A comparative analysis of construction and oil and gas industry's health and safety practises in Nigeria

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Abstract

Purpose – Despite the contributions of both the oil and gas and construction industries to the gross domestic product (GDP) of the country, both industries are still marred by incessant accidents. Therefore, the aim of this study is to compare the health and safety practises of the construction and oil and gas industries in Nigeria in order to suggest the best approach to health and safety practices.

Design/methodology/approach – A survey questionnaire was developed and administered to professionals working in the construction and oil and gas industries. Data were analysed using the relative importance index (RII). An independent sample *t*-test was also conducted to determine whether there was a significant difference in the construction and oil and gas industries.

Findings – The study revealed that the rate at which health and safety are practised in the oil and gas industry is comparatively high compared to how they are practised in the construction industry. Proper site layout and planning, provision of a safe working environment, proper health and safety risk assessment were more predominantly practised in the oil and gas industry, while proper site layout and planning, disallowing unauthorised entry into site and the provision of a safe working environment were predominantly practised in the construction industry.

Originality/value – This study is the first to compare the health and safety practises of the construction and oil and gas industries in Nigeria. This study was significant because it would provide insight into construction and oil and gas managers, as well as other decision-makers in both industries, on how to improve health and safety practices.

Keywords Accident, Death, Injury, Safety

Paper type Research paper

1. Introduction

The construction industry plays a significant role in the economic development of many nations, and its importance cannot be overstated given the substantial number of job opportunities it creates (Oni *et al.*, 2022a). The industry is distinct from all other industries in that it provides the facilities required to boost economic growth (Olanrewaju *et al.*, 2021). Because of the need for increased human participation during the production process, the construction industry is likewise said to be labor-intensive (Rao *et al.*, 2015).

However, the construction industry has become one of the most dangerous or highly hazardous industries when compared to other economic sectors because of the level of

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casualties sustained during the execution of building projects around the world (Oni *et al.*, 2022a). According to Akinlolu *et al.* (2020), the industry is made up of numerous parties that collaborate on projects to achieve a shared objective. Furthermore, the routes to this goal are fraught with dangers to workers' lives. Construction workers have been involved in a variety of accidents over the years due to the nature of the work, and these can be attributed to worker and employer negligence or ignorance (Oni *et al.*, 2022b).

Health and safety is an essential component of construction since it involves groups of individuals from various backgrounds and occupations, and each person's output determines the level of achievement needed at each stage of building (Dodo, 2014). According to Okolie and Okoye (2012), Nigeria's inadequate level of safety practises was highlighted by the frequency and severity of incidents occurring on construction sites and being reported. Inhibiting accidents or injuries at work or in public places is the goal of health and safety regulations according to Kelajaiye (2013).

Similar to other industries, the oil and gas sector also made important contributions to the nation's gross domestic product (GDP) and is a big employer that has expanded over the past few years, emphasising the need for significant reforms to be made to protect workers' safety (Lui *et al.*, 2020; Schneider *et al.*, 2013). The oil and gas business in Nigeria exposes workers to a variety of hazards, including the dangers of slips, trips and falls as well as those related to manual handling, dust inhalation, noise exposure and working in tight spaces (Towers, 2012). Employees usually load and unload machines as well as other industrial equipment without the assistance of any lifting devices (Edwards *et al.*, 2019). Due to a lack of occupational health and safety (OHS) management and control, they have OHS issues with a high incidence of injuries, fatalities, and incapacitating conditions (Zeb *et al.*, 2017).

Additionally, according to Lukoko *et al.* (2014), occupational health is lacking in areas where it is most required, especially in light of the strong empirical connections between effective occupational health practises, a healthier work force and increased productivity. Indeed, it has been suggested that workplace interventions like good occupational hygiene and ergonomics can help break the cycle of poverty since they improve living conditions through increased productivity, higher wages and better working conditions (Lukoko *et al.*, 2014). In a developing nation like Nigeria, managing worker health and safety can be challenging due to a lack of technical and financial resources (Lui *et al.*, 2020). This is due to the fact that safety issues are still mostly unresolved and frequently cause serious accidents and occupational diseases. In light of this, this study compares the health and safety procedures used by Nigeria's oil and gas industry and the building construction industry.

2. Literature review

2.1 Health and safety practices in construction industry

The construction sector has investigated a number of initiatives to enhance its safety performance. However, the focus shifts from maintaining safety performance to enhancing safety performance through preventative measures. According to Muhammad *et al.* (2015), certain developing countries, like Nigeria, lack adaptable rules and regulations on health and safety standards. According to the study, a variety of criteria, including those from a socio-humanitarian and financial-economic standpoint, aid in the effective management of safety measures. According to Oni *et al.* (2022a), a construction company should offer awareness specifically for each project. This awareness should include a project outline, a thorough examination of the project's safety requirements and preferences, clearing arrangements and systems, disciplinary procedures, a substance abuse testing policy and proactive management techniques that are required for the project.

In their work, Abubakar *et al.* (2022) emphasise the crucial role that organisational culture and leadership play in determining the health and safety procedures used on Nigerian

construction sites. In order to create a positive safety atmosphere, their findings highlight the importance of strong leadership commitment, a supportive organisational culture and effective communication. Similar to this, Olufemi and Fashina (2023) sought to improve health and safety procedures and reduce hazards on Nigerian construction sites through the implementation of realistic techniques and interventions. In particular, stress the value of cooperation between diverse stakeholders, such as governmental organisations, business organisations, contractors, employees and educational institutions. They advocate for the creation of platforms where people may work together to share best practises, information, and resources in order to advance industry safety. In their study's conclusion, Okpala and Adeboye (2022) emphasise the importance of giving health and safety first priority in Nigeria's construction sector. They emphasise that for long-lasting gains in safety performance, a proactive strategy, strong leadership commitment and stakeholder collaboration are essential. By incorporating lessons learned from other countries' construction industries, Ogunbekun *et al.* (2022) study and analyse the best practises for health and safety in the Nigerian construction sector. The study emphasises the value of thorough education and training programmes for managers, supervisors, and workers in the construction industry. They support making safety instruction a mandate for employees, encompassing subjects like hazard identification, safe work practises, emergency protocols and the use of personal protective equipment (PPE). In a similar vein, Adeleke and Akinola's endeavour to improve health and safety performance on Nigerian building sites was published in 2023. They emphasise how important it is to include employees in health and safety decision-making processes. To empower workers, promote involvement, and ensure that their safety concerns are handled, they suggest measures including worker training, safety committees and efficient communication routes. Additionally, Oladejo and Ajibola (2022) emphasise areas for improvement and offer insights into the elements that contribute to the ongoing performance gaps in health and safety. The report emphasises how the building industry lacks thorough and effective health and safety rules. They point out that obsolete, unclear or inconsistently enforced regulations can lead to non-compliance and a poor safety culture. Resources being restricted, a poor safety culture, a lack of knowledge and education and informal work practises are a few more contributing causes.

Similar to this, Okoye *et al.* (2016) investigated the health and safety awareness and compliance of building construction employees on sites in Anambra State, Nigeria. However, the study's findings revealed that poor project performance is a result of site workers' low levels of safety awareness and compliance. The study recommended adopting a safety culture that included the following additional factors: management commitment, worker involvement and strict enforcement of safety regulations.

Knowledge and compliance with health and safety practises alone are not sufficient to achieve optimal project performance. In light of this, Akinwale and Olusanya (2016) investigated the effects of occupational health and safety intelligence in Nigeria. However, the study found that occupational health risks, such as lost man-hours, productivity and job security, mostly affect managers and workers. Although there was a high degree of awareness of the significance of workplace safety, there was insufficient investment in safety programmes to improve the organisation's capacity. Therefore, the study suggests that effective occupational health policies in Nigeria should be accompanied by sufficient investments in safety intelligence and precautions.

2.2 Workplace safety and health in the oil and gas sector

The relevance of regulatory frameworks to improving health and safety in the Nigerian oil and gas industry is highlighted by Adedipe *et al.* (2021). The article focuses on the necessity of strict regulatory enforcement and the creation of sector-specific standards to reduce hazards and safeguard employees' welfare. The importance of thorough risk assessment and management

strategies in the Nigerian oil and gas industry is also highlighted in a report by Okorodudu-Fubara *et al.* (2021). To reduce accidents and workplace risks, the authors support the use of systematic risk assessment approaches and the application of risk control strategies. Umeokafor *et al.* (2022) also emphasise the importance of safety culture and leadership in the oil and gas sector. The paper focuses on the importance of strong leadership commitment to safety, efficient communication and the creation of a positive safety culture that encourages employee engagement and participation in safety programmes. Adebiyi *et al.*'s (2023) emphasis on the value of training and competency development in boosting health and safety practises in the Nigerian oil and gas industry continues in this vein. The study highlights the necessity for thorough training programmes that address particular threats and give employees the know-how and abilities they need to complete their jobs safely. Additionally, Oyedele *et al.* (2022) stress the significance of efficient emergency response planning, frequent drills, and the supply of sufficient resources to ensure a prompt and coordinated response to catastrophes. In order to ensure compliance with safety requirements, Ajiboye *et al.* (2021) also emphasise the necessity for strong contractor management systems, which should include pre-qualification procedures, ongoing audits and monitoring of contractors' safety performance. Okafor *et al.* (2023) also examine how technical improvements can improve safety in the Nigerian oil and gas industry. The paper analyses the possibilities of modern technology for enhancing safety performance, early hazard detection and efficient decision-making. Examples include real-time monitoring systems, drones and digital platforms.

Nigeria's safety management practises were compared to accepted international norms in Nnadi *et al.* (2014) analysis of recurrent pipeline-related events in Nigeria. The reputation of the Nigerian oil sector has historically been tarnished by frequent pipeline explosions that have caused severe loss of life and property. Pipe explosions have occurred frequently, demonstrating that industry stakeholders (such as the government and oil and gas companies) have not learned from their past failures. Oil and gas businesses around the world use internal health and safety standards like the application programming interface (API) to protect their workers, investments, and property (Asikhia and Emenike, 2013). The API specifications require the analysis of high-risk threats, high-damage areas and external factors such as vandalism, robbery, terrorist attacks, and unauthorised bunkering. These criteria guarantee the safety of both humans and the environment. Nigerian pipeline explosions are caused by cultural, operational and human factors, necessitating the employment of a multifaceted strategy to address pipeline-related issues (Salihu *et al.*, 2016).

Asikhia and Emenike (2013) looked into OHS in Nigeria's oil and gas business and discovered that workers face significant health and safety difficulties. They suggested that a number of preventative measures be put in place. These include the implementation of current laws and policies aimed at regulating and minimising risks, as well as adequate safety facilities, the availability of fire extinguishers and free medical examinations for staff. More recently, Benson *et al.* (2021) conducted a survey of 327 experts from various organisational divisions to identify the numerous health risks and their origins inside the Nigerian oil and gas industry. According to their research, ergonomic risks were the most significant, followed closely by physical risks, chemical risks, psychological risks and biological risks. Even though there have been numerous studies from the oil and gas and construction industries, none have compared the health and safety practises of the two.

3. Methodology

In order to achieve the study's objective, the research problem was solved using a cross-sectional survey research methodology. According to Bryman (2016), in order to determine the opinions, ideas, behaviours or characteristics of the population, a researcher may distribute a survey to a representative sample of the population or to the entire population of the population, a

researcher may distribute a survey to a representative sample of the population or to the entire population. The basic data were gathered using convenience sampling. When there is insufficient knowledge of the population size and sample size, the approach is appropriate. Although the conclusions may not be generalizable, a sizable portion of the population may agree with them. This is supported by the central limit theorem (CLT). According to the CLT principle, the sample mean distribution approaches a normal distribution as the sample size grows (Olanrewaju and Idrus, 2020). For the CLT principle to be true, a statistically necessary sample size of 30 or greater is required. The 141 and 96 responses from the construction sector and the oil and gas industry, respectively, for this study are regarded as adequate in accordance with the CLT, which specifies that a sample size of 30 is suitable for statistical analysis (Chan and Adabre, 2019; Olanrewaju *et al.*, 2021). Prior to developing a questionnaire survey to collect data, a thorough review of the literature was conducted. The 32 health and safety practises found in the literature were then used to develop a well-structured, closed-ended questionnaire that was distributed to professionals working in the oil and gas industry and the construction industry, with a focus only on Lagos, Abuja and Port Harcourt. These three states were selected because they were among the top states in Nigeria for oil and gas production and construction works. In Section B of the survey, respondents were asked to rate how frequently they observe the listed health and safety practises on a five-point scale, with "5" denoting "very often," "4" denoting "often," "3" denoting "moderately often," "2" denoting "less often," and "1" denoting "not at all." Section A of the survey focused on the backgrounds of the respondents. Utilising descriptive statistical tools like the relative relevance index (RII), the collected data were analysed. A RII score of 0.81 to 1.00 suggests very often, 0.61 to 8.0 indicates often, 0.41 to 6.0 shows moderately often, 0.21 to 4.0 indicates less often and 0.0 to 2.0 indicates never.

An independent sample *t*-test was performed to ascertain whether there was a significant difference between the means of the oil and gas industry and the construction industry. The independent samples *t*-test is used to compare the mean results of two different groups of respondents on a continuous variable. If there is a statistically significant difference in mean scores between the clusters, the test's findings would show that (Pallant, 2013). The first element of the independent samples test output box contains the findings of Levene's test for equality of variances. This will reveal whether or not the score variance (variation) is the same for the two groups (construction and oil and gas industry). The first line of the table, which refers to equal variances assumed, will be used if the Levene's test's significance level is greater than 0.05 (for example, 0.06 or 0.20), and the second line, which refers to equal variances not assumed, will be utilised if the Levene's test's significance level is less than 0.05 (for example, 0.01 or 0.04). In the output box, one value denotes even variance, while the other denotes unequal variance in the region labelled "*t*-test for equality of means," in the segment labelled "sig. (two-tailed)". The value of Levene's test result determines which of the two values should be used. If the average values on the dependent variable for each of the two categories in the sig. (two-tailed) section are equal or lower than 0.05, there is a significant difference (e.g. 0.03; 0.01; 0.001). If the value is more than 0.05, there is no significant difference between the two groups (e.g. 0.06, 0.10) (Pallant, 2013).

4. Analysis and discussion

The demographics of the respondents are shown in Table S1. According to the data, 78% of the respondents had more than five years of experience in the construction industry, and 79.2% had more than five years in the oil and gas sector. This confirmed their qualification to respond to the questions based on their experience. The table also showed that the respondents in both industries represented a wide range of designations, with the majority holding senior positions, including project manager, site supervisor, safety officer and engineer. This further demonstrated that respondents are in the best position to provide accurate answers, and it also suggests that the findings may be generalised to both

industries. Additionally, it may be inferred that 96.9% of respondents in the oil and gas industry and 98.6% of respondents in the construction industry both had at least a diploma certificate. This demonstrates that the respondents have the academic credentials necessary to provide accurate answers to the inquiry. The data also showed that respondents were chosen from the public and commercial sectors for both industries. Additionally, this confirms that the outcome is applicable to both public and private organisations.

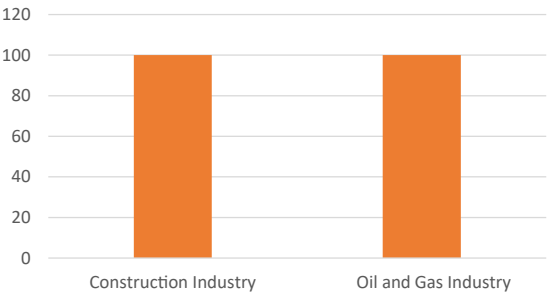
Figure 1 shows that 100% of respondents from the construction industry are knowledgeable about health and safety practices, as well as 100% of the respondents from the oil and gas industry have health and safety practise knowledge. This also further validates that the respondents are in the best position to fill out the questionnaire correctly.

Figure S1 shows that 92.7% of respondents in the construction industry indicated that compliance with health and safety practises will affect their work output more than 20%, while 96.5% of respondents in the oil and gas industry indicated that compliance with health and safety practises will also affect their work output more than 20%. This is not surprising because a typical worker on site prefers to work with little or no safety apparatus as it is believed that this allows them to work faster, and it also validates the finding of Oni *et al.* (2022a), which revealed that construction workers do not willingly comply with health and safety practises unless they are strict.

As shown in to Figure S2, 89.4% of respondents in the construction industry are exposed to hazards in amounts greater than 20% on a daily basis, while 89.6% of respondents in the oil and gas industry are exposed to hazards in amounts greater than 20% on a daily basis. This further validates that these industries are among the most hazardous in Nigeria. These sectors expose their workers to a variety of dangers, including those related to physical handling, dust inhalation, noise exposure, working in cramped areas and the possibility of slips, trips and falls (Towers, 2012).

The Cronbach's alpha coefficient was higher than the necessary cutoff of 0.70 at 0.851 for the construction industry and 0.795 for the oil and gas industry. As a result, it can be said that the data collection tool was quite trustworthy.

Based on their experience, the respondents' opinions are shown in Table 1 regarding how frequently they typically engage in the specified health and safety procedures in the oil and gas and construction industries. According to the table, 46.9% of the variables in the construction industry fall into this range very often, while the remaining 53.1% do so often as described in the methodology. On the other hand, as described in the methodology, 87.5% of the variables in the oil and gas industry fall within this range very often, while the remaining 12.5% fall within this range often. This suggests that the oil and gas industry has more health and safety standards in place than the building industry. The enormous number of quacks decimating the construction sector, the bulk of whom had little to no awareness of health and safety procedures, may be the cause of this. The overall RII reveals that 65.6% of the



Source(s): Authors own work

Figure 1.
Do you have any knowledge in health and safety practices?

Code	Factors	Construction RII	Oil and gas RII	Overall RII
HSP1	Proper site layout and planning	0.860	0.892	0.876
HSP3	Provision of a safe working environment	0.856	0.888	0.872
HSP2	Proper health and safety risk assessment	0.856	0.884	0.870
HSP25	Suitable supervision	0.850	0.886	0.868
HSP10	Provision of personal protective equipment/safety wears	0.856	0.860	0.858
HSP24	Disallow unauthorise entry into site	0.858	0.852	0.855
HSP5	Daily safety briefing	0.836	0.866	0.851
HSP4	Provision of temporary fence at the boundary of the site	0.834	0.864	0.849
HSP29	Provision of adequate warning signs at strategic places on site	0.826	0.872	0.849
HSP7	Provision of first aid box and welfare facilities on site	0.832	0.860	0.846
HSP12	Regular inspection of scaffold, equipment and tools before the start of work by safety manager	0.824	0.864	0.844
HSP14	Training of the new staff on their related jobs and the use of tools and equipment	0.818	0.870	0.844
HSP30	Prevent access to defective tools/equipment	0.836	0.848	0.842
HSP13	Provision of edible food and water on site	0.826	0.852	0.839
HSP31	Adequate hazard control	0.810	0.856	0.833
HSP28	Regular safety meeting	0.780	0.864	0.822
HSP16	Use of safety net where the height of structures exceeded two storeys	0.806	0.832	0.819
HSP27	Organised safety induction for site visitors before entering site	0.806	0.832	0.819
HSP6	Provision of accidents prevention procedure and safety consciousness on site	0.804	0.830	0.817
HSP15	Engaging resident safety manager on construction sites	0.792	0.828	0.810
HSP26	Provision of safety incentive	0.782	0.838	0.810
HSP8	Development and frequently review of safety policy for building production projects	0.804	0.810	0.807
HSP32	Effective emergency response plan	0.768	0.844	0.806
HSP19	Obtaining of health and safety clearance/certificate	0.800	0.798	0.799
HSP9	Regular health and safety training	0.778	0.816	0.797
HSP23	Setting safety guidelines into the body of conditions of contract	0.764	0.830	0.797
HSP11	Engaging safety committee in investigating and auditing cause of accidents	0.772	0.814	0.793
HSP20	Engaging employees in planning issues relating to health and safety in the organization	0.770	0.816	0.793
HSP22	Implementing effective communication and data exchange protocols at all levels of decision-making	0.752	0.834	0.793
HSP17	Availability of the internal and external health and safety department	0.748	0.806	0.777
HSP18	Ensuring contractors, staff and site operatives all risk insurance for the project	0.794	0.760	0.777
HSP21	Engaging a doctor to speak to workers on health matters	0.734	0.796	0.765

Source(s): Authors own work

Table 1. Descriptive statistics of health and safety practises

variables fall within very often, while the remaining 34.4% fall within often. The entire RII was 0.825 on average. This suggests that safety and health precautions are practised frequently. Due to space limitations, only factors with RIIs greater than the general average RII will be explored in this study.

The success of any project depends heavily on the layout and planning of the site because it is the foundation of that success. The layout of the site demonstrates precisely where supplies, tools, and equipment should be located so that they are not obstructed. It also indicates potential access routes to and from the site to prevent traffic accidents. Additionally, it entails locating, sizing, and positioning temporary facilities inside the confines of the construction site. Simple laydown spaces, warehouses, fabrication shops, maintenance shops, batch plants and residential facilities are among these transitory facilities (Olanrewaju *et al.*, 2021). A thorough plan of the site's layout and the placement of temporary facilities can help management significantly enhance productivity by reducing travel and waiting times and boosting employee morale by demonstrating a better and safer work environment.

Creating a safe workplace is another crucial strategy for health and safety (Oni *et al.*, 2022b). Maintaining a safe workplace is critical for lowering the risk of worker injuries. In addition to protecting worker lives, safe workplaces also lower absenteeism rates, reduce workplace injuries, and result in fewer workers' compensation claims. Creating a safe workplace also boosts employee confidence and morale. A worker is more likely to work diligently and productively when they feel comfortable. Another safety measure is carrying out proper risk assessments (Akinlolu *et al.*, 2020). This has to do with a careful examination of the workplace to find any elements, circumstances, procedures, etc. that may be harmful, especially to individuals. Following identification, you assess the risk's likelihood and seriousness. You can then decide what steps need to be taken to successfully eliminate or control the harm once this assessment has been made. Similarly, the majority of accidents can be avoided on all sites, big and small, by providing adequate supervision. Planning and allocating work, making judgements, keeping an eye on compliance and performance, fostering teamwork, and providing leadership are all examples of typical supervisory duties. Therefore, supervision plays a significant role in how a normal project is run, especially in terms of ensuring that health and safety are properly maintained. As a result, organisations that lack adequate on-site management of their personnel tend to record more incidents. When seeking to prevent accidents, the HSE has highlighted supervision as a performance-influencing component (HSE, 2021).

Since a worker may be exposed to a risk to their health or safety while at work, it is important to provide personal protection equipment (PPE) or safety clothing, unless and until the risk has been appropriately managed by other means that are equally or more effective. Given that the majority of workers are exposed to hazards on a daily basis, as indicated in Figure S2, it is not unexpected that PPE is being provided for workers. Another health and safety measure is to prohibit unauthorised admission into the site. This aids in limiting site access, particularly by strangers and trespassers who have no business being there. Most often, this is accomplished by hoarding the site and assigning security guards to the site entrance. By doing this, workers are better protected from any type of attack from intruders. Daily safety briefings are another health and safety activity that aids in reawakening workers' awareness of health and safety practises (Oni *et al.*, 2022a). Before work begins, a worker should receive a safety briefing to inform them of their obligations for health and safety procedures as well as the best and most recent ways to carry out their tasks safely on the job site. This further supports the finding about their safety knowledge, as shown in Figure 1.

Site security is crucial, and one of the simplest methods to increase security at a new or existing site is to add some fencing. A temporary fence around the site can discourage criminal activity and help to minimise the financial hardship caused by equipment theft, making its provision at the site's boundary a crucial health and safety practise. People can see through a fence that an area is off-limits since it serves as a visual barrier. You can post signs on your temporary fence alerting passers-by to potential risks and requesting that they keep their distance (Benson *et al.*, 2021). A temporary fence provides the protection, privacy and security required without obstructing regular worksite operations. Another health and safety

practise that aids employees and visitors in taking precautions when necessary is the placement of adequate warning signs in strategic locations around the site. These signs make it clear to workers and visitors which areas of the site they should avoid so as not to become victims of an avoidable accident. Most often, these signs are posted on the temporary fence, which is also too close to the prohibited area and other dangerous items.

In the same vein, first aid supplies and welfare facilities must be available on site because accidents are typically not completely preventable on site. First aid is crucial because it can save lives, prevent future illness or injury and speed up recovery. Prompt first aid can sometimes mean the difference between life and death. The initial point of contact for providing swift and immediate care to accident and illness victims on the scene before transporting them to a hospital for additional care is the first aid box. The prompt administration of first aid has contributed to the survival of numerous accident victims (Oni *et al.*, 2022a). Another crucial health and safety procedure on the job site is the safety manager's regular inspection of the scaffold, the tools and the equipment before work begins. This regular inspection aids in the early detection of defective tools, equipment or scaffolds that could harm workers using them or working on them. It is essential to take proper safeguards in order to decrease accidents on the job site, one of which is routinely checking equipment and tools for any flaws (Olanrewaju *et al.*, 2021). Also, training new employees on their relevant occupations and the use of tools and equipment is a crucial health and safety practise since it helps workers understand how to complete their task safely and correctly. Looking closely at the current work environment suggests that the need for training is more crucial than it has ever been. According to Oni *et al.* (2019), training is a structured procedure intended to increase the technical know-how and abilities needed for labourers to successfully complete their assigned duties.

A worker's likelihood of getting injured in an accident rises when they receive insufficient training on how to carry out their task properly. Therefore, it is critical to restrict access to defective items and equipment, given that some workers may not be aware of the risks associated with using them. Working with faulty tools or equipment increases the risk of serious accidents such as electric shock and burns from contact with live parts, arcing injuries, fire from defective wiring installations or equipment, explosion from improperly installed electrical equipment or electrostatic discharge igniting flammable dusts or vapours, as in a spray paint booth. Similarly, most site workers are used to eating junk food and unhealthy foods due to the nature of their job, which in most cases does not allow them to go out and eat, so they rather settle for any type of food that is readily available around their site. Another health and safety procedure on the job site is adequate hazard control. A major factor in reducing accidents on the job site is hazard control, which includes managing and limiting workers' access to dangerous substances on the job site and high-voltage electrical cables. All of this lowers the chance of an accident occurring on the job site.

An independent sample *t*-test was used to assess the level of significance between the health and safety practises in the oil and gas industry and the construction industry, as shown in Table S2. According to the methodology, all factors with a level of significance less than 0.05 demonstrate a distinct difference in workers' perceptions of the health and safety practises in the oil and gas industry and the construction industry, whereas variables with a level of significance greater than 0.05 show no such difference in workers' perceptions. Table S2 also reveals that only 25% of the variances are notable, while the other 75% are not. The table showed that there is a significant difference in the provision of adequate warning signs at strategic places on site, the training of the new staff on their related jobs and the use of tools and equipment. Regular safety meetings, provision of safety incentive, effective emergency response plan, setting safety guidelines into the body of conditions of contract, data exchange protocols at all levels of decision-making and engaging a doctor to speak to workers on health matters in construction industry compared to oil and gas industry.

5. Implications and limitations of the research

By contrasting the health and safety of the construction industry and the oil and gas industry, this research has added to the body of knowledge on the health and safety of both construction and oil and gas workers. The results of this study will help managers and other decision-makers in the oil and gas and construction industries understand how to improve health and safety procedures by providing an insight on the primary health and safety practices that both industry can adopt from each other. This study will also serve as a foundation for future research that aims to enhance health and safety procedures and, in turn, lower the rate of persistent accidents in both industries. Despite the study's contribution, its main flaw is its small sample size, so additional research could be done with a larger sample size that included more states across the country. To verify the findings of this research, additional longitudinal research can be conducted in the future.

6. Conclusion

This study is the first of its kind to compare the health and safety conditions in Nigeria's oil and gas industry and construction industry. The survey found that, when compared to the construction industry, the rate at which health and safety are practised in the oil and gas industry is rather high. Proper site layout and planning, provision of a safe working environment, proper health and safety risk assessment, suitable supervision and provision of adequate warning signs at strategic places on site were more commonly practised in the oil and gas industry while In the construction industry, proper site layout and planning, allowing unauthorised access to the site, providing a safe working environment, conducting a proper health and safety risk assessment and providing PPE or safety wear were all common practices. Only 25% of the samples in the independent sample *t*-test indicated a significant difference, which meant that there was no discernible difference between the practises of health and safety in the oil and gas industry and those in construction. Given that both industries are significant employers and contributors to a nation's GDP, evaluating the health and safety practises of the construction and oil and gas industries in an effort to improve those practises in both sectors remains essential, with potential benefits for workers, organisations and society. The study therefore recommends that there is need for more concerted effort in enforcing health and safety in both industries and adequate sanctions should be given to any industry that fails to comply.

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Supplementary material
The supplementary material for this article can be found online.

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