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CRITICAL FACTORS CONTRIBUTING TO UNDER-REPORTING OF OCCUPATIONAL ACCIDENTS IN THE CONSTRUCTION INDUSTRY IN GHANA.

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ABSTRACT

Purpose: Governments around the world have a shared responsibility for the management of occupational health and safety (OHS). The study aims to explore the under-reporting of OHS accidents by employees and employers in the construction industry in Ghana.
Design/ Methodology/ Approach: The study used a cross-sectional survey design and quantitative and qualitative research techniques. Data was gathered via a questionnaire. The survey involved 250 site managers and operatives from Upper West and Upper East Regions. Significant factors that contribute to the under-reporting of construction-related accidents were identified and prioritized using descriptive statistics. The Linear Structural Relationships (LISREL) factor analysis was used to confirm the important factors.
Findings: It was deduced from the findings that job security, workers' attitudes, education and training, blame culture, interpersonal relationships, poor safety culture, lack of management commitment, poor communication, and company's goal contribute significantly to the under-reporting of OHS accidents within construction firms in Ghana. In the study, factors contributing to the under-reporting of construction site accidents to statutory authorities included education and training, the environment, politics/government, legal/regulations, and socio-cultural practices.
Practical Implications: The findings will enable construction companies to make investments to develop accident reporting systems that are easier to use and more accessible. This may include developing mobile reporting apps, and training employees how to use the reporting apps and tools efficiently.
Social Implications: Employee safety and well-being is one of the main societal ramifications. Policymakers can use the findings to develop more robust policies aimed at improving accident reporting and prevention measures in the construction industry.
Originality and Value: This research offers valuable insights into the factors influencing the underreporting of occupational health and safety (OHS) accidents on construction sites.
Keywords: *Accidents. construction. health.* safety. u*nder-reporting*

INTRODUCTION

Occupational health and safety has been a vast and long-standing area of literature research (Loosemore & Malouf 2019). According to Asiedu et al. (2024) and Mohamed et al. (2022), workers are exposed to occupational hazards which increase their risk of occupational injury.

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They opine that data on occupational injuries and associated factors are important for planning and informing national policy regarding Occupational Health and Safety (OHS). In the opinion of Hedlund (2013), accurate reporting and documenting of workplace accidents are essential for the development of preventive strategies. ILO (1996) states that data on occupational accidents can be used as a means of evaluating the degree of efficacy of enforcement, compliance, and prevention. Accurate accident reporting in the construction industry is critical for monitoring construction site health and safety.

However, according to Mohamed et al (2022), occupational accident data are often deemed insignificant. Hamalainen, Takala, and Leena (2007) and Chiocha, Smallwood, and Emuze (2011), opine that there is a scarcity of reliable data on occupational accidents in developing nations. Occupational Health and Safety (OHS) methods for proper recording and notification are difficult to come by. Durdyev, Omarov, and Ismail (2017) note that many developing countries, like Ghana, have a low number of recorded construction occupational accidents, as well as inadequate reporting and nondisclosure of such incidents. Samson (2014) indicates that Ghana is having difficulty reporting OHS incidents to statutory authorities, and there are no proper records of accident cases kept by legally mandated organizations. Most research on OHS in the construction sector in Ghana, according to Samson (2014), focuses on risk management, OHS management and practices of construction organizations, and perceptions of OHS. Mustapha, Aigbavboa, and Thwala (2015) indicate that few organizational and national studies in developing countries, including Ghana, focus on concerns about the under-reporting of OHS accidents to statutory authorities. Accidents in factories and industries should be reported to the Department of Factory Inspectorate, according to Mustapha et al. (2015). Recognizing this gap, the study seeks to determine the critical factors that contribute to the under-reporting of OHS accidents in the construction industry in Ghana.

LITERATURE REVIEW

Overview of the Construction Sector in Ghana

The construction sector employs over 10% of Ghana's working population and contributes up to 10% of the country's GDP. The construction sector is responsible for the development, maintenance, expansion, and repair of engineering-based buildings and land improvements (Akinradewo, Aigbavboa, Oke, & Coffie, 2020). The construction industry grew by 14.3% and 12.4% (year over year) in the first and second quarters of 2021, respectively, according to the Ghana Statistical Service (GSS) (2022). This resulted in an average annual growth of 5.9% in the same year. Though the construction sector makes a significant contribution to GDP, the sector's activity declined in 2023. The sector's activities have declined by 27.3 percent (year over year) as measured by the volume of cement sales, from 803,233.18 tonnes in 2022 to 583,675.79 tonnes in the third quarter of 2023 (Bank of Ghana, 2023).

The sector, according to Owoo and Lambon-Quayefio (2018), includes project consultants, engineers, architects, quantity surveyors, builders, and craftspeople. The Ministry of Works and Housing (MWH) is in charge of overseeing all construction and civil works in the country, while the Ministry of Roads and Highways (MRH) is in charge of overseeing players involved in the construction and maintenance of roads, highways, trains, airports, and other

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infrastructure. As a result, these two ministries are jointly responsible for contractor registration and categorization in the industry.

According to Owoo and Lambon-Quayefio (2018), Ahmed, Lamia, and Valva (2014), and Frimpong and Kwasi (2013), the Ministry of Works and Housing (MWH) classify building contractors into four groupings: D1K1, D2K2, D3K,3, and D4K4. The contractors in the D1K1 category are larger, while those in the D2K2 category are medium, and those in the D3K3 and D4K4 categories are small. These classifications, according to Ahmed et al. (2014), and Frimpong and Kwasi (2013), have direct ramifications for the types of projects that contractors in the sector can compete for, with various degrees of competition from one classification to the next.

Legal and Institutional Arrangements for OHS Management in Ghana

Ghana's OHS laws are based on a British legal and institutional framework from when Ghana was a British colony (Kheni, 2008). According to Kheni and Braimah (2014), many developing nations, like Ghana, have inherited regulatory structures and institutions from rich countries, with few adjustments or updates to reflect their present level of development and cultural milieus. At the time, the Factory Ordinance of 1952 was the only law protecting workers' health and safety in the mining and wood processing industries. The Factories (Woodworking) Regulations, 1959; the Food Factories (Welfare) Regulations, 1959; and the Factories (Docks Safety) Regulations, 1960, according to Kheni (2008), were all enacted under the Factory Ordinance 1952.

These regulations were enacted by ILO principles and conventions (Kheni, Gibb & Dainty, 2010). Work (Women) Convention 1935 (No. 45); Radiation Protection Convention 1960 (No. 115); Guarding of Machinery Convention 1963 (No. 119); Hygiene (Commerce and Offices) Convention 1964; Working Environment (Air Pollution, Noise, and Vibration) Convention 1977; and labour Inspection Convention 1947 are among the major ILO conventions relating to OHS that Ghana has ratified.

Even though Ghana has enacted legislation to address OHS challenges, Tetteh (2003) claims that OHS in Ghana has flaws. Health and safety regulations expand without taking into account current ones, resulting in fragmentation, overlapping jurisdictional areas, and inconsistencies in the country's OHS rules. Danso (2010) believes that the Ghanaian construction industry has not progressed sufficiently to the needs of its own OHS regulation. Ghana continues to rely only on ILO conventions on OHS that have been ratified. According to Muchiri (2003), African countries lack adequate OHS policies. The main obstacles to providing efficient enforcement of OHS legislation, according to Muchiri (2003), are a lack of infrastructure and financing, an insufficient number of experienced OHS practitioners, and a general lack of adequate information.

Despite the gaps in Ghana's OHS rules, Kheni and Braimah (2014) report that the country has established ministries to ensure that OHS standards are adhered to at work. They are; the Ministry of Employment and Labour Relations (MELR), the Ministry of Environment, Science, Technology & Innovation (MESTI), the Ministry of Health (MOH), the Ministry of Roads & Highways (MRH), and the Ministry of Lands and Natural Resources (MLNR) are among these ministries. Kheni and Braimah (2014) indicate that these ministries

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are responsible for policy formulation and, departments under them implement the policies, whilst the Factory Inspectorate Department has sole responsibility for enforcing OHS policies. Other public departments and agencies with some health and safety responsibilities include the Labour Department, the Environmental Protection Agency, the Occupational Health Services Unit, and the Attorney General's Department.

According to Kheni (2008), the Ministry of Health's OHS Service Unit is responsible for delivering curative care, first aid, worker education on health issues, workplace health surveillance, and risk assessments. Ghana's Health Ministry is taking aggressive steps to ensure that workers have a safe working environment. In Ghana, the Labour Department is in charge of labour administration. As a result, it has authority over labour-related problems, such as worker health and safety. The department enforces labour standards under Ghana's labour laws and the International Labour Conventions that it has ratified. Tetteh (2003) and Amponsah-Tawiah and Dartey-Baah (2011) report that close collaboration, networking, and coordination about these institutions' health and safety tasks has been weak, resulting in health and safety being given a low profile among occupations in the country.

Theories Underpinning the Study

Social Network Theory

The study of how people, organizations, or groups interact with others within their network is known as social network theory (SNT) (Claywell, 2012). According to Eysenbach (2008), social networking can engage and drive users to share, update, and manage information. Le and Park (2011) assert that social networking is critical for trading resources, boosting communication, and improving OHS performance among partners. Hanneman and Riddle (2011) posit that social networking allows organizations to map and expose hidden channels of communication and information flow, collaboration, and disconnects between people in strategically important groups, thereby improving the effectiveness and efficiency of communication, reporting, and decision-making processes.

Leaders with a health and safety orientation, according to Pilbeam, Davidson, Doherty, and Denyer (2015), can encourage others to ensure safe working environments and practices. Influence is acquired not only through the veracity and persuasiveness of communications but also through interpersonal interactions. Employees who are well connected to a large number of others, either directly or indirectly through individuals who are well connected, have a larger chance of influencing others than those who are isolated from the majority of the organization. According to Pirzadeh (2018), social networking investigates patterns of contact among project participants, ensuring that OHS plans are widely distributed. According to Gamper, Seidel, Kupfer, Keim-Klärner, and Klärner (2022), the influence of external or macro-level elements is largely neglected in SNT investigations. It largely concentrates on internal or micro-level interactions within social networks. It is, therefore, significant to delve into both the micro-level and macro-level factors to gain a more thorough understanding of the multilevel elements that influence accident underreporting behaviours of construction workers.

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Social Exchange Theory

George Homans established the Social Exchange Theory (SET) in 1958, according to Cropanzano and Mitchell (2005). He defined social exchange as the exchange of action between at least two people, whether material or intangible, rewarding or costly. According to West and Turner (2007), humans only engage in exchange relationships when they anticipate being rewarded. SET is one of the most significant conceptual paradigms for analysing workplace behaviour, according to Gefen and Ridings (2002). Humans make decisions based on rational calculations that aim to maximize personal benefit.

One prominent example of the use of the SET, according to Ashour, Hassan, and Alekam (2018), is an improvement in safety performance. In their view, workers are expected to acquire good perceptions of the user-friendly character of their work environment if they believe that management's activities will lead to great safety management practices about their safety. As a result, their safety performance metrics should improve. Workers will, by implication, be willing to report accidents to the proper authorities. The application of SET to the study of underreporting of occupational accidents is relatively limited. Therefore, the study explicitly adopted SET to examine the social exchanges that influence underreporting behaviour among workers, supervisors, and management within construction firms.

Occupational Health and Safety Management by Construction Companies

Behavioural Safety Management

Behavioural Safety Management (BSM), according to Fishwick, Southam, and Ridley (2004), is the practice of controlling and coordinating employee behaviour at work. To them, it entails a variety of strategies used at work to limit the frequency and severity of injuries and accidents. Managers of organizations are expected to exert influence by developing and communicating a safety vision, setting expectations, and displaying positive leadership models. They are of the view that positive reinforcement such as saying "thank you" and applauding employees who exhibit safe behaviour can change behaviour.

Health and Safety Management Systems

Jazayeri and Dadi (2017) define Health and Safety Management System (HSMS) as a series of defined organization-wide processes that provide for effective risk-based decision-making related to an organization's daily business. The Safety Association for Canada's Upstream Oil and Gas Industry (2011) indicates that, for all workers and organizations, health and safety should be an expressed value. The Association opines that organizations committed to health and safety excellence achieve success through a strong HSMS. An effective HSMS can help prevent injuries and property loss, reduce costs, and support due diligence.

According to Sorensen, Dennerlein, Peters, Sabbath, Kelly, and Wagner (2021), all companies or organizations should: recognize that each employee has a right to a work environment that will not adversely affect his or her health and safety, be committed to providing safe workplaces for all employees, diligently carry out the employer duties outlined in Occupational Health and Safety Administration (OSHA) directives, and minimize the risk of occupational injury, illness,

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and property damage. Kobb and Stikova (2013) indicate that industries should implement recording and reporting mechanisms as part of their HSMS. Employers should be required to report work-related fatalities and injuries, as well as all work-related in-patient hospitalizations requiring care or treatment, amputations, and eye losses, to the OHSA or any other authority responsible for dealing with occupational accident cases.

Factors Influencing Under-Reporting of Accidents

To maintain construction site safety, all accidents, injuries, and illnesses must be reported accurately to the appropriate authorities so that the most efficient measures to prevent recurrences can be taken. Unfortunately, statistics suggest that the vast majority of workplace injuries go unreported, with rates ranging from 71% to 80% (Probst & Estrada, 2010). Due to a variety of internal or micro-level and external or macro-level reasons, workplace accidents, injuries, and illnesses are routinely under-reported (Daniels & Marlow, 2005; WDSHW, 2015).

On Internal Factors, Daniels and Marlow (2005), opine that the size of the company has an impact on the under-reporting of accidents. Small construction enterprises, according to their research undertaken in the UK and the US, are more prone to under-report accidents and injuries, or maybe not report them at all. Smaller businesses may be less aware of legal reporting requirements, sanctions for poor record-keeping are rarely imposed on small businesses, and completing essential paperwork may be a bigger relative burden on smaller businesses than on larger businesses, according to their explanations. Karr (2000) identifies age as a possible factor that can contribute to the under-reporting of accidents, and that, the rate of injury decreases as people get older, but the severity of the damage and the incidence of fatal occupational injuries increase.

Sim (2000) and Reason (1997) opine that the safety culture of an organization, or the prevalent norms, values, attitudes, and beliefs, can have a significant impact on employees' willingness to report accidents. In the view of Adams and Hartwell (1977), people are generally hesitant to disclose incidents in businesses and workplaces where a 'blame culture' exists. In the study of Pransky et al. (1999), job insecurity hampers workers' willingness to report accidents or injuries to the statutory authorities. According to them, workers always have the fear of being assigned to undesirable lighter-duty jobs, loss of overtime, separation from co-workers, concerns about abandoning their team, fear of being sacked from their job, fear of being labelled by their supervisors as unable to do their job or as a complainer, and belief that having symptoms is a sign of weakness. Other internal factors include organizational safety climate, poor management commitment, unrealistic management goals, safety incentive programs, safety incentives, individual attitude, lack of expertise and resources, time constraints, education and training, interpersonal relationships, language barrier, hierarchical nature of organizations, peer influence, and peer influence (Eskandari, Jafari, Mehrabi, Kian, Charkhand, & Mirghotbi, 2018; Nadia, 2015; Probst et al., 2008; Daniels & Marlow, 2005; Clark, 1998; Grunberg, Moore, & Greenburg, 1996; Miller et al., 2005; Hansen, 1994). According to Mearns, Whitaker and Flin (2003), if management truly wants to hide injuries, then they can allow poor administration of records; maintain inadequate injury-reporting requirements or intentionally underreport injuries. Accurate reporting will not occur unless a clear message is percolated down from top management and communicated to supervisors and employees at the floor level.

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On external factors, WDSHW (2015) states that under-reporting is caused by technological and societal changes, as well as global economic conditions. Many employees are unaware of how to use technology to report incidents. Global economic difficulties have once again damaged construction operations. Contractors may be encouraged to finish projects on schedule to avoid being harmed by the present economic conditions. This may make it difficult for them to focus on accident investigations. Furthermore, McCraven (2012) opines that one of the possible causes of the under-reporting of accidents in businesses is the fear of rising workers' compensation insurance costs. According to Daniel and Marlow (2005), underreporting of safety events is a global occurrence. According to them, the scope of the under-reporting problem varies in each country, due to cultural variances as well as disparities in reporting procedures and legislation. According to Nadia (2015), certain countries have enacted legislation that penalizes companies that have a large number of accident cases. As a result, businesses and organizations hide their mishaps by refusing to disclose them to the proper authorities.

Bekr (2017) indicates that politics tends to influence accident reporting. Every time a presidential election is held, the construction industry is often tossed around like a political soccer ball. According to Boateng (2014), government projects awarded under a prior regime could be re-evaluated if there is a suspicion of procurement violations. If it is discovered that the procurement act has been broken, the project may be terminated. In most situations, contractors aim to finish their projects as soon as possible to prevent contract termination during election season, according to Samir (2015). As a result, accident reporting processes are rendered obsolete. According to Bekr (2017), as the number of accident cases increases during a government's tenure, politicians become unpopular. As a result, regulators who follow government rules downplay accident numbers, making reporting accident instances to the proper authority obsolete. Other external factors include Education and training, socio-cultural practices, the environment, and the economy (Amponsah-Tawiah, 2017; Sami, Moafian, Najafi, Aghabeigi, Yamini, Heydari, & Lankarani, 2013).

Summary and Conceptual Framework

Occupational accident statistics will improve if the appropriate national and institutional infrastructure exists to support the control, guidance, or implementation of a planned or adopted course of safety regulations, laws, rules, principles, and activities. Positive national and institutional OHS regulations and policies act as chalazas to improve and enhance occupational accident statistics. Employee behaviour has a similar impact on accident reporting. Close collaboration, networking, and coordination among institutions' health and safety departments will improve OHS accident reporting. Figure 1 displays a conceptual framework that tries to connect the various conceptual themes discussed throughout the study. It shows how important factors have a direct or indirect impact on accident reporting. Construction operations and personnel's attitudes toward accident reporting are influenced by both internal and external factors.

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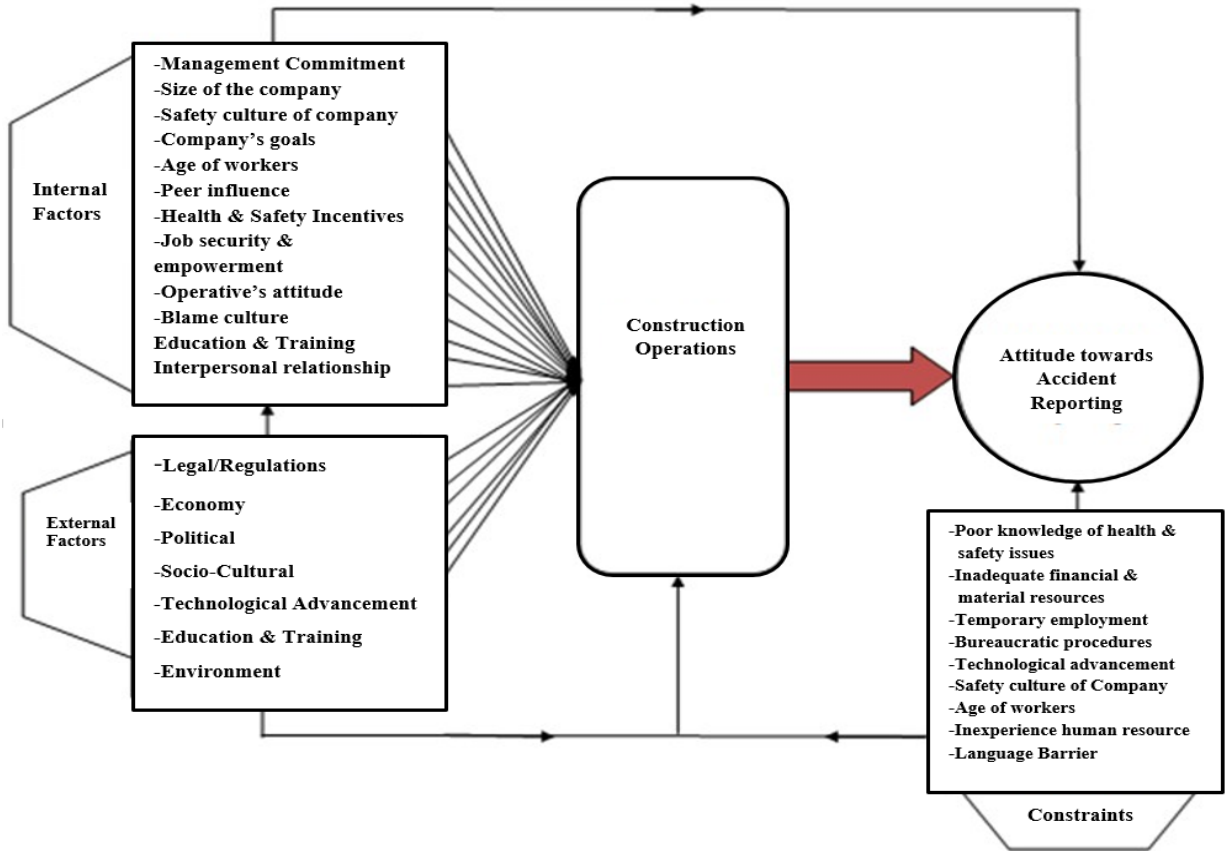

Figure 1: Authors' Conceptual Framework

METHODOLOGY

This study's underlying epistemological orientation is based on a pragmatic viewpoint of the social world. According to Creswell (2014), pragmatism is an advanced philosophy that provides the logic and epistemology needed to combine positivism and interpretivism assumptions with qualitative and quantitative approaches. According to Kheni (2008), It is impossible to comprehend construction companies' approach to health and safety without first comprehending the firms and their relationships with the cultural and socioeconomic environments. It is undeniable that the environment, particularly regulations (for this research; health and safety laws), institutions (health and safety administration) and national culture objectively exert some influence on the operations of these construction firms. Such information is needed to shed light on how OHS accidents are managed and reported in a given context. However, these aspects are consistent with an objectivist understanding of society because they are real and have an influence on how construction companies operate. Construction managers, workers (carpenters, masons, steel benders, electricians, etc.), and stakeholders in health and safety can all influence how often accidents in construction companies are reported. This can best be understood from a subjectivist/interpretivist viewpoint of the world. Considering the nature of the range of issues relevant to OHS accident management within construction firms, both interpretivist/subjectivist and positivist/objectivist assumptions are relevant to the research, hence the adoption of the pragmatic assumption.

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The study employed the descriptive survey design to investigate the critical factors influencing the under-reporting of occupational accidents in the construction sector. The research was carried out in two geographical regions of Ghana: The Upper West and Upper East. According to research conducted in the UK and the US by Daniels and Marlow (2005) and Leigh et al (2004), small construction enterprises are more prone to under-report accidents and injuries, or even not report them at all. According to Banyen (2016) and Richard (2017), the majority of Ghana's larger construction firms are located in the country's larger cities, such as Accra, Kumasi, Sekondi-Takoradi, Koforidua, Cape Coast, and Sunyani, while the smaller firms are concentrated in the country's smaller regions, towns, and cities, hence the decision to conduct the research in these regions.

The Construction Firms were stratified into two: Construction firms in the Upper West Region and Construction Firms in the Upper East Region. The firms comprise the Association of Road Contractors of Ghana (ASROC), the Association of Building and Civil Engineering Contractors of Ghana (ABCECG), and the Electrical Contractors Association of Ghana (ECAG). In the Upper West, the Contractors' Association Register (2021) has 74 active registered firms whilst Upper East has 78 active registered firms. The Yamane (1967) equation was used to select the number of firms to participate in the study.

$$n = \frac{N}{\{1+N(e^2)\}} \qquad (1)$$

Where: n = Sample Size, N= Population Size, and e= level of precision (0.05)

Using this formula, 62 construction firms were selected in the Upper West Region and 65 were selected in the Upper East Region. In selecting the exact construction firms for the study, the names of the firms were labelled 1-74 and 1-78 in the Upper West and Upper East Regions respectively. A randomizer was set according to the label to select the 62 and 65 firms from Upper West and Upper East Regions respectively. A total of One hundred and twenty-seven (127) firms were sampled. The study included one (1) site manager and two (2) operatives from each sampled firm. A total of 381, including 127 site managers and 254 operatives, were included in the sample.

Both closed-ended and open-ended questionnaire was used to gather qualitative and quantitative data for this study. The respondents were given a week to complete the questionnaire before it was collected. The questionnaire reflected on the respondents' demographic characteristics, factors influencing the reporting of OHS accidents inside construction enterprises, as well as factors influencing the reporting of OHS accidents on construction sites to statutory authorities.

The data gathered from the respondents was cleaned up, coded and entered into SPSS 21.0 Windows. The data was analysed to create a descriptive picture of the data gathered. SPSS 21.0 was used to calculate the data's means and standard deviations. The data from SPSS was transferred to Linear Structural Relationships (LISREL) software, which was then used to conduct Confirmatory Factor Analysis (CFA). The software was used to create variable path loading and standard errors, which were then used to determine indicator-factor connections and corroborate the primary variables driving under-reporting of accidents from the respondents' point of view. The research participants' thoughts, ideas, and perceptions are primary data, and as such the open-ended questionnaire sought to obtain qualitative data from

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the participants. The qualitative data was reduced and condensed by a system of coding. The data was further categorised and summarized into themes and interpreted.

RESULTS AND DISCUSSION

Response Rate

The questionnaires were distributed to the construction firms in the study regions. From Table 1 381 questionnaires were distributed, out of which 66% were accurately answered and returned whilst 34% could not be returned. Therefore, the sample size used for the analysis was 250.

Table 1: Response Rate

Number of Questionnaires	Frequency			Percent		
	Upper West	Upper East	Frequency	Upper West	Upper East	Percent
The number of questionnaires returned	145	105	250	38%	28%	66%
Number of questionnaires unreturned	41	90	131	11%	23%	34%
Total	186	195	381	49%	51%	100%

Demographic Characteristics of Respondents

The study analyses relevant aspects of the demographic backgrounds of the respondents. The significance of this is to assess the implications it could have on key issues that pertain to the study. These include; the gender distribution, age category, academic qualification, and number of years the workers have been working in the construction firms.

Gender Distribution

The study collected data regarding the respondents' gender. Figure 2 displays the respondents' gender distribution. Approximately 5% of the 250 respondents were female, and slightly over 95% of the respondents were male. This ratio shows that there are more men than women employed in the construction industry in the Upper West and Upper East Regions of Ghana.

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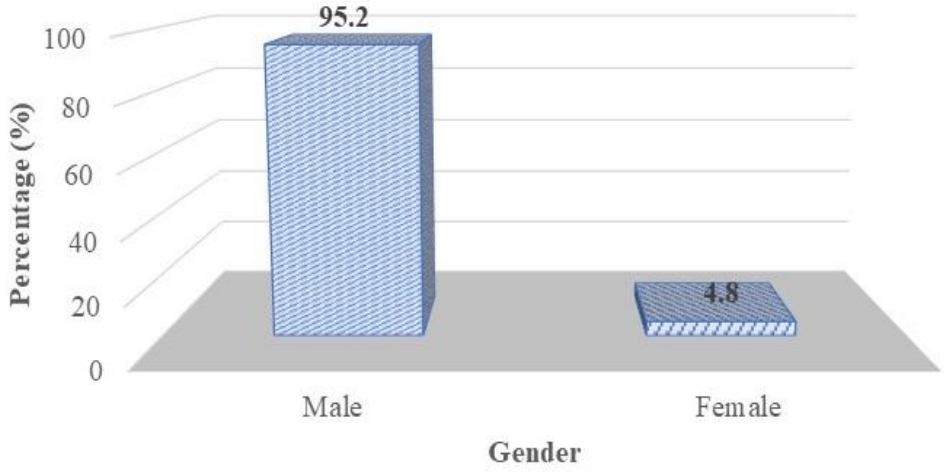

Figure 2: Gender Distribution

Age Group of Respondents

Figure 3 presents data regarding the age distribution of the respondents. Out of the 250 respondents, 10.4% were below 20 years, 26.4%% were within the age brackets of 20-29 years, 35.6% were within 30-39 years, 20% were within 40-49 age category, and 7.6% were within the age brackets of 50-59 years. The field data indicates that the majority of the respondents were in their youthful age. Few of the respondents were almost within the retirement age but were still found in the construction sector. These age variations helped the researcher to obtain different views from the respondents.

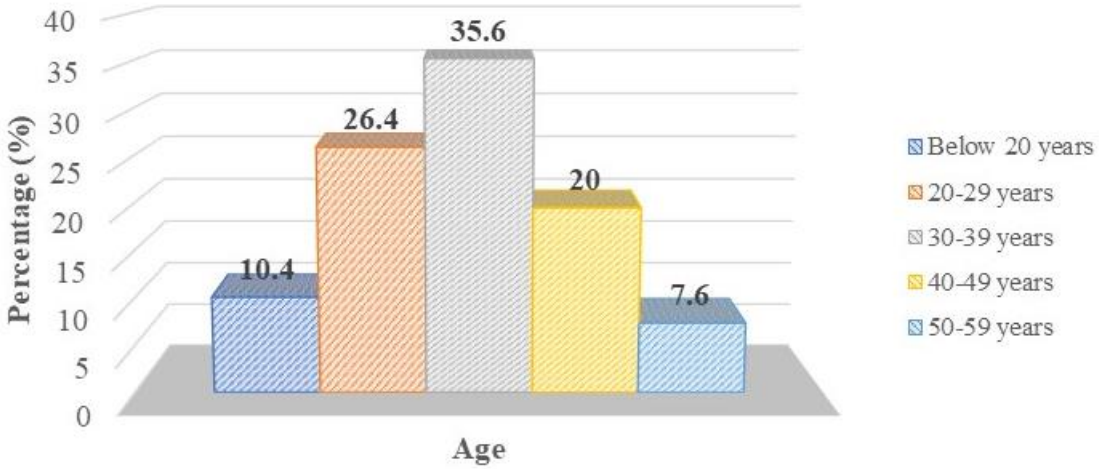

Figure 3: Age group of Respondents

Academic Qualifications of Respondents

The respondents were asked to indicate their level of education. The results are shown in Figure 4. The results obtained indicate that less than 1% of the respondents had master's degree, 2.4% had O'/A' level, 2.4% were first degree holders, 2% had BECE certificates, 4% had no formal education, 16% had WASSCE/SSSCE, close to 18% had HND certificates whilst the majority

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of them (55.2%) had NVTI certificates. This implies that most of the construction activities are carried out by NVTI and HND certificate holders in the Upper West and Upper East Regions of Ghana.

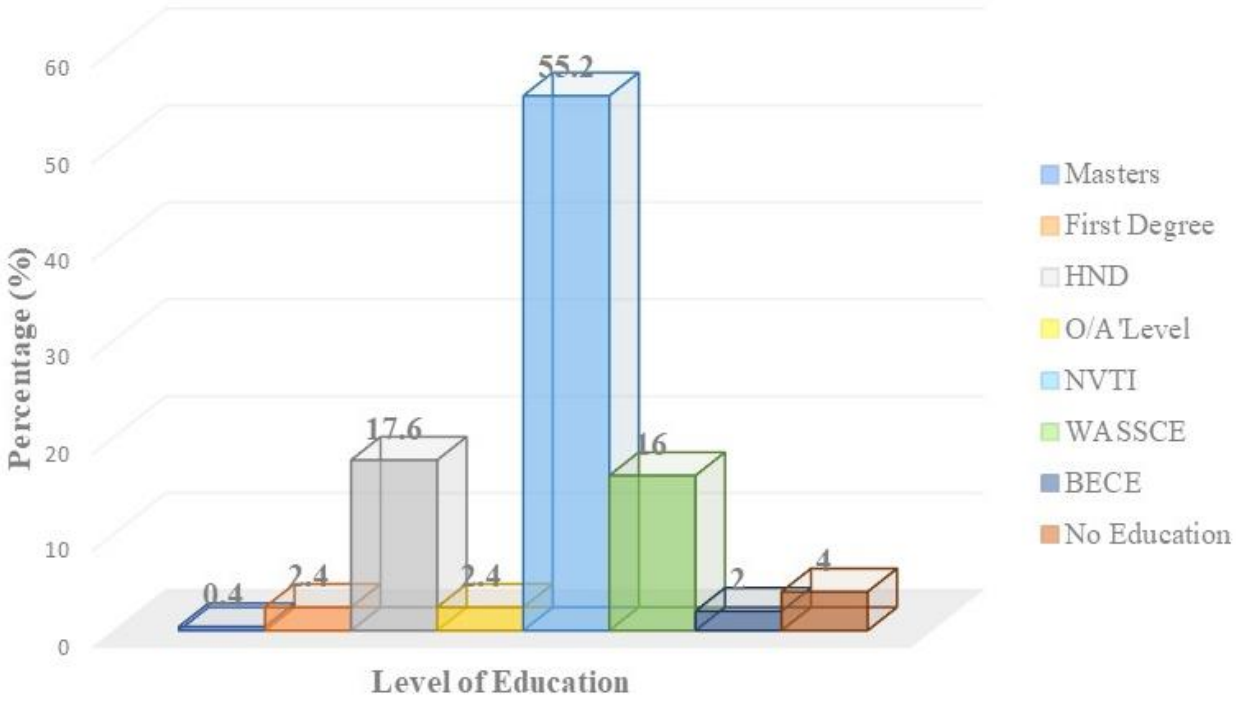

Figure 4: Academic Qualifications of Respondents

Number of Years Worked in Firms

The workers were asked to indicate their years of working in the construction firms. As indicated in Figure 5, 3.2% of the respondents worked in the firms for 11-15 years, 3.2% also have been working in the firms for 16-20 years, and 26.4% have been working in the firms for 6-10%. A little above 67%, which constitutes the majority of the respondents have been working in the firms for 1-5 years. A year or more experience in the companies is enough for the respondents to give information regarding the research objective.

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Figure 5: Number of Years worked in Firm

Critical Factors Influencing Under-Reporting of OHS Accidents within the Construction Site

The outcomes are shown in Table 2. Thirteen (13) constructs and three (3) indicators were used to assess respondents' opinions on the topic. Means and standard deviations were used to assess the factors. The statistically significant mean level was set at 4.0. Anything beyond the 4.0 cut-off point is classified as a strong factor, while factors below the cut-off point are classified as medium or weak.

The mean averages for "Lack of Management Commitment," "Poor Communication," "Company Size," and "Poor Safety Culture" are 4.081, 4.048, 3.815, and 4.088, respectively, in Table 2. This data indicates that all of the constructs, except "Company's size," have their mean averages greater than 4.0, implying that they have an impact on the under-reporting of accidents. This suggests that the majority of respondents believe that "Lack of Management Commitment," "Poor Communication," and "Poor Safety Culture" are important factors in the Ghanaian construction industry that influence the under-reporting of accidents.

The results identified inadequate safety performance programmes, limited or lack of personnel to handle safety issues, and absence of annual health and safety policy as indicators of "Lack of Management Commitment". These were critical issues of management that contributed significantly to the under-reporting of accidents within the construction firms. Sorensen et al. (2021) and Kobb and Stikova (2013) indicate that personnel or structures should be put in place as part of organizational HSMS to record and report accidents, injuries and illness. According to Clark (1998), accident reporting is an objective measure of the level of managerial commitment to safety. If management truly wants to improve on accident reporting, they should improve on proper records administration; maintain adequate accident reporting requirements; institute adequate safety programmes; and ensure that the required health and

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safety personnel are available to handle accident cases. From the results, many of the construction firms have bureaucracies in communication and lack systems for reporting and investigating accidents. In the opinion of Mearns et al. (2003), accurate reporting will not occur unless a clear message is percolated down from top management and communicated to site managers and employees at the floor level. Again, the results of the study revealed that poor safety climate influences under-reporting of accidents within the construction firms. The results demonstrated that norms, values, beliefs and practices of construction firms impact the willingness of workers to report accidents. This confirms the views of Daniels and Marlow (2005) citing Wagennar (1998) that, the health and safety culture within an organisation is a major factor that influences the health and safety-related behaviour of workers. Curcuruto and Griffin (2018) indicate that good organizational and citizenship behaviour at the workplace has positive consequences on organizations. Probst et al. (2008) indicate that organizations should adopt proper safety climates, ensuring that all accidents and injuries are properly recorded, handled and reported.

Table 2 also reveals that "company's goals," "workers' age," and "peer influence" are all key internal factors that influence accident reporting in construction companies. Their respective mean averages are 4.041, 4.016, and 4.013. The mean averages for "Health and Safety Incentives," "Job Security and Empowerment," "Workers' Attitude," and "Blame Culture," respectively, are 3.846, 4.463, 4.372, and 4.230. The figures show that "Job Security and Empowerment" and "Workers' Attitude" both have averages over the 4.0 threshold, showing that they have an impact on under-reporting. However, the mean average for "Health and Safety Incentives" was less than 4.0, indicating that respondents did not believe it had an impact on under-reporting. The derived means for "Education and Training" and "Interpersonal Relationships" are 4.255 and 4.176, respectively, showing that they have an impact on the under-reporting of construction accidents.

From the results in Table 2, construction firms normally set goals and expect to achieve them within the time frame and that normally puts undue pressure on workers to achieve the set goals. It was observed also that, unrealistic expectations of management in the form of a safety incentive program normally discourage workers from accurately reporting accidents and injuries to site managers or higher authority, which supports the views of Pransky et al. (1999). The results established that accidents and injury normally decrease with age and that adolescents and the older age group under-report accident cases more than the middle age group. These study results confirmed the view of Karr (2000) that, the incidence of accidents or injury decreases with age and that, the accident or injury severity and the incidence of fatal occupational injuries increase with age. The results also supported the view of Parker et al. (1994) that, there is substantial under-reporting of adolescent work accidents or injuries, and that two-thirds of adolescent work accidents or injuries are not reported to the appropriate authority. In the study of Miller et al. (2005), older workers are more likely to under-report accidents than younger workers. Again, the results of the study indicated that workers who raise safety concerns have a fear of retribution, and that job insecurity hampers workers' willingness to report accidents within the construction firms. It was established by the study results that, workers who raise safety concerns are seen as troublemakers. These results are evidence of the views of Grunberg et al. (1996) that job insecurity contributes to underreporting. According to Pransky et al. (1999), workers always have the fear of being

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assigned to undesirable lighter-duty jobs, loss of overtime, separation from co-workers, concerns about abandoning their team, fear of being sacked from their job, fear of being labelled by their supervisors as unable to do their job. The results established that management practices affect workers' attitudes to report accident cases. The results also revealed that workers are often reluctant to report accident cases because of the existing company's culture. The results confirmed the views of Miller et al. (2005) that, individual attitude influences the under-reporting of accidents in the workplace.

From the results, it was ascertained that individuals in the firms are not defined with safety responsibilities. Management focuses on how to complete projects rather than solving safety problems and as such workers are often reluctant to report accidents for fear of it being used to apportion blame. Again, the results revealed that many construction firms rarely organise induction courses for their workers and supervisors. The field data established that construction firms provide no education to workers on safety posters and boards, meanwhile majority of the workers had only WASSCE/NVTI certificates that need further training or induction programmes. This may be in line with the opinion of Eskandari et al. (2018) that, safety education and training enhance knowledge and motivation, and thus improve the safety reporting climate. The data analysed has established interpersonal relationships influence accident reporting at the workplace and that, companies or firms must maintain good relations with employees and concerned authorities. It was established from the field data that, most supervisors discourage workers from expressing their ideas and opinions about OHS accidents at work. In the views of Eskandari et al. (2018), the interpersonal relationship has a potential influence on the reporting of accidents. The relationships between workers and supervisors could lead to open discussion and reporting of accidents to the supervisors. Hanneman and Riddle (2005) indicate that, interpersonal relationships or social networking offers a means of mapping and exposing the hidden channels of communication and information flow which improves the effectiveness and efficiency of communication, reporting and decision-making processes in organizations

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Table 2: Descriptive Statistics of Respondents' views about critical factors influencing under-reporting of OHS Accidents

S/n	Factors	N	Mean	Std. Deviation	Rank
1.0	**Lack of Management Commitment**	**250**	**4.081**	**1.267**	
1.1	There are inadequate safety performance programmes in the company.	250	4.156	1.207	1st
1.2	There are limited or lack of personnel to handle accident cases in the company	250	4.048	1.269	2nd
1.3	The company has no annual Health and Safety policy	250	4.040	1.326	3rd
2.0	**Poor Communication**	**250**	**4.048**	**1.251**	
2.1	The company lacks a system for reporting and investigating accidents	250	4.204	1.278	1st
2.2	There are ineffective communication safety policies and procedures	250	4.096	1.144	2st
2.3	There is Bureaucracy in communication in the company	250	3.844	1.331	3rd
3.0	**Company's size**	**250**	**3.815**	**1.293**	
3.1	Small construction firms affect reporting of accidents more than large firms	250	3.980	1.214	1st
3.2	Workers in smaller firms normally have lower accident rates	250	3.800	1.245	2nd
3.3	The size of a company affects the reporting of accidents	250	3.664	1.420	3rd
4.0	**Poor Safety Culture**	**250**	**4.088**	**1.066**	
4.1	Poor safety culture contributes considerably to the under-reporting of accidents	250	4.276	0.901	1st
4.2	Poor safety climate influences under-reporting of accidents	250	4.176	0.928	2nd
4.3	Norms, values, beliefs, and practices of our company impact the willingness of workers to report accidents	250	3.812	1.371	3rd
5.0	**Company's Goals**	**250**	**4.041**	**1.263**	
5.1	The company sets Goals and is expected to achieve them within the time frame	250	4.154	1.153	1st
5.2	Companies put pressure on workers to achieve their target	250	4.002	1.327	2nd
5.3	Unrealistic expectations of management in the form of safety incentives influence under-reporting	250	3.967	1.308	3rd
6.0	**Workers' Age**	**250**	**4.016**	**1.093**	
6.1	Accidents and Injuries decrease with age	250	4.232	0.707	1st
6.2	Older age group underreport accident cases	250	3.972	1.302	2nd

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6.3	The adolescent group underreport accident cases more than the middle-aged group	250	3.844	1.269	3rd
7.0	**Peer Influence**	**250**	**4.013**	**1.087**	
7.1	Co-workers discourage others to be safe and report accident cases	250	4.128	0.982	1st
7.2	Peer group influences accident reporting	250	4.068	1.126	2nd
7.3	Peer group influences safety behaviour	250	3.844	1.153	3rd
8.0	**Health and Safety Incentives**	**250**	**3.846**	**1.268**	
8.1	Real incentives in the form of monetary influences under-reporting	250	4.340	1.045	1st
8.2	Safety incentives for workers to reduce accidents end up reducing the number of accidents reported	250	4.332	1.067	2nd
8.3	Management encourages workers to visit their first aid box when they have accidents/injury	249	2.867	1.693	3rd
9.0	**Job Security and Empowerment**	**250**	**4.463**	**0.842**	
9.1	Workers who raise safety concerns have a fear of retribution	250	4.604	0.688	1st
9.2	Job insecurity hampers workers' willingness to report the accident	250	4.588	0.757	2nd
9.3	Workers who raise safety concerns are seen as troublemakers	250	4.196	1.082	3rd
10.0	**Workers' Attitude**	**250**	**4.417**	**0.697**	
10.1	Management practices affect workers' attitudes to report accident cases	250	4.512	0.724	1st
10.2	Workers' attitude to under-report accident cases is dependent on their age	250	4.372	0.628	2nd
10.3	Workers are often reluctant to report accidents because of the existing company's culture	250	4.368	0.740	3rd
11.0	**Blame Culture**	**250**	**4.176**	**1.136**	
11.1	The company has no clearly defined individuals with safety responsibilities	250	4.384	0.947	1st
11.2	Management focuses on how to complete projects rather than solving safety problems	250	4.184	1.329	2nd
11.3	Workers are often reluctant to report accidents for fear of it being used to apportion blame	250	4.122	1.133	3rd
12.0	**Education and Training**	**250**	**4.255**	**1.189**	
12.1	Site inductions for workers and supervisors are rare in the company	250	4.480	1.080	1st
12.2	The company provides no education to workers on safety posters and boards	250	4.272	1.310	2nd
12.3	Workers have formal education up to at least WASSCE/NVTI level	250	4.013	1.176	3rd
13.0	**Interpersonal Relationships**	**250**	**4.176**	**0.885**	

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13.1	Interpersonal relationships influence accident reporting in the workplace	250	4.800	0.401	1st
13.2	The company maintains good relations with employees and concerned authorities	250	4.004	0.779	2nd
13.3	Supervisors discourage workers from expressing their ideas and opinions about OHS accidents at work	250	3.724	1.475	3rd

As confirmation of the variables' appropriateness, the Linear Structural Correlations (LISREL) tool was utilized to determine their relationships. When a factor's route loading is equal to or greater than double its standard error, according to Trustees Indian University (TIU) (2008), it is deemed to have a greater impact on a subject.

Table 3 identifies ten (10) internal characteristics, out of a total of thirteen (13) that significantly influence the under-reporting of construction accidents. The most important factors influencing the under-reporting of accidents within construction firms are interpersonal relationships, job security, empowerment, poor communication, lack of management commitment, poor safety culture, blame culture, education and training, company goal, and workers' age and attitude. Their route loadings are double their typical errors or more.

Table 3: Internal Factor loadings and standard errors

Latent Variable (Factors)	Loading (L)	Standard Error (SE)	2SE	Rule
Interpersonal Relationships	8.86	3.40	6.80	L= or >2SE
Peer Influence	5.15	5.24	10.48	L<2SE
Job Security and Empowerment	0.94	0.31	0.62	L= or >2SE
Poor Communication	0.71	0.15	0.30	L= or >2SE
Lack of Management Commitment	0.66	0.14	0.28	L= or >2SE
Health and Safety Incentives	0.56	0.43	0.86	L<2SE
Workers' Age	0.20	0.03	0.06	L =or >2SE
Bad Safety Culture	0.34	0.14	0.28	L= or >2SE
Blame Culture	0.06	0.02	0.04	L= or >2SE
Education and Training	0.03	0.01	0.02	L= or >2SE
Company's Goal	0.02	0.01	0.02	L= or >2SE
Workers' Attitude	0.02	0.01	0.02	L= or >2SE
Company Size	0.01	0.02	0.04	L<2SE

Critical Factors Influencing Under-Reporting of OHS Accidents on Construction Sites to Statutory Authority

Table 4 shows descriptive statistics of respondents' perspectives on crucial variables impacting the under-reporting of OHS accidents on construction sites to the statutory authority. The statistically significant mean level was set at 4.0.

The researchers looked into whether legislation or regulations established by parliament have a major impact on accident reporting to statutory authorities on building sites. The majority of

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respondents believe that laws or rules have a substantial impact on the under-reporting of accidents. This construct's consequent mean score is 4.261, which is higher than the criterion. All of the factor indicators are agreed upon by the respondents.

The respondents were unanimous in agreement that "Economy," "Politics/Government," and "Socio-cultural Practices" have an impact on under-reporting. The mean scores include 4.493, 4.230, and 4.480 respectively. The results show a clear consensus that these factors have a significant role in the under-reporting of construction site incidents to statutory authorities.

Further investigation into whether "Technological Advancement," "Education and Training," and "Environment" play a role in under-reporting of accidents. Table 4 shows their respective resulting means as 4.480, 4.485, and 4.417. All of the components' mean scores surpass the 4.0 criterion, indicating that they are major variables influencing the under-reporting of incidents.

The study showed that firms have no regulations that cover accident reporting procedures. The study also revealed that Ghana's laws and regulations have not included OHS accident reporting procedures, and as such many of the firms rarely report accident cases to statutory authorities. This result is in line with the assertion of Danso (2010) that, the Ghanaian construction sector has not developed well enough to have a separate OHS legislation. In the view of Tetteh (2003), close collaboration, networking, and coordination in respect of the health and safety functions of institutions responsible for OHS management have been poor, resulting in health and safety being accorded a low profile within occupations in the country.

The study revealed that Politics/Government is considered one of the critical external factors that affect underreporting. The results of the study indicated that government officials feel unpopular when the number of accident cases rises in their regime and as such the statutory authorities treat accident reports with contempt. The study revealed that government policies affect construction projects. These assertions are in line with the opinion of Bekr (2017) that, politics has the tendency of influencing the reporting of accidents. Boateng (2014) indicates that government projects awarded in a previous regime could be re-evaluated and re-awarded provided there is suspicion of procurement breaches.

Again, the study ascertained that norms, values and beliefs of the community where projects are sited influence the safety behaviour of the construction workers. The study revealed that workers prefer treating injuries and accidents at home than reporting because of their cultural beliefs. This supports the opinion of Daniel and Marlow (2005) that the magnitude of the problem of under-reporting varies from country to country, city to city, and village to village depending on cultural differences. The study also confirmed the view of Amponsah-Tawiah (2017) that, individuals generally hold onto the spiritual, material, intellectual and emotional features that characterize their society or social group, irrespective of the environment they find themselves.

Further, Technological Advancement was also identified and confirmed to be one of the critical factors that contribute to the under-reporting of accidents on construction sites to statutory authorities. The study established that many of the construction firms or companies have no online accident reporting systems. It was revealed that, firms have not put in place a system to monitor employees' safety behaviour, and that many workers are not abreast with the use of technology to report accident cases to statutory authorities. The results of the study provided

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evidence that Education and Training have an influence on the under-reporting of accidents. The results indicated that the level of education of the workers influences accident reporting to statutory authorities. The results also established that, the nature of the environment at a particular time influences reporting of accidents, and that, weather conditions at times affect construction activities.

Table 4. Descriptive Statistics of Respondents' views about critical factors influencing under-reporting of OHS Accidents on Construction Sites to Statutory Authority

S/n	Factors	N	Mean	Std. Deviation	Rank
14.0	**Legal/Regulations**	**250**	**4.261**	**1.096**	
14.1	Our Company has no regulations that cover accident reporting procedures	250	4.364	0.952	1st
14.2	Ghana's laws and regulations have not included OHS accident reporting procedures	250	4.240	1.082	2nd
14.3	The company rarely reports accident cases to statutory authority	250	4.180	1.253	3rd
15.0	**Economy**	**250**	**4.493**	**0.711**	
15.1	The employees are not insured against accidents and injuries	250	4.664	0.699	1st
15.2	The economy of the country affects our construction works	250	4.612	0.681	2nd
15.3	Workers are very interested in meeting their financial needs	250	4.204	0.751	3rd
16.0	**Politics/Government**	**250**	**4.373**	**0.863**	
16.1	Government policies affect construction projects	250	4.532	0.665	1st
16.2	Government officials feel unpopular when the number of accident cases rises in their regime	250	4.496	0.762	2nd
16.3	The statutory authorities treat accident reports from construction firms with contempt	250	4.092	1.163	3rd
17.0	**Socio-Cultural**	**250**	**4.084**	**1.013**	
17.1	Employees prefer treating injuries and accidents at home than reporting	250	4.116	1.041	1st
17.2	Norms, values, and beliefs of the community where projects are to be sited influence safety behaviour	250	4.084	0.997	2nd
17.3	The language barrier prevents workers from reporting accident cases to supervisors and statutory authorities	250	4.052	1.003	3rd
18.0	**Technological Advancement**	**250**	**4.480**	**0.758**	
18.1	The company has no online accident reporting system	250	4.440	0.830	1st
18.2	The company has not put in place a system to monitor employees' safety behaviour	250	4.480	0.772	2nd

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18.3	Many workers are not abreast with the use of technology to report accident cases	250	4.520	0.672	3rd
19.0	**Education and Training**	**250**	**4.485**	**0.755**	
19.1	The level of education of the workers has an influence on accident reporting to statutory authorities	250	4.624	0.485	1st
19.2	The level of education of the workers influences their safety behaviour	250	4.476	0.756	2nd
19.3	No site inductions for workers and supervisors regularly to improve their safety behaviour	250	4.356	1.024	3rd
20.0	**Environment**	**250**	**4.417**	**0.803**	
20.1	The nature of the environment at a particular time influences the reporting of accident	250	4.488	0.724	1st
20.2	Weather conditions at times affect construction activities	250	4.412	0.746	2nd
20.3	Environmental factors influence safety behaviour	250	4.352	0.938	3rd

Table 5 shows that six (6) external factors have a significant impact on the under-reporting of construction site incidents to statutory authorities. Laws and regulations, politics and government, socio-cultural practices, technological advancement, education and training, and environmental issues are all aspects to consider. The LISREL criteria were not met even though "Economy" had an average mean score of over 4.0 in the descriptive data Table 4. Its loading is less than twice the standard error. As a result, its appropriateness and link with other variables could not be validated and confirmed as a major factor influencing the under-reporting of construction site incidents to the Statutory Authority.

Table 5: External Factor loadings and standard errors

Factors	Loading (L)	Standard Error (SE)	2SE	Rule
Laws and Regulations	0.13	0.013	0.026	L= or >2SE
Economy	0.02	0.15	0.3	L<2SE
Politics/Government	0.62	0.2	0.4	L= or >2SE
Socio-Cultural	0.32	0.12	0.24	L= or >2SE
Technological Advancement	0.35	0.15	0.3	L= or >2SE
Education and Training	2.47	0.78	1.56	L=or>2SE
Environment	1.09	0.37	0.74	L= or >2SE

CONCLUSION

Based on the result findings, it can be concluded that job security, workers' attitudes, education, and training, blame culture, interpersonal relationships, inadequate safety culture, lack of

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management commitment, poor communication, company's aim, and workers' age are all key variables in the under-reporting of OHS accidents in construction enterprises. These are internal elements that must be thoroughly examined to improve accident reporting. The study also found that education and training, technological advancements, the environment, politics/government, legal/regulations, and socio-cultural norms are all important factors in the under-reporting of construction site incidents to statutory authorities.

Recommendations

The researchers recommend that construction firms organize safety inductions, training, and performance programs for operatives, particularly casual and temporary workers, based on the findings and conclusions reached. This should be done before any job begins. Construction Company executives should hold regular safety meetings while on the job, put safety signs and posters on the working site, and perform daily "toolbox" safety lectures with workers. It's also suggested that management hire Health and Safety staff who would be fully responsible for OHS issues. Workers of all ages should be encouraged and informed about accident reporting procedures. There should be no bureaucratic tendencies in this operation.

Again, project managers and supervisors should always foster positive relationships with all types of workers and encourage and inspire them to practice safe construction practices. Health and safety issues should always be handled diplomatically by management. Workers will be able to report accidents to site management in this manner. To avoid role conflict and blame apportionment, the workers' roles should be clearly defined. Further, management should encourage a safety culture and educate personnel on how to reduce their exposure to health and safety dangers on construction sites, as well as how to report accidents. Procurement boards should be non-partisan and independent. This will make it impossible for subsequent governments to assess and reward contracts that have already been awarded. When a new government regime takes power, contractors will feel secure in the knowledge that their contract will not be awarded to another contractor. Firms should implement methods to track employees' safety behaviour and guarantee that personnel are up to date on technology when it comes to reporting accidents.

Implications of the Study

Many construction-related accidents, deaths, and illnesses go unreported, making fine-tuning measures to prevent recurrence impossible. The study determines why such incidents are not reported as frequently as they should be. The study provides insight into the factors that influence the under-reporting of OHS accidents on construction sites to project supervisors, designers, project managers, construction managers, the procurement system, project investments, project insurance, project economics, and institutional and regulatory bodies. It will increase awareness regarding the under-reporting of OHS occurrences on Ghanaian construction sites, as well as determine the essential factors that impact under-reporting. The goal of the research is to contribute significantly to the advancement of OHS management approaches and policy decisions, recommending effective reporting procedures for OHS accidents to authorities and construction employees in the country.

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