human resources work on sites, use dangerous materials and components, are exposed to harsh weather, work at height, carry or convey heavy materials and components, and poor training are among the reasons (Olanrewaju, 2022a). Site operatives work in unhygienic conditions, use sophisticated equipment, and are exposed to harsh weather and infectious diseases (Olanrewaju, 2025). Zhou et al. (2015) reviewed safety management policies in the construction industry in 34 economies, from which it was concluded that despite the various measures taken to improve the safety records on sites, accidents and injuries continued to plague the construction sector. Awwad et al.'s (2016) study in Lebanon, found that injuries and fatalities on sites are increasing due to poor safety culture, lack of government commitment, and poor legislation. Similarly, 38 deaths and 64,000 injuries were recorded in the UK construction industry in 2017 (Lucas, 2018). Like in most countries, the high degree of illness, injuries, and deaths from site accidents in the Malaysian construction sector is high and increasing unabated. According to Chong and Low (2014), safety and health problems remain critical to the Malaysian construction sector. This is supported by academic literature (Ayob, et al., 2018 and Williams et al., 2017) and government sponsored reports and programmes (CITP, 2015, 2021 and Government of Malaysia, 2021). Table 1 contains the distribution of accident across various sectors in Malaysia. While injuries and deaths in most sectors are reducing, those among construction workers are high and increasing. In 2015, 88 deaths were reported and increased to 118 in 2018 before being reduced to 84 deaths in 2019 (Occupational Safety and Health-Occupational Accident Statistics, 2019). While the size of construction accidents is not very high compared to other sectors, the degree of fatalities in the construction sector is very high. However, many regulatory frameworks have been devised by the government to reduce the rate of fatal industrial accidents from 7.24 per 100,000 workers in 2006 to 2.81 per 100,000 workers in 2020. For instance, SHASSIC (Safety and Health Assessment System in Construction) and Hazard Identification, Risk Assessment and Risk Control (HIRARC) were formulated. HIRARC aims to identify all factors which could affect the safety and wellbeing of workers. A total of 1,163 SHASSIC assessments were conducted from 2015 to 2020 (CITP, 2021). A total of 2,123

2.

Safety and Health Officers (SHO) have been trained from 2016 to 2020. It is required that SHO is employed full time by the contractor for a project that is valued more than RM20 million (CITP, 2021).

Table 1. Table 1 Number of Accidents According to Industry

Industry	2013	2014	2015	2016	2017	2018	2019	2020
Agriculture, Forestry and Fishing	2,249	2,135	1,848	1,946	2,034	2,106	2,144	2,159
Mining and Quarrying	411	453	346	363	384	369	318	293
Manufacturing	16,145	15,323	15,153	15,768	16,589	16,621	17,577	13,672
Electricity, Gas, Water and Sanitary Services	791	905	875	922	893	776	822	388
Construction	5,908	6,552	6,301	7,338	7,870	8,841	9,968 7	8,923
Trading	10,133	9,618	9,185	9,125	9,172	9,107	9,171	6,813
Accommodation and Food Services Activities	2,209	2,052	2,037	1,904	1,878	1,736	1,839	948
Transportation and Storage	4,002	4,178	4,008	3,619	3,694	3,698	3,792	3,087
Financial and Insurance / Takaful Activities	1,231	1,452	1,648	1,800	1,847	1,921	1,854	898
Real Estate, Leasing and Business	5,438	5,445	5,156	5,223	5,353	5,332	5,392	3,632
Public Administration and Defence Compulsory Social Security	6,884	7,533	8,548		20,266	22,124	24,765	11,634 1

Despite the fact that several studies (Chong and Low, 2014; Oni, et al., 2024b,c; Olanrewaju, et al., 2022b) have investigated various aspects of health and safety on the construction sites. Protecting workers from accidents would prevent the loss of many lives, and reduces claims, disputes, delays, and cost overruns. In Malaysia, it will prevent over 5000 injuries and over 100 deaths every year. It will also prevent or reduces claims, litigation, productivity, and profit margin (Olanrewaju, 2025). Although there is no conclusive data on the scale and extent of accidents specifically within high-rise building construction, evidence suggests that the supply of such projects in Malaysia has increased significantly in recent decades (Olanrewaju et al., 2022a). In the early 2000s, buildings exceeding 150 meters were relatively rare, but their numbers have grown sharply, particularly since the 2010s. This rapid growth has introduced new layers of complexity to construction management, especially in relation to health and safety practices. Consequently, there is a systemic need to address the fundamental question: What are the causes of accidents on construction sites, particularly in high-rise projects? Beyond identifying causes, it is equally important to explore practical remedies and preventive measures that can reduce accident risks and improve safety outcomes. To respond to this gap, this research adopts a qualitative methodology to examine accidents on construction sites, with the aim of generating context-specific insights that can inform both policy and practice.

3. Research Design

Research may be qualitative or quantitative. The choice is determined by the research objective or research question. In some research, both may be combined to achieve research objectives or to answer the research questions. While quantitative research ‘explains phenomena by collecting numerical data that are analysed using statistics and mathematical methods, qualitative research involves explaining phenomena by collecting non-numerical data that are analysed using narrative or descriptive-based methods. In qualitative research, detailed data is gathered through open ended questions that provide direct quotations. To achieve the aim of this research, a qualitative approach is adopted because it is consistent with the aim of this research. Qualitative research involves the use of interviews, documents, and participant observation data to understand and explain social phenomena. The interview approach is used for this research. An interview is applicable where detailed examination of the phenomenon is required. It is the conversation between the interviewer and the interviewee that is carried out to produce unique information from the interviewee. The interview process involves the interviewer asking open ended questions and the interviewee responding to the questions (Sekaran, and Bougie, 2016). Interviews are categorised into three, namely, structured interviews, semistructured interviews, and unstructured interviews. However, for this research, a structured interview was used to collect primary data because it is consistent with the research question. In the structured interview approach, the researcher will ask the interviewees the same sets of questions in a similar pattern. A structured interview is also known as standardized interview. This is because it encourages standardisation and thus minimises mistakes due to variation in the questions. The structured interview approach is similar to the standard survey questionnaire method. For example, the structured interview method resembles a checklist type of observation research, the interviewer completes the questionnaire, not the interviewee (Sekaran, and Bougie, 2016). However, unlike the standard survey questionnaire approach, probing is involved in the structured interview. Prior to the formal interview, the survey interview form and cover letter were sent to many construction companies through emails. The selections of the companies were based on convenient sampling. The emails were sent between July 2020 through August 2020. The long period of survey duration was a result of the poor response rate. The target respondents are the contractors' personal on the construction site, which includes construction managers, safety officers, site engineers, site supervisors, and others. This research focus on Grade 7 contractors and high-rise buildings in Kuala Lumpur. In Malaysia, contractors are classified by the Construction Industry Development Board (CIDB) under registration categories (G1–G7), based on financial capacity, project size, and technical expertise. G1 handles small projects, while G7 is the highest grade, allowing contractors to undertake projects of unlimited value. Many criteria, including size, cost, clients, location, technologies, height, use, purpose, design, and performance, have been used to classify buildings. Their construction requires a lot of mechanisation, especially scaffolding and cranes, and their designs and construction are complex and sophisticated and involve many specialists and government agencies. A high building is usually more than 6 storeys but less than 10 storeys. The users require a lift for the building operations. A high-rise residential building is defined as a high-rise building in which more than half of its floor area is used for accommodation. Following Olanrewaju et al.'s (2011), the following questions were developed to guide the interview sessions.

- What is your position in the company?
- What is your working experience?
- What work is most prone to accidents?
- What are the causes of accidents on your construction site?

In this research, data analyses are conducted using descriptive and synchronisation techniques. Descriptive analysis involves summarising using graphical descriptions, tabulated descriptions, and statistical commentary. The synchronisation of the interview data involves supporting the data collected with a literature review.

4. Results and Discussion

Nine interviewees agreed to participate in the research, but before the cut-off date, only five agreed to participate in the interview, the results of which are presented and discussed in the following sections.

4.1 Respondent's profile and ty

The profile of the respondents is contained in Table 2. The respondents are highly competent to provide valid and reliable feedback on the causes of accidents in high-rise construction. Their roles as Safety and Health Officers, Environmental Managers, and Site Safety Supervisor place them directly in charge of safety compliance and risk mitigation. With experience ranging from 3 to 45 years, they collectively represent both seasoned expertise and practical, on-site perspectives. Their involvement in significant high-rise projects across Kuala Lumpur, including BBCC, service apartments, and transport infrastructure, ensures familiarity with complex safety challenges. This diverse yet specialized background strengthens the credibility and reliability of their survey and interview responses.

2.

Table 2. Respondent profile

Name	Position	Working Experience	Project	Location
Withheld (A)	Safety and Health Officer	7 Years	BBCC	Bukit Bintang, Kuala Lumpur
Withheld (B)	Safety and Health Officer	8 Years	3 Blocks 42 Storey Service Apartment	Old Klang Road, Kuala Lumpur
Withheld (C)	Safety and Health Environmental Manager	5 Years	Project of Upgrading Hang Tuah Monorail Station	Bukit Bintang, Kuala Lumpur
Withheld (D)	Safety and Health Environmental Manager	45 years	Project of Upgrading Hang Tuah Monorail Station	Bukit Bintang, Kuala Lumpur
Withheld (D)	Site Safety Supervisor	3 Years	Greentech	Kuala Lumpur

All the five respondents also concurred that high-rise construction is prone to accidents because it involves working at height, lifting construction materials and components, dust, and heavy scaffolding. The taller the building, the higher the probability of falling from a height. Especially with poor health and safety management practices.

4.2 Causes of accidents in the construction sites

Table 3 presents the results of the causes of accidents on the interviewed construction sites. Expectedly, the research found that lack of awareness of the importance of the essence of health and safety practises is the dominant cause of accidents in the construction of high-rise buildings. The construction of high-rises requires a lot of regulations and policies to prevent accidents. According to CITP (2016), the poor health and safety record can be attributed to a low level of safety awareness among construction workers. However, more than 60 promotional events and 30 awareness programmes on safety were conducted to enhance the awareness and capacity of industry players from 2016 to 2020 (CITP, 2021). Yet the number of accidents on site is alarming. To create awareness among construction operatives and the sector, Olan's accident causation framework was recently updated. Lack of or improper use of PPE on construction sites is a major cause of accidents on construction sites. This result is in tandem with Haslam et al.'s (2005) finding. It was found that despite a wide reliance on PPE as a control measure for accidents on sites, most PPE used on construction sites are uncomfortable and interferes with the wearer's ability to perform their work. Hence, poorly used and designed PPEs has a high possibility of causing injuries to the workers. However, based on observations made during the sites, there was a significant shortage of PPE on many of the sites. Furthermore, on a number of sites, PPE is used as an incentive to workers. In other words, companies provide PPEs to high-performing workers. Otherwise, workers may have to provide the PPEs themselves. Workers are provided with useable PPE when the companies know that monitoring agencies like CIDB Malaysia will inspect the projects.

Deductively, it is not the case that workers do not want to use the PPEs, but rather that the provided PPEs are not effective and are unsuitable. Hence, instead of contributing to productivity, it is actually a hindrance. Multiple studies have reported human errors or human behaviours as the leading cause of construction. For instance, addressing the human factors would help reduce accidents because errors, faults, oversights, negligence, misjudgements, and mistakes are the main contributing factors to accidents related to construction sites. To illustrate, operatives that underestimated the extent of risks on scaffolding tended to lean on scaffolding, and it is not safe to work on scaffolding when the weather is bad (Olanrewaju, et al., 2022a). It is common for construction site operatives to misjudge or neglect the problem involved in accidents on sites. Many take unnecessary risks to impress their supervision /employers for fear of being laid off. This is common among foreign construction workers. Poor communication was also found to contribute to on-site accidents. This finding is interesting because Haslam et al. (2005) and Olanrewaju et al. (2017) found a positive relationship between poor communication and poor safety practises on construction sites.

2.

Table 3. Causes of accidents on sites

Interviewee	Cause	Explanation
A	Lack of training, lack of supervision, lack of awareness and lack of communication. For example, lack of communication in excavation will lead to accident.	Lack of training can lead to lack of awareness; training course can help worker to know more on the process of the working flow. To make sure the worker knows well on all the job scope and the rules and regulation. Supervisor and foreign worker lack of communication, cause the worker hit by the forklift and the hand cut by the machine beside that and the worker's hand wound can see his bone.
B	Lack of awareness on the importance of PPE by the construction.	Lack of awareness can cause accident because workers are only care to hot wear when helmet but not aware that not wearing helmet will cause a very serious injury.
C	Lack of vision is the main causes accident on this construction site.	If organisation does not have clear strategy toward health and safety practice. This is leading to complacent, mistakes, lack of awareness.
C	Lack of communication is very serious that caused accident happened. The site supervisor must give briefing before every work start, told the worker procedure so that the worker will more alert on run the process.	Communication is an important action between people. People can go through communicate to get more information. This is very important in every working space in order to minimize the opportunity to make mistakes.
D	90% of accident is because of human error errors	There is general carelessness, mistakes, misjudgements concerning health and safety practice on site. Many also forget to follow regulations/guidelines, use PPE

The construction sector is information-based. Drawings, specifications, bill of quantifies, and trade catalogues are examples of sources of information that are pertinent to the successful completion of construction projects. Poor communication can occur between the design team, construction team, and clients. Regardless of its source, it could lead to accidents on sites. While some of the information is explicit, others may not be. Communication problems may become more complicated if the language of communication is not the same. For instance, about 80% of the site operatives in Malaysia are foreigners and not all of them are very fluent in the local language, which is the main means of instruction on sites. The data revealed that lack of training is a dominant cause of accidents on the sites. The construction sector has various regulations, policies, and standards and these changes. Because of this, constant education and training on the latest amendments and improvements in health and safety are needed to reduce accidents. Furthermore, many site operatives may not have had formal training and education before joining the industry. Based on a survey, 84% of the site operatives acquired skills and knowledge during training, and only 5% had previous experience, while the remaining 11% acquired their skills through formal education in Malaysia (Ismail and Ab Ghani, 2012), but learning on the job is not an effective way to train workers. One reason for this is that it takes time for the skills acquired during training to be effectively applied. Therefore, contractors and the government should provide some training to site operatives to avoid accidents. Related to adequate training of site operatives is the need for the operatives to up-scale their experience. However, Malaysia is short of experienced occupational health and safety officers. In fact, NIOSH is in the process of establishing a simulation interactive lab for PPE that will help train construction workers on the importance of using proper and correct PPE (Thye, 2018). This finding is interesting and only confirms the inadequacy of health and safety officers on construction sites. There is a huge lack of relevant health and safety personnel, including as Safety and Health Officers (SHO), Site Safety Supervisors (SSS) and Occupational Safety and Health (OSH) inspectors, which limits the level of enforcement of safety in Malaysia (CITP 2015).

Supervisors should not concentrate on the stability and functions of the equipment alone, but also on their operations. For instance, they need to ensure that overhead obstructions are checked before scaffolds are moved, erected, and disassembled (Olanrewaju, et al., 2022a). Unfortunately, most supervisors, site engineers, and construction managers on sites have little understanding of accident causation prevention. Furthermore, although all the interviewees concurred that site operatives have problems adhering to regulations, codes, and policies and attending trainings/workshops, there is lack of effective administrative measures to address health and safety problems in the construction. However, this inference is similar to the conclusion that was previously drawn by Olanrewaju et al. (2022b). Table 4 revealed the types of accident on site. The data clearly reveals that bodily injuries are a recurring safety issue on the construction sites studied, with a particular emphasis on fall-related incidents. According to Respondent A, the most common injuries are to the fingers, caused by objects striking workers an issue primarily attributed to poor communication between workers and supervisors, especially during material handling and equipment use. Respondent B identified falls from heights as the major source of site fatalities, frequently resulting from defective scaffolding and poorly assembled formwork structures. This points to the lack of compliance with structural safety standards and inspection protocols. Respondent C reported that most injuries on their site were the result of falls caused by worker negligence such as failing to use safety harnesses or ignoring marked hazard zones. On Respondent D's site, falls were again the most dominant form of accident, suggesting a systemic issue in fall prevention and risk awareness. These findings demonstrate a consistent pattern across sites, indicating that falls, whether due to technical faults, inadequate supervision, or behavioural lapses are the most significant contributors to accidents. This calls for immediate interventions in safety training, enforcement of site protocols, and improved communication and monitoring systems to mitigate risk.

Table 4. Types of fatality on the sites

Interviewee	Cause
A	The most serious case is the worker's finger struck-by object due to lack of communication.
B	Site supervisor falling from height due to negligence
C	The lift didn't use the hollow section, a proper platform. The workers only use plywood, then the plywood become soft after raining and worker fall from 24 storey. The site force to stop for 1 month in order to make investigation.
D	The wood falling from level 5 and hack on a worker's safety helmet, luckily the worker did not get hurt, but the safety helmet crack.

5. Conclusion and lessons learned

This research investigated the health and safety on construction sites of the high-rise buildings. However, despite the social and economic benefits/sustainability of the construction sector, it is associated with huge costs in the form of occupational accidents, deaths, injuries, illnesses and dangerous occurrences. The findings provide supportive framework for improving the conditions within the construction sector and fundamental if the world of construction is to move forward positively. In general, while many construction workers do not adhere to health and safety measures on the construction sites, enforcements are generally weak. most of accidents on the construction sites are due to human errors including mistake, misjudgement, carelessness by the construction. It seems obvious that the construction organisations do not prioritise health and safety on the workers. There is need for the construction organization to relate productivity with the health and safety of the workers. It is only when workers are safe and healthy that they would be productive. While administrative strategies including codes, standards, regulations that are developed by the construction organisations or by the government would help to reduce the accidents, it is important for both the companies and government to rethink approach toward the health and safety practices on the construction sites. There is need for paradigm shift. More emphasis should be directed to improve the behaviours of the workers toward the health and safety practice. There is no incentive to provide adequate safety measures or accident-free sites because in most cases, workers can easily be replaced with very little or no compensation to the relatives of the foreign workers. A key limitation of this study is the relatively small sample size, involving only five interviewees. While their professional backgrounds as safety officers, environmental managers, and site supervisors provide highly relevant insights, the limited number restricts the generalizability of the findings. The results primarily reflect the perspectives of experienced practitioners within Kuala Lumpur's high-rise projects, which may not capture the full diversity of safety challenges across Malaysia's construction industry. Nonetheless, the respondents' strong professional credentials enhance the validity of their input, offering depth and credibility to the findings, even though broader surveys would be required for wider applicability.

References

Awwad, R., El Souki, O., & Jabbour, M. (2016). Construction safety practices and challenges in a Middle Eastern developing country. Safety science, 83, 1-11.

2.

Luo, F., Li, R. Y. M., Crabbe, M. J. C., & Pu, R. (2022). Economic development and construction safety research: A bibliometrics approach. Safety science, 145, 105519.

Chong, H. Y., & Low, T. S. (2014). Accidents in Malaysian construction industry: statistical data and court cases. International journal of occupational safety and ergonomics, 20(3), 503-513.

CITP (Construction Industry Transformation Programme, 2015) 2016-2020: Driving Construction Excellence Together. ISBN: 978-967-5317-96-5.

CITP (Construction Industry Transformation Programme, 2021) 2016-2020: Driving Construction Excellence Together. CITP Report No. 8.0 Q$ 2020. Construction Manager (2017a) One in four construction workers exposed to asbestos (10 April 2018) http://www.constructionmanagermagazine.com/news/one-four-construction-workers-exposed-asbestos/

Department of Occupational Safety and Health (2022) Statistic occupational Accident Statistics. Available at https://www.dosh.gov.my/index.php/statistic-v/occupational-accident-statistics. [accessed 26 March 2022].

DOSH (Department of Occupational Safety and Health (2018a). National Occupational Accident & Fatality Rate. Available at http://www.dosh.gov.my/index.php/en/national-occupational-accident-fatality-rate. Accessed on 27 September 2018.

Haslam, R. A., Hide, S. A., Gibb, A. G., Gyi, D. E., Pavitt, T., Atkinson, S., and Duff, A. R. (2005). Contributing factors in construction accidents. Applied ergonomics, 36(4), 401-415.

Harper, R. S., & Koehn, E. (1998). Managing industrial construction safety in southeast Texas. Journal of Construction Engineering and Management, 124(6), 452-457.

Ismail, H. B., & Ab Ghani, K. D. (2012). Potential hazards at the construction workplace due to temporary structures. Procedia-Social and Behavioral Sciences, 49, 168-174.

Lucas, G. (2018) Why the HSE is tackling construction workers' lung health. Construction Manager. Available at http://www.constructionmanagermagazine.com/news/why-hse-tackling-construction-workers-lung-health/. Retrieved on 17 October 2018.

Luo, F., Li, R. Y. M., Crabbe, M. J. C., & Pu, R. (2022). Economic development and construction safety research: A bibliometrics approach. Safety science, 145, 105519.

Jaafar, M. H., Arifin, K., Aiyub, K., Razman, M. R., Ishak, M. I. S., & Samsurijan, M. S. (2018). Occupational safety and health management in the construction industry: a review. International Journal of Occupational Safety and Ergonomics, 24(4), 493-506.

Oni, O. Z., Olanrewaju, A., & Khor, S. C. (2024a). Fuzzy synthetic evaluation of the factors affecting health and safety practices in Malaysia construction industry. Journal of engineering, design and technology, 22(6), 1773-1796.

Oni, O. Z., Olanrewaju, A., & Khor, S. C. (2024b). Sustainable Model for Improving Construction Industry Health and Safety Practices. Journal of Construction Engineering and Management, 150(10), 04024137.

Oni, O. Z., Olanrewaju, A., & Cheen, K. S. (2024c). Identifying key accident causation factors in the Malaysian construction industry. International journal of occupational safety and ergonomics, 30(2), 366-377.

Olanrewaju, A., Idrus A., Khamidi, F. M (2011). Investigating building maintenance practices in Malaysia: a case study. Structural Survey. 29 (5) 397-410

Olanrewaju, A. (2025) Sustainable Construction Management: Research and Practice Companion. Springer.

Olanrewaju, A., Tan, S. Y., & Kwan, L. F. (2017). Roles of communication on performance of the construction sector. Procedia engineering, 196, 763-770.

Olanrewaju, A., Khor, J.S. and Preece, C.N. (2022a), "An investigation into occupational health and safety of scaffolding practices on construction sites in Malaysia ", Frontiers in Engineering and Built Environment, Vol. 2 No. 1, pp. 1-21.

Olanrewaju, A., Bong, M. Z. X., & Preece, C. (2022b). Establishment of pre-qualification criteria for the selection of subcontractors by the prime constructors for building projects. Journal of Building Engineering, 45, 103644.

Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill building approach. John Wiley & Sons.

Social Security Organization Annual Report (2012 - 2021). Kuala Lumpur: PERKESO. https://www.perkeso.gov.my/index.php/en/laporan/number-of-accidents

Thye, L, S T (2018b) New Strait Times (January 14 2018) Construction site accidents risinghttps://www.nst.com.my/opinion/letters/2018/01/324931/construction-site-accidents-rising.

Zhou, Z., Goh, Y. M., & Li, Q. (2015). Overview and analysis of safety management studies in the construction industry. Safety science, 72, 337-350.