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Challenges for Occupational Health and Safety Enforcement in the Construction Industry in Ghana

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Abstract

Many previous studies have reported that the occupational health and safety (OHS) enforcement is poor in developing countries. However these studies have mainly focused on the broader enforcement problems and not fully considered the challenges confronting the institutions responsible for enforcing OHS standards at workplaces. In this study, twelve potential challenges were identified from an extensive literature review, then an empirical investigation was carried out via a questionnaire survey from OHS inspectors and professionals in the Ghanaian construction industry. The twelve challenges were confirmed and ranked. Also, analysis of variance (ANOVA) and correlation were used to determine the statistical significance of the responses and the relationships between the challenges. Based on these findings, this study provides practical strategies for government, OHS inspectors and other professionals within the construction industry to improve the OHS enforcement. The research findings can also be adopted as a basis to assess challenges confronting OHS institutions in other developing countries.

Keywords

Construction Industry; OHS; Enforcement; Challenges; Ghana

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Introduction

Realising its poor health and safety performance, Ghana has enacted and ratified various statutes and regulations that are aimed at safeguarding the health and safety (H&S) of workers. However, regulation which is not enforced rarely achieves its objectives and sadly this is the reality with OHS regulations in Ghana. Eyiah, Kheni and Quartey (2019) assessed OHS regulations in the Ghanaian construction industry and found that laxity in the enforcement of OHS regulations is a key factor causing poor H&S performance of the industry. According to Lingard and Rowlinson (2005), enforcement is primarily aimed at ensuring compliance with regulations and, in that way, minimise exposure to the risk of occupational accidents and illnesses to an acceptable level. Even though enforcement of OHS regulations are not the only solution to improving OHS, it is a crucial factor to achieving better OHS at workplaces. Also, the rules governing the enforcement of the regulations, and the sanctions applied to offenders and discourage would be offenders, would reflect the industry's response to the legislation (Cunningham, 1998). Many research findings have concluded that there is a correlation between enforcement carried out by relevant public institutions and compliance of organisations with OHS regulations (Ko, Mendeloff and Gray, 2010).

To date, many questions have been raised about the effectiveness and responsibility of public institutions in the enforcement of OHS regulations in Ghana. Studies by Kheni (2008), Kheni, Gibb and Dainty (2010) and Appiah (2016) provided evidence of poor, ineffective and non-functional conditions of the OHS regulatory and enforcement systems in Ghana particularly in the construction industry. For instance, the Ministry of Employment and Labour Relations (2017) reported that, in order to enforce compliance of OHS regulations, the Department of Factories Inspectorate inspected a total of 48 civil and construction workplaces in 2016, which represent a tiny fraction of the total construction sites in Ghana. It is therefore important to ascertain the reasons for the ineffective and unaccountable enforcement of OHS regulations by the relevant public institutions.

Many studies have considered challenges to enforcing OHS in developing countries (Choudry, Fang and Rowlinson, 2008; Umeokafor, et al., 2014; Umeokafor and Isaac, 2015; Adeyemo and Smallwood, 2017). For instance, Choudry, Fang and Rowlinson (2008) presented strategies for enforcing H&S issues in developing countries and identified some factors to enforce OHS. These factors included among others, safety as a value, safety system, training and organisation, personal protection program, research and development, toolbox talks and site safety cycle. In Nigeria, Adeyemo and Smallwood (2017) identified some problems which affect implementation of OHS legislation within the construction industry. These problems included limitations in the OHS legislation, bribery and corruption, inadequate funding of facilities and equipment, high level of insecurity, poor OHS culture among construction stakeholders, severity of penalties to offenders, and outdated OHS laws. Again, on Nigeria, Umeokafor and Isaac (2015) studied the regulatory activities of the H&S regulator and found that their regulatory activities are based on deterrence theory, while being challenged in their operations by factors such as logistics, political influence, and inadequate legislation. Specifically, on Ghana, a study by Kheni and Braimah (2014) into the institutional and regulatory frameworks for OHS administration identified that the OHS institutions were inefficient in enforcing OHS standards due to poor coordination and lack of specific OHS regulation for the construction industry. These studies have provided insights into the general problems of OHS enforcement in developing countries. However, the challenges confronting OHS enforcement institutions have been underexamined. Thus, there is the need for comprehensive research to systematically consider all possible challenges that confront these institutions to effectively carry out their enforcement mandates. OHS enforcement institutions have an important role in enforcing OHS legislation in workplaces, providing advice and assisting to resolve H&S issues. In providing this delicate balancing act between enforcement and consultation, OHS institutions face numerous challenges which affect their performance. To fill this research gap, this study firstly identifies possible challenges from a comprehensive literature, then

confirms and rank these challenges that confront the OHS enforcement institutions through an empirical investigation in Ghana.

Literature Review

The literature review focuses on introducing the institutional context of OHS enforcement in Ghana and identifying potential challenges to enforce OHS standards.

LEGAL AND INSTITUTIONAL FRAMEWORK FOR OHS IN GHANA

Historically, OHS in Ghana traced back to the British colonial period. The concept of OHS came to West African countries such as Ghana largely through the British colonial industries (Asuzu, 1998). According to Bavon (2000), OHS laws in the United Kingdom required that the similar services be provided for the colonies. Accordingly, the commercial and industrial interests that set up factories and shops within the colonies ensured that OHS programs were also in place. Even before Ghana's independence in 1957, the Factories Ordinance 1952 ensured the protection of the health and safety of workers, especially those in the mining and wood processing industries. The Factories Ordinance 1952 was repealed by the passage of the Factories, Offices, and Shops Act 1970.

The Constitution of the Republic of Ghana guarantees the right of all workers to work within safe and healthy conditions. As part of the fundamental human rights and freedoms, article 24 (1) of the constitution states that every employee or person in Ghana has the right to work under satisfactory, safe and healthy conditions. This provision is reinforced in the directive principles of state policy, as stated in Article 36(10), which enjoins the state to safeguard the health, safety and welfare of all persons in employment. This provision covers all workers who are engaged in both the formal and informal sectors. Therefore, with reference to the constitution, the government has a responsibility to safeguard the safety, health and well-being of all persons in employment. Undoubtably, the government carries out this responsibility through the passage and enforcement of OHS legislation and related national policies and guidelines.

However, currently, Ghana does not have a comprehensive legislation or policy on OHS as required by the International Labour Organisation's (ILO) Occupational Safety and Health Convention, 1981 (No.155). Also, unlike the mining sector which has the Minerals and Mining (Health, Safety and Technical) Regulations, 2012 to comprehensively address occupational health, safety and welfare in that sector, the construction sector has no H&S legislations developed specifically for it. Considering that construction is a high-risk industry, this limitation can adversely affect the implementation of H&S standards on construction sites. Notwithstanding, some sections of the Factories, Offices and Shops Act 1970 (Act 328) and the Labour Act 2003 (Act 651), generally provide regulations on OHS for the construction industry. Even though these regulations are fragmented and limited in scope (Annan, Addai and Tulashie, 2015), they are used to discharge enforcement and complementary responsibilities towards OHS in the construction industry. Also, there is the Workmen's Compensation Act 1987, which relates to compensation for occupational injuries and diseases, and hence, indirectly impacts on the management of OHS.

Enforcement of OHS laws in Ghana has mainly been and is likely to continue to be a responsibility of the government. The Department of Factories Inspectorate (DFI) is the main government agency responsible for promoting and enforcing OHS to ensure that workplaces including construction sites maintain minimum standards prescribed by the Factories, Offices and Shops Act, 1970 (Act 328). Moreover, the Labour Department (LD) indirectly enforces OHS at workplaces by carrying out their mandate of enforcing labour laws and working conditions through inspection of workplaces, as prescribed by the Labour Act, 2003. Notwithstanding these institutions, many studies have made a case for a single regulatory body to oversee the construction industry including enforcing OHS (Boadu, Wang and Sunindijo, 2020).

CHALLENGES TO ENFORCING OHS

Inadequate skilled personnel

Inadequate skilled manpower in the OHS enforcement institutions is a major factor that affects enforcement of OHS standards at workplaces in Ghana. This position is exemplified by Eyiah, Kheni and Quartey (2019) in a study of OHS regulatory regime within construction industry in Ghana. Their study revealed that the OHS enforcement institutions are unable to retain highly qualified and experienced inspectors partly due to unattractive conditions of service of personnel employed in these institutions. The inspectors in the Departments of Factories Inspectorates and Labour operate as civil servants and therefore are governed by civil and local government workers conditions of service, which is characterised by relatively low remuneration and retirement benefit. Consequently, personnel who have had on-the-job training and have experience in workplace inspection and other enforcement measures/procedures leave these institutions for lucrative offers elsewhere.

Funding and logistical constraints

Like many government departments and agencies, OHS enforcement institutions suffer from perennial budget cuts, which makes it difficult to implement their programmes. These institutions need funds to employ more inspectors and train them, as well as purchase the appropriate tools and office equipment to ensure the provision of adequate services. For example, Kheni (2008) found that, in Ghana the yearly approved budget for the OHS enforcement institutions are not released to them in full and in time. Also, the OHS institutions lacked the requisite equipment and technology to undertake surveys and inspections; and even existing equipment were outdated and insufficient to enable them to effectively carry out various assessments in relation to OHS standards (Eyiah, Kheni and Quartey, 2019).

Inadequate OHS regulations, standards, and policies

The lack of comprehensive OHS regulations, standards and policies, is a key challenge to the management of OHS in Ghana (Amponsah-Tawiah and Dartey-Baah, 2012; Eyiah, Kheni and Quartey, 2019). Also, the existing OHS laws in Ghana are fragmented, generic, inadequate and limited in scope (Annan, Addai and Tulashie, 2015; Kheni and Braimah, 2014; Clarke, 2005). An assessment carried out by the ILO (2015) identified that OHS laws in Ghana do not make provisions for key OHS management systems, lack national OHS research programme or institute with clear mandates and funding, and do not deal with specific hazards or risks. Consequently, OHS inspectors are compelled to adopt regulations and standards from other countries in their enforcement duties. However, these adopted regulations and standards cannot be strictly enforced in Ghana because they do not have their roots from any OHS Act in the country. This is an issue because of the effects of cultural context on OHS are proven (Loosemore, et al., 2019).

Influence of people in power

Enforcement of OHS legislation at workplaces in Ghana, like many other developing countries, are perceived to be influenced by political power holders and people close to them. This is further fuelled by the perception that many factories and businesses are owned by these powerful and influential politicians and their cronies. In support of this argument, Idubor and Osiamoje (2013) and Okojie (2010) asserted that in Nigeria political influence hinders the OHS inspectors from carrying out their duties. Besides, it is generally perceived that politicians and highly placed people in developing countries influence the activities of law enforcement institutions such as the police. Accordingly, even when an OHS inspectors are prepared to do their job rightly, they may receive "orders from above" to stop any sanction/penalty from being placed on the offending organisations. Consequently, OHS inspectors may be mindful of the kind of workplaces to inspect

for compliance by trying to avoid those workplaces that are owned by politicians and other influential people.

Inadequate instances of sanctions and prosecution

Non-compliance to OHS regulations is perceived to be encouraged by inadequate examples of punishment and prosecution of offending employers or businesses. Although OHS offences under the Act 328 and Act 651 are criminal in nature, they have usually been treated otherwise. Prosecution continues to be one of the enforcement weapons, but it is regarded as a measure that must be carefully used or as a last resort (Purse, Dawson and Dorrian, 2010). Jamieson, et al. (2010) investigated prosecuted and non-prosecuted employers in Australia and found that prosecution impacts on employer's actions by compelling them to accept responsibility for OHS, especially the larger companies who have the capacity to recognise and assess the consequences of court-based rulings on their operations. Likewise, in the UK, top managers in large firms indicated that their management of risks have been influenced hugely by the penalties imposed on other firms (Baldwin and Anderson, 2002). This demonstrates that sanctions for breaches of OHS legislation can promote enforcement. The lack of sanctions including court-based prosecutions in respect of OHS in Ghana is a disincentive to enforcing OHS regulations. In addition, the low levels of fines for OHS breaches has further fuelled the perception that OHS breaches are not inherently criminal in Ghana.

Delays in justice delivery system

One problematic area in Ghana's justice system is the issue of delay in cases hearing and court rulings (Gyampo, 2014). One basic principle of rule of law and adjudication of justice is the need to follow due processes and indeed doing this in any competent court of law may bring about some delays. However, when such delays become unreasonable and without justifiable cause, they result in unnecessary hardships and frustrations for people in a manner that undermine access to justice. This phenomenon is a challenge to OHS enforcement in Ghana. As stated already, the institutions responsible for OHS enforcement is constrained by resources (human, funding, equipment, etc.) to function effectively; therefore, numerous adjournments and delays in prosecution of OHS cases in the courts become additional burden which may add to their frustrations at work. Therefore, this may discourage OHS inspectors from sending OHS breaches to court because it might waste their time and money.

Unethical practices by inspectors

It is perceived that some employees of the OHS enforcement institutions engage in unethical practices in their inspectorial and enforcement duties. Corruption in Ghana is still high and pervasive (Transparency International, 2015), especially in law enforcement and regulatory agencies. Consequently, public officials undertaking law enforcement and regulatory duties may exploit the inefficiencies within their organisations for their individual gains. They may circumvent OHS laws in exchange for bribes and other benefits. Often the standards are not fully met but the companies have their licenses duly issued or renewed by the enforcement institution to operate. In addition, Umeokafor, et al. (2014) reasoned that sometimes it appears that the inspectors visit workplace to conduct enforcement duties because of their personal financial reasons and not to ensure compliance of OHS laws. This perception of corruption in OHS enforcement is fuelled by situations where some companies operate under poor safety conditions, but they are repeatedly certified as satisfactory by inspectors.

Absence of guidance materials

Globally, one of the important duties of OHS enforcement institutions is the periodic issuance of practical guidance materials (such as codes of practice) to guide organisations on how to comply with the legal duties under the applicable OHS regulations. Unfortunately, poor OHS knowledge management pervades

developing countries (Deepak and Mahesh, 2019), including Ghana. With the government failing to enact comprehensive OHS legislations in Ghana, the OHS enforcement institutions have an important mandate to develop and disseminate guidelines relating to H&S at workplaces. However, this practice is conspicuously absent in the regulatory and enforcement duties of the institutions and this is a limitation in OHS management. Worksafe Victoria (2020) illustrated the importance of providing guidance documents on OHS. They evaluated the significance of their guidance note on prevention of bullying and violence at the workplace. They concluded that the guidance material would effectively raise up awareness and promote the implementation of preventive and resolution measures.

Lack of OHS campaigns and education

Campaigns and education relative to improving H&S at workplaces are virtually non-existent in Ghana. The OHS enforcement institutions do not have consultations with employers, trade unions, and H&S stakeholders at national level (Kheni, 2008). The lack of OHS campaigns and education have been partly blamed for the general lack of awareness and knowledge of OHS laws, and for poor H&S performance in Ghana (Laryea and Mensah, 2010; Dwumfour-Asare and Asiedu, 2013). OHS campaigns and education essentially follow the model of 'advise and persuade' which is generally aimed at cooperation, conciliation and negotiation to attain the objectives of the regulatory system rather than to punish offenders for OHS breaches (Johnstone, 2003). With strategies such as campaign and education, the threat of deterrent or punitive measures remains in the background, only to be applied where all other strategies fail.

Lack of innovative OHS enforcement strategies

Innovative enforcement programmes such as incentives and partnerships with stakeholders are lacking in Ghana. This position is strongly supported in a study by Laitinen and Paivarinta (2010), which appraised the effectiveness of innovative programme to promote construction safety in Finland. According to the authors, safety awards were given annually to best performing contractors during an annual industry seminar. The programme which was organised through the cooperation between safety inspectorates, construction industry association and trade unions, has witnessed the participation of over 70% of construction sites in the target area. Winners were chosen through objective criteria and reports from unannounced inspections by safety inspectors. The authors' evaluation of the programme provided evidence that the programme was effective including, 63% reduction in failures to provide good fall protection, and prevented an estimated 4000 accidents and 3 deaths a year (Laitinen and Paivarinta, 2010). The close collaboration between the enforcement institution, industry and trade unions ensured the success of the safety contest. The absence of these partnerships and incentives programmes in Ghana does not stimulate innovative ways of OHS enforcement.

Poor statistics on occupational accident and diseases

Data on occupational accidents and diseases are very scanty and barely reliable. There is no framework for consistent reporting of workplace accidents and diseases. For instance, the Ministry of Employment and Labour Relations (MELR) in their published Statistical Report for 2016 stated that there were 2697 reported occupational accidents in 2015 (MELR, 2017), while report from the Ghana Statistical Service (GSS) in their Labour Force Report for 2015, estimated work accident of 586,213 (GSS, 2016). These figures are clearly irreconcilable and quite disturbing especially coming from two government institutions. Moreover, it is also acknowledged that many employers fail to report workplace accidents to the OHS regulatory institutions (Clarke, 2005). Therefore, the figures given by the MELR are a momentous underestimate of the magnitude of occupational accidents. Without accurate data to understand the true situation of OHS at the enterprise, industry and national levels, Ghana is unable to perform its constitutional duty of securing the safety and health of workers and take the right decisions in this regard.

Lack of OHS compliance and enforcement framework

To fully realise the benefits of OHS legislation, there is the need for a nationally consistent approach to compliance and enforcement. International best practices suggest that an effective OHS system requires enforcement institutions to implement an enforcement framework that sets out a regulatory enforcement approach and how to implement that approach in order to appropriately balance the advisory and enforcement functions of OHS inspectors. Unfortunately, the OHS enforcement institutions in Ghana do not have any framework that guides their approach to compliance and enforcement.

Research Method

In order to evaluate perceptions of the OHS inspectors and construction industry professionals in Ghana, the quantitative research approach was adopted. Quantitative research allows for data to be collected and analysed through statistical procedures, with the aim to determine the truth or otherwise of theory or hypotheses (Creswell, 2009). Thus, the quantitative approach is appropriate to determine the nature of the challenges that confront OHS institutions. Survey questionnaire was designed to verify all the identified challenges from literature and determine the most important ones, and their relationships. Thus, the content validity of the questionnaire has been established through the literature review.

To be assured that the sampled participants can inform important facets and perspectives relating to OHS enforcement challenges in Ghana, the sampling frame involved a population of OHS inspectors and construction industry professionals in Ghana who are involved in the management of H&S on projects. Thus, the participants included the regulators and the regulated. In this research, the perceptions of the regulated were equally important because they provided broader perspectives about the effectiveness of the regulator's enforcement regimes. The participants were drawn from consultants, contractors, and relevant government institutions, with varied professional backgrounds and levels of OHS management experience in the construction industry. Essentially, the views of the government institutions represent that of the regulators, and consultants and contractors represent that of the regulated. A total of 140 paper-based survey questionnaires were distributed across 5 regions of Ghana and 67 complete responses were received. This represents a relatively high response rate of 47.9%.

The questionnaire was designed to seek the views of respondents on the extent of their agreement or disagreement to the outlined institutional challenges to OHS enforcement within the Ghanaian construction industry. The questionnaires consisted of two sections; section 1 requested for details of respondents including gender, years of construction industry work experience, professional background and the nature of their organisations. Section 2 outlined 12 key challenges to OHS enforcement within the Ghanaian construction industry, which has been identified through literature. Likert scale ranging from 1 = strongly disagree to 5 = strongly agree was used to guide respondents.

Results and Discussion

BACKGROUND OF SURVEY RESPONDENTS

Table 1 presents the demographic profile of respondents including their gender, years of construction industry experience, professional background and their organisations.

Table 1. Demographic profile of respondents

Parameter	Category	Frequency	Percentage (%)
Gender	Male	59	88.1
	Female	8	11.9
		67	100
Years of Work Experience	1-5 years	5	7.5
	6-10 years	14	20.9
	11-15 years	19	28.4
	16-20 years	21	31.3
	Over 20 years	8	11.9
		67	100
Professional background	Engineering	15	22.4
	Quantity Surveying	10	14.9
	Architecture	11	16.4
	Project Management	12	17.9
	Occupational Health and Safety	13	19.4
	Building Technology	6	9.0
		67	100
Type of Organisation	Consultants	21	31.3
	Contractors	24	35.8
	Government Institutions	22	32.8
		67	100

RANKING OF THE IDENTIFIED CHALLENGES

Table 2 presents the feedback of respondents on the outlined challenges confronting OHS enforcement within the construction industry in Ghana. Overall, the respondents significantly agreed that the challenges are indeed factors impacting on OHS enforcement in Ghana, evident by the total average of 4.00. The responses indicate that the top three challenges are inadequate OHS regulations, standards and policies; lack of OHS campaigns and education; and inadequate instances of sanctions and prosecutions for OHS breaches. Aside the top three ranked challenges mentioned above, respondents also tended to strongly agree that factors such as absence of OHS guidance material, poor statistics on occupational accident and diseases, influence of people in power, inadequate skilled enforcement personnel, and funding and logistical constraints in OHS enforcement institutions have also resulted in the poor enforcement of OHS in the construction industry in Ghana. This is evident in the high average scores (between 3.94 to 4.13) obtained by these factors.

In general, respondents strongly agreed that inadequate OHS regulation, standards and policies is the main challenge to OHS enforcement within the construction industry in Ghana. This challenge has rightly been described by many studies to affect OHS management in many developing countries (Umeokafor,

Table 2. Ranking of identified challenges

S/n	Challenges	Consultants		Contractors		Gov't Inst.		Overall					
		Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Std. Dev.	Variance	Kurtosis	Skewness
1	Inadequate skilled enforcement personnel	3.71	9	3.79	8	4.45	4	3.99	7	0.71	0.47	-0.81	-0.02
2	Funding and logistical constraints in OHS enforcement institutions	3.57	11	3.71	10	4.55	1	3.94	8	0.78	0.60	-1.32	0.11
3	Inadequate OHS regulations, standards and policies	4.48	1	4.42	2	4.55	1	4.48	1	0.56	0.31	-0.84	-0.44
4	Influence of people in power	3.81	8	3.92	7	4.36	5	4.03	6	0.70	0.48	-0.88	-0.04
5	Inadequate instances of sanctions and prosecutions for OHS breaches	4.33	2	4.29	4	4.09	8	4.24	3	0.72	0.52	-0.97	-0.39
6	Delays in justice delivery system	3.38	12	3.33	12	3.77	10	3.49	12	0.56	0.31	-0.73	0.56
7	Unethical practices by OHS inspectors	4.33	2	4.38	3	2.64	12	3.79	9	1.09	1.20	-0.24	-0.71
8	Absence of OHS guidance materials	4.14	5	4.13	5	4.14	6	4.13	4	0.60	0.36	-0.23	-0.05
9	Lack of OHS campaigns and education	4.33	2	4.46	1	4.14	6	4.31	2	0.53	0.28	-0.70	0.17
10	Lack of innovative OHS enforcement strategies by enforcement institution	4.10	6	4.00	6	3.14	11	3.75	10	0.75	0.56	-0.11	-0.23
11	Poor statistics on occupational accident and diseases	3.90	7	3.79	8	4.55	1	4.07	5	0.74	0.56	-1.16	-0.12
12	Lack of compliance and enforcement framework	3.67	10	3.67	11	3.82	9	3.72	11	0.62	0.39	-0.60	0.28

Total number of respondents = 67 (including Consultants = 21, Contractors = 24 and Government institutions = 22)

*Note: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree

Evangelinos and Windapo, 2020). The limitations of the OHS legislations hinder effective enforcement and the feedback from respondents demonstrates that government's efforts toward addressing this limitation is questionable. Paradoxically, a draft OHS policy document titled "Development of Legislation and Policy on OSH for all Sectors of the Ghanaian Economy" jointly developed in June 2000 by the Ministries of Employment and Labour Relations, Health, and Lands and Natural Resources is yet to passed into legislation (Amponsah-Tawiah and Dartey-Baah, 2012). To make matters worse, many players in the construction sector are small organisations who tend to have a low level of awareness in relation to the implementation of OHS legislation and standard (Furci and Sunindijo, 2020).

ANOVA RESULTS AND DISCUSSION

The analysis of variances (ANOVA) resulting from the responses from the various organisations, namely, consultants, contractors and government institutions has been performed with the aim of verifying whether the responses were influenced by the nature of the respondent's organisation. Before performing the ANOVA, the data was checked for normality; with skewness values of -0.71 to 0.56 and kurtosis values of -1.32 to 0.23 (see Table 2), normality of the data could be assumed. According to Byrne (2016), if the skewness ranges between -2 to +2 and the kurtosis values fall between -7 to +7, then assumption of normality is fulfilled. Additionally, the assumption of homogeneity of variances were tested and found to have been satisfied based on Lavene's F test (see Table 3).

Once the assumptions of normality and homogeneity of variances were found to have been fulfilled, the one-way ANOVA tests between organisations were conducted and the results shown in Table 4. The results revealed seven differences which were statistically significant (CHA1, 2, 4, 6, 7, 10 and 11).

In order to ascertain the source and nature of the statistical differences, the statistically significant ANOVA (CHA1, 2, 4, 6, 7, 10 and 11) was followed-up with Tukey's post-hoc multiple comparison tests as shown in Table 4. The post-hoc comparison revealed that for CHA1 and CHA2, there were significant differences between the mean responses for both consultants and government institutions, and contractors and government institutions. These results indicate that consultants and contractors did not differ significantly in their believe about how the lack of skilled enforcement personnel (CHA1), and funding and logistical constraints in enforcement institutions (CHA2) affect OHS enforcement; but government institutions agreed highly to the challenges posed by these factors, considerably more than contractors and consultants did. As stated already, the respondents from government institutions included OHS inspectors who directly enforce OHS legislation at workplaces. A critical assessment shows that these two challenges (CHA1&2) are directly related to the operations of the OHS enforcement institutions. Undoubtedly, within this context, OHS inspectors and other respondents from government institutions whose operations are directly affected by such constraints will show higher levels of agreement. This confirms the arguments by Canciani (2019) that inadequate resourcing of OHS institutions will result in ineffective undertaking of enforcement activities.

For CHA4, the mean responses between consultants and government institutions were significantly different. Government institutions highly recognise the influence of people in power (CHA4) as one of the key challenges to OHS enforcement. This perception may have been shaped through the direct involvement in OHS enforcement by some of the respondents from government institutions. It is acknowledged that many construction enterprises and consultancies in developing countries are owned by powerful and influential people with political ties, who may use subtle political manoeuvres or outright political force to render the decisions of OHS inspectors useless. Considering that OHS inspectors are at the receiving side of these political influence; the reason above may have accounted for the perception of government institutions.

Table 3. Test of Homogeneity of Variances (based on mean)

	CHA1	CHA2	CHA3	CHA4	CHA5	CHA6	CHA7	CHA8	CHA9	CHA10	CHA11	CHA12
Levene Statistic	1.150	0.296	1.585	0.498	1.085	0.243	2.110	0.302	1.056	0.574	0.646	0.985
df1	2	2	2	2	2	2	2	2	2	2	2	2
df2	64	64	64	64	64	64	64	64	64	64	64	64
Significance	0.323	0.745	0.213	0.610	0.344	0.785	0.130	0.740	0.354	0.566	0.528	0.379

CHA—Challenges, for instance CHA1 = Inadequate skilled enforcement personnel.

Table 4. Results of ANOVA and Multiple Comparisons (Tukey's HSD)

ANOVA			Tukey's HSD			
	F	Significance	Organisation A	Organisation B	MD(A-B)	Significance
CHA1	9.839	**0.000**	Consultants	Contractors	-0.077	0.905
			Consultants	Government Inst.	**-0.740***	**0.001**
			Contractors	Government Inst.	**-0.663***	**0.001**
CHA2	14.174	**0.000**	Consultants	Contractors	-0.137	0.765
			Consultants	Government Inst.	**-0.974***	**0.000**
			Contractors	Government Inst.	**-0.837***	**0.000**
CHA4	4.293	**0.018**	Consultants	Contractors	-0.107	0.852
			Consultants	Government Inst.	**-0.554***	**0.022**
			Contractors	Government Inst.	-0.447	0.066
CHA6	4.579	**0.014**	Consultants	Contractors	0.048	0.952
			Consultants	Government Inst.	**-0.392***	**0.049**
			Contractors	Government Inst.	**-0.439***	**0.018**
CHA7	39.515	**0.000**	Consultants	Contractors	-0.042	0.981
			Consultants	Government Inst.	**1.697***	**0.000**
			Contractors	Government Inst.	**1.739***	**0.000**
CHA10	16.113	**0.000**	Consultants	Contractors	0.095	0.864
			Consultants	Government Inst.	**0.959***	**0.000**
			Contractors	Government Inst.	**0.864***	**0.000**
CHA11	8.108	**0.001**	Consultants	Contractors	0.113	0.842
			Consultants	Government Inst.	**-0.641***	**0.008**
			Contractors	Government Inst.	**-0.754***	**0.001**

* The mean difference (MD) is significant at the 0.05 level. (A-B) = Mean difference between the organisations A and B

Also, for CHA6-delays in justice delivery system, the mean responses between both consultants and government institutions, and contractors and government institutions were significantly different. In essence, government institutions believe that prosecutions for OHS breaches have not been effective in ensuring compliance due to the lengthy and expensive court processes. This situation is compounded by the lack of human resources and funding to carry out these prosecutions. On the other hand, studies have shown that construction firms prefer the use of advice, warnings and demands for remedial action, as opposed to prosecutions through the courts in dealing with detected OHS breaches in their workplaces (Fairman and Yapp, 2005). The preference and belief in advice and persuasive enforcement strategy to the more punitive court-based sanctions may have accounted for the difference in responses to this challenge.

Furthermore, for CHA7-unethical practices by OHS inspectors, the differences between both consultants and government institutions, and contractors and government institutions were significant.

Essentially, consultants and contractors perceive that OHS inspectors are likely to circumvent OHS legislation in exchange for bribes and other benefits and this indeed raises serious challenges for OHS enforcement within the construction industry, but government institutions have little inclination to this perception. The perception of contractors and consultants (who may be victims of unethical practices by OHS inspectors) emphasises the point that bribery and corruption within law enforcement institutions persists as a serious challenge in Ghana (Transparency International, 2015). Government institutions may have a different perception about this challenge probably because it may has become a 'normal practice' or accepting it goes to dent the image of the OHS enforcement institutions.

Moreover, for CHA10-lack of innovative OHS enforcement strategies, the mean responses between consultants and government institutions, and contractor and government institutions were both significantly different. This differences in responses suggest that consultants and contractors are of the opinion that OHS inspectors do not adopt innovative methods and strategic initiatives to ensure compliance. While strategies such as voluntary partnerships and incentives can be an effective way of changing behaviour of construction firms, government institutions do not perceive the absence of such initiatives as a major challenge to OHS enforcement.

Finally, for CHA11-poor statistics on occupational accident and diseases, the mean responses between consultants and government institutions, and contractors and government institutions were both significantly different. This shows that government institutions are of the strong belief that the inadequate reporting and poor record-keeping of occupational accidents is a key challenge to OHS enforcement. Statistical trends in OHS accidents are very important for OHS inspectors to develop suitable enforcement strategies. However, research has shown that substantial proportion of construction enterprises fail to report or inaccurately report accidents to the OHS regulatory authorities (Clarke, 2005) and this may have accounted for the differences in the responses between consultants and contractors on one hand and government institutions on the other.

CORRELATION ANALYSIS AND DISCUSSION

The relationship between the years of work experience within the construction industry and the various identified OHS enforcement challenges have been analysed using the Pearson's correlation and the results are presented in Table 5. Years' of work experience was correlated with the identified challenges because it gives an idea about how the respondents' professional experiences have shaped their beliefs and perceptions in relation to the industry's norms and challenges. In addition, experience has been identified as one of the main contributing factors of H&S perceptions (Gyekye and Salminen, 2009).

The results of the correlation matrix (see Table 5) showed 22 significant correlations among the variables, with 5 of them showing strong relationships. The correlation analysis provides a deeper insight into how some of the challenges have potential impact on others. Firstly, the results revealed that there is a strong positive relationship between CHA1- inadequate skilled enforcement personnel and CHA2-funding and logistical constraints in OHS enforcement institutions. This indicates that when funding and operational problems increase within the OHS enforcement institutions, the institution will possibly lack the right calibre of staff to carry out their enforcement duties, and vice versa. This relationship emphasises the position espoused by the International Labour Organisation (2010) that availability of funding and investment is key to the acquisition and maintenance of relevant skills and ultimately impacting on productivity at work.

Secondly, the years of industry experience showed a strong negative correlation with CHA7-unethical practices by OHS inspectors. This result reinforces the belief that if people perceive that a behaviour is widespread and that there is a form of approval of the problem behaviour, they are more likely to accept such a behaviour as normal (Ogunsanya, et al., 2019). Therefore, considering that years of industry

experience enables one to appreciate the norms in the industry, it could be reasoned that the higher the industry experience, the more one is likely to consider a practice as normal. Perhaps, this has accounted for the situation where the perception of unethical practices by OHS inspectors decrease with the increase in years of work experience.

Thirdly, the correlation revealed that there is a strong negative relationship between the CHA2-funding and logistical constraints in OHS enforcement institutions and CHA7- unethical practices by OHS inspectors. This relationship shows that there is the possibility for the unethical practices of OHS inspector to increase with improved funding and operational logistics. Admittedly, resourcing the OHS enforcement institutions will empower OHS inspectors to regularly carry out inspections and enforcement at many workplaces than they will normally do under the resource constraints; however, this has potential for increased unethical practices, especially where the OHS inspectors have the liberty to use their discretion in decision making, and where contractors are willing to offer incentives in order to avoid compliance or penalties. This relationship suggests that while resourcing OHS inspectors, other measures must be instituted to check the tendency for unethical practices such as corruption. Fourthly, in a related matter, CHA7-unethical practices by OHS inspectors showed a strong positive correlation with CHA10-lack of innovative OHS enforcement strategies by enforcement institution. This essentially indicates that if there is an increase in unethical practices by OHS inspectors, then the OHS institutions will continue to lack innovative strategies to enforce compliance with OHS regulations, and vice versa. This relationship reinforces the position of many researchers that unethical practices such as corruption lowers innovation within an industry (Ogunsanya, et al., 2019).

Lastly, amongst the five with strong correlations, CHA2-funding and logistical constraints and CHA12-lack of compliance and enforcement framework showed strong positive relationship. This result indicates that a considerable number of respondents who agreed to the challenges posed by funding and logistical constraints, also agreed to the challenges of lack of compliance and enforcement framework. The relationship suggests that an improvement in funding and operational logistics may cause the enactment and use of compliance and enforcement framework that will guide OHS inspectors in their professional duties and ensure the accountable use of the resources. On the other hand, it also suggests that if a comprehensive compliance and enforcement framework is enacted and used, it may contain explicit provisions. for professional conduct and accountability, and this has the potential to trigger an increase in funding and other operational resources from government.

FACTOR STRUCTURE OF THE CHALLENGES

Factor analysis has been performed to determine the factor structure of the 12 challenges identified from literature and to ensure the construct validity of the questionnaire. Prior to performing the factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were tested (see Table 6). With a KMO coefficient value of 0.55 and a significant level for the Bartlett's test below 0.05, the results suggest that there is substantial correlation in the data and that factor analysis is suitable for analysing the data. Based on the eigenvalues (greater than one) and the scree plot, three dimensions of the enforcement challenges were extracted (see Table 7). With an initial eigenvalue of 2.942, the first factor explained 24.52% of the variance. The other factors (2 and 3) with initial eigenvalues of 1.761, and 1.437 respectively explained 14.67% and 11.99% of the variances, respectively. Therefore, in total the three factors explained 51.170% of the variance. This result indicates that the measures defining the enforcement challenges are diverse (three factor structure).

Table 5. Correlation results

Pearson Correlation		Experience	CHA1	CHA2	CHA3	CHA4	CHA5	CHA6	CHA7	CHA8	CHA9	CHA10	CHA11	CHA12
Experience	Correlation	1												
	Significance													
CHA1	Correlation	0.238	1											
	Significance	0.052												
CHA2	Correlation	0.220	**0.568**[a]	1										
	Significance	0.073	0.000											
CHA3	Correlation	-0.005	-0.139	0.101	1									
	Significance	0.968	0.262	0.414										
CHA4	Correlation	0.127	0.192	0.256[b]	0.118	1								
	Significance	0.305	0.120	0.037	0.340									
CHA5	Correlation	-0.039	-0.361[a]	0.107	-0.024	0.197	1							
	Significance	0.753	0.003	0.387	0.846	0.109								
CHA6	Correlation	0.301[b]	0.098	0.208	0.060	0.350[a]	-0.033	1						
	Significance	0.013	0.429	0.091	0.631	0.004	0.790							
CHA7	Correlation	**-0.505**[a]	-0.368[a]	**-0.514**[a]	-0.156	-0.171	0.160	-0.373[a]	1					
	Significance	0.000	0.002	0.000	0.207	0.167	0.195	0.002						
CHA8	Correlation	0.028	-0.069	-0.015	-0.013	0.099	0.170	-0.064	0.066	1				
	Significance	0.822	0.581	0.904	0.914	0.425	0.169	0.604	0.593					
CHA9	Correlation	0.100	-0.029	0.046	-0.053	-0.067	0.039	-0.222	0.272[b]	0.056	1			
	Significance	0.423	0.817	0.710	0.672	0.590	0.752	0.071	0.026	0.651				
CHA10	Correlation	-0.120	-0.126	-0.184	-0.286[b]	-0.190	0.228	-0.204	**0.491**[a]	0.247[b]	0.205	1		
	Significance	0.332	0.309	0.137	0.019	0.124	0.064	0.098	0.000	0.044	0.096			
CHA11	Correlation	0.126	0.091	0.348[a]	0.095	0.054	0.164	0.237	-0.259[b]	0.011	-0.253[b]	-0.047	1	
	Significance	0.308	0.463	0.004	0.445	0.664	0.185	0.053	0.034	0.929	0.039	0.704		
CHA12	Correlation	0.359[a]	0.309[b]	**0.435**[a]	-0.084	0.020	0.120	0.232	-0.288[b]	0.022	-0.232	0.299[b]	0.307[b]	1
	Significance	0.003	0.011	0.000	0.501	0.873	0.335	0.058	0.018	0.857	0.059	0.014	0.011	

[a]Correlation is significant at the 0.01 level (2-tailed). [b]Correlation is significant at the 0.05 level (2-tailed). CHA—Challenges, for instance CHA1 = Inadequate skilled enforcement personnel.

Table 6. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.55
Bartlett's Test of Sphericity	Approx. Chi-Square	208.04
	df	66
	Significance	0.000

In Table 7, a pattern matrix showing the three extracted principal factors and the identified challenges that loaded on them have been presented. It also shows the loadings, and the internal consistency reliability within each extracted principal factor. From the results, it could be realised that there are strong inter-item correlations within each principal factor. This is demonstrated by the fact that all the item correlations were higher than 0.3.

Once the factor structure was identified and the principal factors were classified, the internal consistency reliability of the items in each principal factor were determined by calculating coefficient omega (at 95% confidence interval) in R studios. Coefficient omega has been argued to provide a more accurate approximation of internal reliability (Dunn, Baguley and Brunsden, 2014; Revelle and Zinbarg, 2009). According to Hinton, et al. (2004), internal consistency that ranges between 0.50-0.70 is acceptable, while those from 0.70-0.90 represent high internal consistency. Consequently, from the results it could be concluded that the items were considered to represent an acceptable level of internal consistency reliability.

Table 7. Pattern matrix showing item loadings and internal consistency

S/n	Factor	Eigenvalue	% of variance	Challenge	Loadings	Coefficient omega
1	Factor 1	2.942	24.521	Inadequate skilled enforcement personnel	0.744	0.756
				Funding and logistical constraints in OHS enforcement institutions	0.780	
				Lack of compliance and enforcement framework	0.747	
2	Factor 2	1.761	14.671	Inadequate OHS regulations, standards, and policies	0.535	0.569
				Influence of people in power	0.522	
				Delays in justice delivery system	0.587	
				Poor statistics on occupational accident and diseases	0.426	

Table 7. continued

S/n	Factor	Eigenvalue	% of variance	Challenge	Loadings	Coefficient omega
3	Factor 3	1.437	11.979	Inadequate instances of sanctions and prosecutions for OHS breaches	0.766	0.602
				Unethical practices by OHS inspectors	0.356	
				Absence of OHS guidance materials	0.460	
				Lack of innovative OHS enforcement strategies by enforcement institution	0.649	

Conclusion

This study has considered and provided a broad perspective of the challenges hindering the effective enforcement of OHS legislation in Ghana. Findings from the study demonstrates that substantial measures are required to ensure effective enforcement of OHS legislation within the construction industry in Ghana. Twelve challenges were identified from literature and, in the context of Ghana, the top three challenges hindering the effective enforcement of OHS regulations are inadequate OHS regulations, standards and policies, lack of OHS campaigns and education, and inadequate instances of sanctions or prosecution for OHS breaches.

The limitations of OHS regulations, standards and policies hinder effective enforcement of OHS within the construction industry in Ghana. This brings to question government's commitment to safeguarding the H&S of its workforce. As indicated already, a draft occupational policy developed as far back as the year 2000 is yet to be adopted. The nation's constitutional duty to protect its workforce requires that it creates reasonable legislative and other statutory measures to safeguard the H&S of its employed persons while securing sustainable development. It is recommended that comprehensive OHS regulations, standards and policies must be enacted to prioritise OHS and provide for resources to be utilised in respect of OHS.

Also, OHS campaigns and education must be prioritised, started rigorously and sustained in order to increase awareness. Globally, it is acknowledged that effective OHS campaigns and education have succeeded in shifting H&S attitudes, knowledge and behaviour of workers. Faced with limited resources (human, finance, logistics, etc), it is important that OHS enforcement institutions adopt cost effective enforcement techniques. Considering that the ratio of OHS inspectors to construction sites in Ghana is poor, inspectors may not achieve much through the time-consuming process of preparing and conducting costly site inspections on a regular basis to enforce compliance. It is recommended that the OHS enforcement institutions adopt a prevention-focused mass media campaigns at the population-level and, also, targeted campaign and education on construction sites. This can help to improve workers knowledge in OHS and encourage attitudinal and behavioural changes.

Furthermore, beyond the advice, campaigns and education, there must be sanctions and/or prosecution for breaches of OHS legislation. Sanctions can be used to deter the identified/offending organisation and potential offenders in general. Generally, if offending contractors are appropriately sanctioned and the specific breaches publicised, then those contractors and other potential offending contractors can perceive

the consequences of future breaches and take improved actions to comply with OHS requirements. It should be noted that the identified challenges are interrelated, so that interventions to address a specific challenge can alleviate the impacts of other challenges.

This study adds to the broader research on OHS improvement in developing countries by identifying the key challenges confronting OHS enforcement institutions in Ghana to adequately enforce OHS in the construction industry. The recommendations provide practical strategies for government, OHS inspectors and other practitioners within the construction sector to practically deal with the key challenges that have resulted in the ineffective OHS enforcement in Ghana. Despite the study contributions, there are a few limitations that must be acknowledged. Firstly, this study collected data from 67 construction practitioners in Ghana. While the evidence is enough to draw conclusions with respect to associations, future efforts may focus on a more robust sampling technique in order to draw stronger causal links between the examined variables. Secondly, the findings of this study are based on the perspective of the construction industry professionals from Ghana, and as such the findings are mainly relevant to Ghana. Though the construction industry in developing countries share similar characteristics (Boadu, Wang and Sunindijo, 2020), the perception of construction professionals from other developing countries might be different. Therefore, the research findings could be adopted as a basis to assess challenges confronting OHS institutions in other developing countries.

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