



Strategies for Engendering Health and Safety Culture in Construction Firms in Abuja, Nigeria

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Abstract: Many countries have put in place policies and legislation to reduce accidents and diseases on construction sites though having varied degree of comprehensiveness, the extent of implementation, will and capacity of enforcement. In spite of these efforts, it has been revealed that the increase in the rate of unsafe acts and rate of fatalities in the construction industry is significant due to poor safety culture. Hence, this study assessed the level of health and safety (H&S) culture in construction firms in Abuja by self-administering a total of 152 questionnaires on H&S issues to construction professionals. It included Builders, Quantity Surveyors, Architects, Civil Engineers, and Project Managers/supervisors who were involved in construction works. The data obtained were analysed using percentages and mean scores. It was discovered that despite the increasing growth in the construction firms in Nigeria, the H&S culture practice in construction firms is highly fragmented and poorly implemented. It is recommended among others that there should be high commitment from the top of organisations which will in turn produce higher level of motivation and commitment throughout the organisations.

Keywords: Accident, construction, culture, health & safety, strategy

1. Introduction

The construction industry plays a significant role in the economy of developing countries because it is the basis for the existence of other industries by providing the environment under which other industries can operate (Kheni *et al.*, 2008). Okeola (2009) stated that at least 50% of the investment in various development plans is primarily in construction and the industry is the next employer of labour after agriculture in developing countries. It was revealed by National Bureau of Statistics (2019) that the construction sector contributed about 4.45% to the Gross Domestic Product (GDP) of Nigeria's economy in the second quarter of 2019.

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Globally, the construction industry is one of the most hazardous with high-risk environment where workers face a greater risk of work-related fatality or injury than workers in other industries (Ikpe 2009). Williams (cited in Windapo & Jegede, 2014) emphasized that one out of every five workplace fatalities involves a construction worker. The World Health Organisation (WHO, 2005) reported that 1.7 million people worldwide died annually from work related injuries and illnesses. Furthermore, 268 million non-fatal workplace incidents and 160 million work related illnesses have also been reported by International Labour Organisation (ILO, 2005). Al-Tuwaijri *et al.* (2008) stated that International Labour Organisation reported that there seems not to be any significant change in work-related fatal and non-fatal accidents and diseases globally. There are fewer large construction businesses compared to small and medium sized construction businesses in developing countries (Kenny, 2007). Health and safety (H&S) happens to be an inevitable aspect of construction due to its nature of being made up of conglomerations of people from diverse backgrounds and disciplines with each individual's output determining the level of success to be recorded at each construction stage (Dodo, 2014). It was emphasized by Idubor and Oisamoje (2013) that all organisations have a duty of care to ensure that employees and other persons who may be affected by company's undertakings remain safe at all times because maintaining a high standard of occupational H&S is the benefit for all.

The concept of safety culture came into international usage following a report by the International Atomic Energy Agency (IAEA) in 1991 after the Chernobyl accident (Flin *et al.*, 2000). This led to safety culture being defined as an organisational atmosphere where safety and health is understood to be, and accepted as, the number one priority. Since then, organisations and researchers have developed the concept and applied more widely to non-nuclear industries and linking it to the need for preventive approaches to Occupational Safety and Health (OSH) and to human and behavioural aspects. As stated by Misnan (2007), organisational culture exists on a continuous process and that the organisations can either have a good or poor H&S culture. H&S culture can also be considered as a subset of the overall organisational culture (Cooper, 2000; Hudson, 2001).

Despite the increasing growth in the construction firms in Nigeria, the H&S culture practice in construction firms is highly fragmented and poorly implemented (Okoye *et al.*, 2016). Agwu and Olele (2014) revealed that the increase in the rate of unsafe acts and rate of fatalities in the construction industry is significantly due to the poor safety culture. Manu *et al.* (2018) indicated that construction's H&S in developing countries could further deteriorate if necessary actions are not taken. According to Adeyemo and Smallwood (2017), Nigeria has poor H&S culture and that there is a consensus among stakeholders that H&S is still evolving because there is no national legislation that mandates stakeholders and regulators alike. It is on the basis of this that the study seeks to address the following research questions:

1. What is the commitment of the management of construction companies to health and safety?
2. How is safety communicated by construction companies in Nigeria?
3. What is the level of involvement of stakeholders towards health and safety?

2. Literature Review

2.1 Health and Safety Practice in Nigeria

Occupational health development in Nigeria followed the pattern in other developing countries, initially the main occupation was un-mechanized agriculture and animal husbandry, with the work force being women and children. Workers were exposed to many types of health hazards and the treatment then was not organized (Kalejaiye, 2013). The first effort in regulating and controlling H&S at work was the Factories Act of 1958 inherited from Britain (the Colonial master). The Act was repealed in 1987 and replaced with the Factories Decree No.16 and Workman Compensation Decree No.17, both were signed into law on June 12, 1987 but became effective in 1990. It is known as The Factories Act of 1990 (Federal Government of Nigeria, 1990; Okeola, 2009). Though the Factories Act generally covers the hygiene and safety requirement of work environment, it however, focusses purely on factory workplace and does not apply to non-factory workplace such as construction sites.

Dada (2013) reported that the National Building Code (NBC), a document that is expected to regulate the conduct and operations of professionals and stakeholders in the construction industry, which can reduce hazards in H&S, was prepared by the seven professional bodies that makeup the built environment sector. However, the drafted bill on NBC was vetted by the then President Olusegun Obasanjo, considered and approved by the Federal Executive Council (FEC), subsequently forwarded to the National Assembly for final consideration. The bill having passed through the second reading in the floor of the house, it was not passed through the third reading, therefore cannot be passed into law.

Umeokafor, Umeadi and Jones (2014) equally observed the lack of commitment on the side of the government on the issue of H&S, it took the government many years to recognize and address the limitations of the Factories Act of 1990 and passed the Labour, Safety, Health and Welfare Bill of 2012; even after the bill was passed by the Senate, it awaited the Presidential assent. The assent never came during the Presidency of Dr Goodluck Jonathan and the eighth National Assembly.

Ibrahim *et al.* (2018) and Okeola (2009) established that there is no reliable data on accident cases in construction, because contractors neither report accidents to the appropriate ministry nor keep proper records on accidents. Many people met their death on construction sites in Nigeria while others have become permanently crippled from construction related injuries. This emphasized the need for adequate occupational health and safety strategies for construction workers because the costs of accidents are immense to the individual, the employer and the society. According to Ibrahim *et al.* (2018),

the poor H&S culture in Nigeria construction industry could be attributed to lack of laws enforcing H&S in the industry. Similarly, Windapo and Jegede (2014) submitted that majority of the contractors in the Nigerian construction give high priority to saving cost over workers H&S. That could be a reason why the International Labour Organization Report (2017) stated that in Nigeria, from 2014-2016, 238 fatalities and 3361 injuries occurred, which the Nigerian construction recorded about 40% of the total incidence.

2.2 Health and Safety Culture

Safety culture is a term used to describe the safety beliefs, values and attitudes that are shared by the majority of people within an organisation or workplace (Donald *et al.*, 2006). It refers to shared values and belief that interact with an organisation's structure and control system to produce behavioural norms which translates to 'the way we do things around here' (Cooper, 2000). According to Bate (cited in Reason, 1998), there are two ways of treating safety culture; as something in an organisation is (the beliefs, attitudes and values of its members regarding the pursuit of safety), and as something that an organisation has (the structures, practices, controls and policies designed to enhance safety). Both are very essential. The concept of safety culture is a very useful and relevant way of understanding how an organisation influences the safety behaviour of its employees and contractors. However, Umeokafor (2017) and Gibb and Bust (2006) who examined the attitude of developing countries towards improving H&S culture noted that developing countries lack the attitude to engender health and safety culture in their construction industry. The following are the key constructs examined in the paper.

2.3 Management Commitment

According to Agwu and Olele (2014), to develop a positive safety culture in the Nigerian construction industry, visible top management commitment is required. The commitment of top management to safety is seen in the resources provided and the support in all safety related issues. To do this, policy documents must match implementation so that dire consequence in the area of unsafe behaviours will not become the other of the day. Lingard *et al.* (2014) stated that there has to be commitment from the very top of the organisation which will in turn produce higher level of motivation and commitment throughout the organisation. This should be backed by allocated resources like money, time and people. Agumba and Haupt (2018) asserted that the management of H&S should form an essential part of a manager's responsibility and they should be held responsible to account for their performance on the issues. It should be a matter of discussion at every management meeting of the organisation. The organisation should have H&S committee with the employee having a representative. With all the above in place, there will be continuous improvement in H&S standards and the subsequent reduction in accident and occupational ill-health rates thus reduce the compensation claims. Sarkam *et al.* (2018) stated that management commitment in ensuring positive H&S culture is crucial if beliefs, practices and norms of organisations are to be achieved.

2.4 Effective Communication

A lot of problems in H&S arise due to poor communication. The problem is not just between the employer and the employee, it is often a problem the other way or, indeed at the same level within an organisation. The problems arise from ambiguities or, accidental distortion of message. There are three basic methods of communication in H&S; verbal, written and graphics. When workers do not sufficiently communicate relevant safety hazards and appropriate injury prevention measures, unexpected injuries can follow (Pandit *et al.*, 2019). Cooney (2016) affirmed that inadequate communication between different team members can prevent establishment of shared goals and objectives that will negatively affect H&S at the organisation level. Poor communication and the formal distance between the construction and the design department is especially identified as a major barrier to the implementation of effective H&S procedures within the organisation that has led to high fatalities on sites.

2.5 Stakeholders' Involvement

Althaqafi and Abunar (2017) stated that stakeholder theory has been used in describing organisations' strategies, but limited information is available on how stakeholders influence safety culture on construction sites. However, issues regarding balancing of responsibilities among stakeholders in preventing injuries are clear. According to Williams *et al.* (2018), stakeholders have been found wanting in the areas of failure to make funds available for H&S, production of unsafe designs by consultants, limited enforcement by government agencies responsible and contractor in charge of construction and failure by operatives in adhering to safety rules on sites (Tengan & Aigbavboa, 2017). Okoye, Ezeokonkwo and Ezeokoli (2016) are of the view that knowledge and compliance are not sufficient to ensure safety performance, but safety culture is required that must involve stakeholders' involvement. Phoya and Eliufoo (2016) stated that apart from the fact that there is generally low level of knowledge on H&S risk management among stakeholders, there is also lack of stipulated roles and responsibilities for different stakeholders in matters related to H&S and absence of employment criteria to test H&S commitments of contractors and consultants.

3. Research Methodology

This study focused on construction firms in Abuja and the list of these firms were obtained from Abuja galleries.com. Abuja was chosen for the study due to the large number of construction activities going on. There were two hundred and forty-five (245) construction companies in Abuja as of April 2015, out of which 152 were randomly selected and considered to be representative of the firms based on Krejcie and Morgan (1970) table. This study adopted quantitative research approach using questionnaire survey to elicit information from 152 construction firms in Abuja. For the purpose of this research, a self-administration of close ended questionnaires were distributed to construction professionals and site supervisors on the selected sites. A total of 152 questionnaires were self-administered on H&S issues to construction professionals in the construction firms, which included builders, quantity surveyors, architects, civil engineers, project managers/supervisors and trades foremen who were involved in construction works. One hundred and twenty-nine (129) questionnaires were retrieved and considered valid for further analysis giving a response rate of 84.9%, as shown in Table 1. Percentages and mean scores were used to analyse the data collected that formed the basis for the conclusion reached and the recommendations made.

Table 1 - Response Rate

No. of Questionnaire sent	No. of Questionnaire returned	No. of Questionnaire not returned	Percentage returned
152	129	43	84.9%

4. Research Findings and Discussion

4.1 Descriptive Analysis of the General Information of Respondents

The results of the questionnaire on respondents’ demographic information which included professional background, years of experience and academic qualification as presented in Table 2 shows that majority of the respondents were male with 70.5%, while 29.5% were of female respondents. This is alluding to the fact that the construction industry is a physically demanding trade dominated by male genders. The construction industry is well known as a male dominated industry with a strong masculine culture (Gale & Cartwright, 1995; Loosemore & Galea, 2008). This is due to the harsh working environment and physically demanding nature of the work. Table 2 shows that one third of the respondents (31.0%) were architect by profession, closely followed by quantity surveyors with 29.5%, builders at 16.3% while civil engineers and other undisclosed professions made up 11.5% each. The analysis in the Table 2 revealed that close to half of the respondents (41.9%) mostly had Bachelor degrees (BSc / BTech / BEng) as their academic qualification, 31.0% had Higher National Diploma (HND), while those with higher qualifications and others had 16.3% and 8.0% respectively. The years of experience of respondents as shown in Table 2 indicated that majority of the respondents had 5-10 years working experience with response rate of 48.1%, while 29.5% had 11-20 years, 16.3% had less than 5 years of experience, and 6.2% had above 20 years of experience. This could be inferred that majority of the respondents had satisfactory years of work experience to provide information for this study.

Table 2 - Background information of respondents

Demographic information	Frequency	Percentage (%)
Gender		
Male	91	70.5
Female	38	29.5
Total	129	100.0
Profession		
Builder	21	16.3
Quantity Surveyor	38	29.5
Architect	40	31.0
Civil Engineers	15	11.6
Others	15	11.6
Total	129	100.0

Table 2 continued

Academic Qualification		
National Diploma	3	2.3
Higher National Diploma	40	31.0
BSc/BTech	54	41.9
MSc/MTech	21	16.3

Others	11	8.5
Total	129	100.0
Years of Experience		
< 5	21	16.3
5 – 10	62	48.1
11 – 20	38	29.5
Above 20	8	6.2
Total	129	100.0
Number of Employee		
1 -49 (Small)	70	54.2
50-249 (Medium)	31	24.0
Above 250 (Large)	28	21.7
Total	129	100.0

4.2 Management Commitment to Health and Safety

Management commitment to health and safety in small, medium and large organisations was examined using the fourteen identified measures. As for small scaled firms, “Management effort of demonstrating a positive attitude towards health and safety”, ranked 1st with a mean of 3.14, and it was followed closely by the “Making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified” with an average mean of 3.06. These are the only two initiatives with a mean of 3.0 and above, all the other 12 initiatives recorded a mean of below 3.0. “Supporting the development and implementation of various health and safety activities” recorded the lowest mean of 2.16 and was followed by “Having a clear health and safety policy in place” with a mean of 2.23.

In medium scaled firms “Management effort of demonstrating a positive attitude towards health and safety”, also ranked 1st with a mean score of 3.42, but this time it was followed by “Setting health and safety as an important agenda item in meetings” with a mean score of 3.16 and “Supporting the development and implementation of various health and safety activities” with an average mean score of 3.06. The lowest average mean score recorded was 2.42 under “Elevating health and safety status above production and profits”. Generally medium scale organisations have shown more commitment to health and safety than small scaled organisations

In large scaled organisations, five commitments to health and safety initiative recorded a minimum of 3.0 average mean. The commitments initiatives include; “Management demonstrating a positive attitude towards health and safety”, “Provision of personal protective equipment (PPE) for site workers”, “Setting health and safety as an important agenda item in meetings”, “Making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified”, and, “Funds and adequately provided for the implementation of health and safety” with an average mean of 3.34, 3.24, 3.13, 3.12, and 3.01 respectively. “Involving in accidents and ill-health investigations” had a mean of 2.96, while “Having a clear health and safety policy in place” had a mean of 2.94 and it was followed closely by “Actively promoting health and safety across all levels” and “Supporting the development and implementation of various health and safety activities” with a mean of 2.93 each. From the result of the commitment by small, medium and large scale organisations for H&S, it is obvious that large scale organisations put more commitment and effort into H&S than the smaller ones.

Overall analysis of the data in Table 3 shows that management commitment to H&S is demonstrated through the management effort of demonstrating a positive attitude towards health and safety. This commitment ranks 1st across all categories of firms with a mean score of 3.43. It was followed closely by the management effort at “Setting health and safety as an important agenda item in meetings” with an average mean score of 3.06. “Making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified” and “Provision of Personal Protective Equipment (PPE) for site workers” also recorded a mean scores of 3.05 and 3.01 with a corresponding rank of 3rd and 4th respectively. All other commitment initiatives recorded a mean scores below 3.0 average with the least coming from “Rewards giving for safe behaviour” with an average mean score of 2.52. Supporting the development and implementation of various health and safety activities” and “Actively promoting health and safety across all levels” initiatives recorded an average mean scores of 2.93 and 2.90 respectively which were the closest to the 3.0 average mean and they ranked 5th and 6th respectively.

The result of the study across all the categories of firms shows that management commitment to H&S is shown through the management effort at demonstrating a positive attitude towards health and safety, setting health and safety as an important agenda item in meetings, making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified, and provision of PPE for site workers appeared only to be important among the indices used in Table 3. Other indices used to measure management commitment to H&S appeared not to be important across the three categories as indicated from the result obtained. This result implies that management commitment across the categories of firms to H&S is not convincing. The implication of this result is that occurrence of accident will likely occur due to low commitment to H&S. These results are in line with Idubor and Osiamoje (2013) who highlighted and maintained that

the performance and productivity of staff in occupational health and safety (OHS) is a function of the level of their expertise and skill, which is a function of the standard of training and education received. Ogbonna *et al.* (2016) stated that H&S in Nigeria is not regulated hence there is an increase in fatality, stagnated economy, decrease in overall health index and increase in occupational diseases and injuries. Carmichael *et al.* (2016) stated that health and wellbeing of individuals in the workplace is of importance to organisations and the society at large since substantial time is spent there leading to improved productivity and reduction in cost related absenteeism on account illness. Hence, the management commitment in terms of H&S cannot be over emphasised. According to Agwu and Olele (2014), to develop a positive safety culture in the Nigerian construction industry, visible top management commitment is required. The commitment of top management to safety is seen in the resources provided and the support in all safety related issues. To do this, policy documents must match implementation so that dire consequence in the area of unsafe behaviours will not become the other of the day. Sarkam *et al.* (2018) stated that management commitment in ensuring positive H&S culture is crucial if beliefs, practices and norms of organisations are to be achieved.

Table 3 - Management commitment to health and safety

s/n	Management commitment to health and safety	Small		Medium		Large		Overall	
		MS	Rank	MS	Rank	MS	Rank	MS	Rank
1	Management demonstrating a positive attitude towards health and safety	3.14	1 st	3.42	1 st	3.34	1 st	3.43	1 st
2	Funds and adequately provided for the implementation of health and safety	2.74	8 th	2.71	12 th	3.01	5 th	2.84	8 th
3	Making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified	3.06	2 nd	3.00	5 th	3.12	4 th	3.05	3 rd
4	Rewards giving for safe behaviour	2.65	11 th	2.90	8 th	2.34	14 th	2.51	14 th
5	Conduct regular health and safety behaviour	2.42	12 th	2.87	9 th	2.48	13 th	2.56	13 th
6	Setting health and safety as an important agenda item in meetings	2.77	7 th	3.16	2 nd	3.13	3 rd	3.06	2 nd
7	Involving in accidents and ill-health investigations	2.84	4 th	2.87	9 th	2.96	6 th	2.86	7 th
8	Elevating health and safety status above production and profits	2.84	4 th	2.42	14 th	2.61	12 th	2.58	12 th
9	Actively promoting health and safety across all levels	2.97	3 rd	2.94	7 th	2.93	8 th	2.89	6 th
10	Supporting the development and implementation of various health and safety activities	2.16	14 th	3.06	3 rd	2.93	8 th	2.93	5 th
11	Organising safety training for workers	2.84	4 th	2.97	6 th	2.75	10 th	2.79	9 th
12	Provision of Personal Protective Equipment (PPE) for site workers	2.71	9 th	2.84	11 th	3.24	2 nd	3.01	4 th
13	Employing health and safety officer to enforce health and safety activities	2.68	10 th	2.65	13 th	2.72	11 th	2.67	11 th
14	Having a clear health and safety policy in place	2.23	13 th	3.03	4 th	2.94	7 th	2.79	10 th

4.3 Internal Communication

In order to establish how safety is being communicated, safety mechanism was categorized into internal and external safety constructs. Internally, eighteen effective internal communication measures were identified, and the analysis of the response was presented in Table 4.

In small organisations, “Using verbal communication with operatives during site tours’ initiative ranked 1st with an average mean of 3.19. It is the only construct with an average mean of above 3.0. ‘Focusing the monthly safety meetings on employee’s attitudinal change towards safety’ recorded a mean of 2.97, all other constructs had a mean of below 3.0. “Clear statements on expected performance standards regarding H&S” recorded the lowest mean of 2.16 which is the least ranked amongst all the constructs identified.

In medium scaled organisations, the highest mean recorded was 3.45. It was recorded by “Explaining clearly H&S goals and objectives to staff” construct. Eight constructs recorded an average mean of above 3.0 as against what was recorded in small scale firms. The constructs include “Using verbal communication with operatives during site tours, Using posters and other sign post to educate staff on safety, Communicating directly with health and safety officer” etc. The lowest mean recorded by medium scale organisations was under “Focusing the monthly safety meetings on employees’ attitudinal change towards safety” with a mean of 2.48 which happens to be the 2nd highest ranked construct in small scaled organisations.

Large organisations fared better in all ramifications of internal communication than both the small and medium scale organisations. A total of eleven constructs recorded a mean of 3.0 and above. “Using verbal communication with operatives during site tours” recorded a mean of 3.87, which was followed by “Communicating formally with managers and workers” with an average mean of 3.75. The lowest mean recorded is 2.55 by “using the company's newsletter and bulletin to disseminate H&S information”. It is obvious from all points that large scale organisations perform better than small and medium scaled organisations in terms of internal communication.

In the overall analysis, “using verbal communication with operatives during site tours” ranked 1st with an average mean of 3.67. “Communicating formally with managers and workers” and “Using posters and other sign post to educate staff on safety” had an average mean of 3.57 and 3.34 respectively with a corresponding rank of 2nd and 3rd. “Risk findings disseminated to all concerned” and “Communicating informally with managers and workers” initiatives were among the 12 initiatives out of 18 that recorded a mean of above 3.0 average mean. “Using the company's newsletter and bulletin to disseminate health and safety information” had the lowest rank of 18th and was followed by “formal structured feedback system” initiative with both recorded an average mean of 2.55 and 2.80 respectively. All parties comfortably using the reporting system, timely and valuable feedback to all parties, focusing the monthly safety and communicating with other managers from other sites recorded an average mean of 2.84, 2.88, 2.95, and 2.98 respectively. Generally, it can be said that there is relatively high use of the identified measures, hence the reason for the high mean recorded by most of the measures identified.

Regarding internal modes of communication, it appears across the three categories of firms that management is committed in promoting H&S culture due to the measures adopted in communicating safety by firms and the majority (12) of the indices adopted to measure internal communication have a mean score value above 3.0. Generally, it can be said that there is relatively high use of the identified measures. This implies that the risk of accident and emergency that might occur across the three categories of firms is less owing to the level of the adoption of communication safety culture. The outcome aligns with the work of Aksorn and Hadikusumo (2008) regarding effectiveness of organisation policies in improving H&S culture in the construction industry which showed that safety performance was influenced by the nature of implemented safety programmes put in place by the organisation. Umeokafor, Evangelinos and Windapo (2020) indicated that in spite the emerging nature of H&S in Nigeria, there has been no harmonization of H&S laws which has created negative implications for the construction industry thereby limiting firms and projects performance. Okorie and Musonda (2018) advocated for the prioritization of the competencies of supervisors and their abilities to effectively communicate to workers more than ever before due to the current pandemic experienced in all places including construction sites.

Table 4 - Internal Communication

s/n	Internal Communication	Small		Medium		Large		Overall	
		MS	Rank	MS	Rank	MS	Rank	MS	Rank
1	Discussing health and safety issues during meetings	2.48	14 th	2.77	15 th	3.03	8 th	3.17	6 th
2	Using verbal communication with operatives during site tours	3.19	1 st	3.29	2 nd	3.87	1 st	3.67	1 st
3	Communicating formally with managers and workers in other sites	2.90	4 th	2.97	9 th	3.75	2 nd	3.57	2 nd
4	Communicating informally with managers and workers in other sites	2.84	6 th	3.06	7 th	3.54	5 th	3.28	5 th
5	Explaining clearly health and safety goals and objectives to staff	2.71	8 th	3.45	1 st	2.97	12 th	3.06	9 th
6	Using the company's newsletter and bulletin to disseminate health and safety information	2.29	16 th	2.68	17 th	2.55	18 th	2.55	18 th
7	Communicating with other managers from other sites	2.71	8 th	3.06	7 th	3.00	11 th	2.98	13 th
8	Keeping staff informed about outcomes of any meeting regarding health and safety matters	2.35	15 th	3.13	5 th	2.97	12 th	3.07	8 th
9	Communicating directly with health and safety officer	2.87	5 th	3.23	3 rd	2.88	14 th	3.02	12 th
10	Communicating health and safety performance to employees	2.94	3 rd	2.87	13 th	3.03	8 th	3.03	11 th
11	Using posters and other sign post to educate staff on safety	2.23	17 th	3.23	3 rd	3.55	4 th	3.34	3 rd

12	Focusing the monthly safety meetings on employees attitudinal change towards safety	2.97	2 nd	2.48	18 th	3.03	8 th	2.95	14 th
13	Risk findings disseminated to all concerned	2.48	13 th	2.97	9 th	3.69	3 rd	3.29	4 th
14	Clear health and safety policy statements communicated by the management	2.65	11 th	2.77	15 th	3.42	6 th	3.14	7 th
15	Clear statements on expected performance standards regarding health and safety	2.16	18 th	3.13	5 th	3.09	7 th	3.04	10 th
16	Formal structured feedback system	2.71	8 th	2.90	12 th	2.66	17 th	2.80	17 th
17	All parties comfortably using the reporting system	2.55	12 th	2.94	11 th	2.72	16 th	2.84	16 th
18	Timely and valuable feedback to all parties	2.81	7 th	2.87	13 th	2.81	15 th	2.88	15 th

4.4 External communication

Table 5 presents the result of the level of effectiveness as responded to by the various professionals in the construction firms studied. In small scaled organisations sampled, “Communicating effectively the approach and commitment to safety of the organisation to external organisation by means of publications” ranked 1st with a mean of 2.94. “Responding to queries or complaints about the health and safety performance of the organisation and participating in dialogues with regulators on health and safety matters” ranked 2nd and 3rd respectively. None of the six identified constructs had an average mean of 3.0 and above. This result was similar to what was recorded for internal communication in small scaled organisations.

The result of external communication in medium scaled organisations is similar to that of small scale organisations as it also had the highest recorded mean of 2.94, but this time it was by “Responding to queries or complaint about the health and safety performance of the organisation”. “Participating in dialogues with regulators on health and safety matters” and “Imposing inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them” recorded a mean of 2.87 each to rank 2nd, while the lowest mean was recorded by “Networking with other companies’ institutions.

Just like in medium scaled organisations, “Responding to queries or complaints about the health and safety performance of the organisation” recorded a mean of 3.10 to rank 1st. “Developing a constructive and open relationship with external organisation on H&S” had a mean of 3.06, which is followed closely by “Communicating effectively the approach and commitment to safety of the organisation to external organisation by means of publications” with a mean of 2.97. The lowest mean is recorded under “Imposing inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them” with a mean of 2.42. Large scaled organisations fared better than both the small and medium scaled organisations.

In the overall “Responding to queries or complaints about the health and safety performance of the organisation” ranked 1st with a mean of 2.95. “Communicating effectively the approach and commitment to safety of the organisation to external organisation by means of publications” and “Participating in dialogues with regulators on health and safety matters” ranked 2nd and 3rd respectively. None of the six identified constructs had an average mean of 3.0 and above, hence, it can be inferred that the external communication measures were given less attention.

For the external modes of communication, the overall result across the three categories of firms’ shows that of all the six identified indices adopted in measuring how safety is communicated across the three categories of firms, none of the constructs had an average mean of 3.0 and above. The implication of this finding is that there is a high probability of accidents and emergencies to occur across the three categories of firms, which might result to disability or death of workers. Gibb and Bust (2006) study concluded that developing countries often fail to implement external communication policies that could improve their H&S culture. The result reflects the findings of Agumba and Haupt (2009) which opined that management are not willing to respond to any queries pertaining to poor performance on H&S and sometimes impose inappropriate control over who may communicate with inspectors and other monitoring team on visit, due to fear of what might be revealed to them. The problem therefore is that despite organisations having well intended programmes and strategies to develop good H&S cultures, it is unlikely that success will be realized if supervisor H&S competencies and ability to communicate effectively to workers is not prioritized (Okorie & Musonda, 2018). The ability to communicate is hinged on the tools that supervisors have, which to a large extent is related to the commitment shown by the management. Eyiah, Kheni and Quartey (2019) were of the opinion that the adoption of positive H&S culture coupled with effective application of occupational safety and health management system can lead to safe construction work and reduced rate of accidents at construction sites.

Table 5 - External Communication

s/n	External Communication	Small		Medium		Large		Overall	
		MS	Rank	MS	Rank	MS	Rank	MS	Rank
1	Responding to queries or complaints about the health and safety performance of the organisation	2.91	2 nd	2.94	1 st	3.10	1 st	2.95	1 st
2	Participating in dialogues with regulators on health and safety matters	2.72	3 rd	2.87	2 nd	2.87	4 th	2.78	3 rd
3	Communicating effectively the approach and commitment to safety of the organisation to external organisation by means of publications	2.94	1 st	2.77	4 th	2.97	3 rd	2.88	2 nd
4	Developing a constructive and open relationship with external organisation on health and safety	2.36	6 th	2.55	5 th	3.06	2 nd	2.64	5 th
5	Imposing inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them	2.48	4 th	2.87	2 nd	2.42	6 th	2.65	4 th
6	Networking with other companies institutions	2.43	5 th	2.32	6 th	2.84	5 th	2.54	6 th

4.5 Level of Involvement of Stakeholders towards Health and Safety

In order to determine the level of involvement of stakeholders towards H&S, fourteen measures were identified and queried as to the level of use or influence of the measures from the professionals across the firms and the result is presented in Table 6.

The result for small scaled firms, according to the respondents “Taking reasonable care for their own health and safety” gained the most attention with an average mean 3.54 to rank 1st among the fourteen measures identified. A total of eight factors recorded an average mean of above 3.0 with four constructs below the 3.0 average bench mark, these measures include; “Regular inspection by government safety officers to enforce the law”, “Adequate manpower for implementation”, “Provision of adequate laws by government”, “Participating in regular health and safety meetings”, “Integrating H&S of workers into the design”, “Council of Registered Builders of Nigeria (CORBON) complimenting the government on H&S” with an average mean of 2.24, 2.69, 2.79, 2.93, 2.93 and 2.97 respectively. Going by this results, it is evident that there is a reasonable level of involvement of stakeholders towards H&S in small scale organisations, as most of the measures recorded high mean of 3.0 and above on a scale of 5.

From the result presented in Table 6 for the medium scaled firms, there is an improvement in stakeholder’s involvement towards H&S than what was recorded in small scaled organisations. Ten of the constructs were ranked above 3.0 with only four of the constructs with mean score of below 3.0 average benchmark. “Nominating a competent person” gained the most attention with an average mean 3.69 to rank 1st among the fourteen measures identified. The stakeholders’ involvement measure that has below 3.0 average mean include “Integrating H&S of workers into the design”.

“Taking reasonable care for other persons that may be affected by their actions or inactions”, “Complying with relevant laws”, and “Provision of adequate laws by government” with an average mean of 2.84, 2.87, 2.90 and 2.94 respectively. Going by the result presented in Table 6, there is a great similarity between stakeholders’ involvement in H&S in medium and large scaled organisations. Ten of the involvement initiatives also recoded a mean of 3.0 and above. The best of the initiative in large scaled organisations is “Taking account of H&S requirements during the constructive process”, this initiative recorded a mean of 3.94. “Taking account of H&S requirements during the constructive process”, “Integrating H&S of workers into the design”, and “Complying with relevant laws” recorded a mean of 3.45 each. The lowest stakeholder’s initiative mean was recorded by “Regular inspection by government safety officers to enforce the law”.

In the overall, according to the respondents, “Taking reasonable care for their own health and safety” gained the most attention with an average mean 3.54 to rank 1st among the fourteen measures identified. A total of ten factors recorded an average mean of above 3.0 with only four below the 3.0 average bench mark, these measures include; “Regular inspection by government safety officers to enforce the law”, “Adequate manpower for implementation”, “Provision of adequate laws by government”, “Adequate enforcement by government Agencies responsible for enforcement” with an average mean of 2.52, 2.78, 2.84, and 2.98 respectively. Going by this results, it is evident that there is a reasonable level of involvement of stakeholders towards H&S, as most of the measures recorded high mean of 3.0 and above on a scale of 5.

Concerning the level of involvement of stakeholders towards H&S, the results indicate that there is a reasonable level of involvement of stakeholders towards H &S, as most of the indices used in measuring level of involvement of stakeholder towards H&S showed high mean value of 3.0 and above across the three categories of firms. This implies that relevant polices were being adopted across the three categories of firms involved in this study, which by implication could limit the occurrence of accident and emergency that might occur. Phoya and Eliufoo (2016) that stated that there is generally low level of knowledge on H&S risk management among stakeholders, there is also lack of stipulated roles and responsibilities for different stakeholders in matters related to H&S and absence of employment criteria to test H&S commitments of contractors and consultants. In a related development, Alrehaili (2016) asserted that without safety culture, personal safety motivation will be an effort in futility as it will be difficult to accommodate workers’ safety concerns which will hinder important safety decisions to be taken. According to Williams *et al.* (2018), stakeholders have

been found wanting in the areas of failure to make funds available for H&S, production of unsafe designs by consultants, limited enforcement by government agencies responsible and contractor in charge of construction and failure by operatives in adhering to safety rules on sites (Tengan & Aigbavboa, 2017). Okoye, Ezeokonkwo and Ezeokoli (2016) presented the view that knowledge and compliance are not sufficient to ensure safety performance, but safety culture required the involvement of stakeholders. Al-Kuwaiti, Ajmal and Hussain (2017) noted that the implementation of the occupational safety and health management system by the main construction parties must apply at all levels of the construction process and must comply with the existing safety and health laws and regulation at workplace in order to reduce accident and death.

Table 6 - Level of involvement of stakeholders towards H &S

s/n	Level of involvement of stakeholders towards H&S	Small		Medium		Large		Overall	
		MS	Rank	MS	Rank	MS	Rank	MS	Rank
1	Provision of adequate laws by government	2.79	12 th	2.94	11 th	2.87	11 th	2.84	12 th
2	Adequate enforcement by government Agencies responsible for enforcement	3.06	8 th	3.03	8 th	2.77	12 th	2.98	11 th
3	Regular inspection by government safety officers to enforce the law	2.24	14 th	3.19	4 th	2.45	14 th	2.52	14 th
4	Adequate manpower for implementation	2.69	13 th	3.00	10 th	2.77	12 th	2.78	13 th
5	Council of Registered Builders of Nigeria (CORBON) complimenting the government on health and safety	2.97	9 th	3.03	8 th	3.32	5 th	3.07	8 th
6	Workers co-operating with their employer in the applying H&S measures	3.21	5 th	3.26	3 rd	3.26	6 th	3.23	5 th
7	Taking reasonable care for their own health and safety	3.54	1 st	3.06	7 th	3.45	2 nd	3.54	1 st
8	Taking reasonable care for other persons that may be affected by their actions or inaction	3.18	6 th	2.87	13 th	3.19	9 th	3.11	7 th
9	Participating in regular health and safety meetings	2.93	10 th	3.16	5 th	3.23	8 th	3.07	8 th
10	Integrating H&S of workers into the design	2.93	10 th	2.84	14 th	3.45	3 rd	3.03	10 th
11	Complying with relevant laws	3.07	7 th	2.90	12 th	3.45	4 th	3.12	6 th
12	Nominating a competent person	3.25	3 rd	3.69	1 st	3.00	10 th	3.30	3 rd
13	Taking account of H&S requirements during the constructive process	3.28	2 nd	3.10	6 th	3.94	1 st	3.40	2 nd
14	Requiring the inclusion of the cost of H&S measures during tendering submission	3.24	4 th	3.32	2 nd	3.26	6 th	3.26	4 th

5. Conclusion and Recommendations

The study assessed the level of health and safety culture in construction firms in Abuja, Nigeria. The result of the study across all the categories of firms showed that management commitment to H&S is shown through the management effort at demonstrating a positive attitude towards H&S, setting H&S as an important agenda item in meetings, making efforts in ensuring every aspect of operations and schedules are routinely evaluated and modified, and provision of Personal Protective Equipment (PPE) for site workers appeared only to be important among the indices used. It can be inferred that the external communication measures were given less attention. The implication of this finding is that there is a high probability of accidents and emergencies to occur across the three categories of firms which might result in disability or death of workers. The level of stakeholders’ involvement based on the results implied that relevant policies were being adopted across the three categories of firms involved in this study, which by implication could limit the occurrence of accident and emergency that might occur. This study recommends that management should be more committed regarding external communication, and there should be high commitment from the top of organisations which will in turn produce higher level of motivation and commitment throughout the organisations. Nigerian government must intensify effort towards improving H&S in construction industry by promulgating laws that are indigenous and peculiar to our environment, setting up monitoring committees to check the H&S practices in the industry and put in place measures to punish violators. All construction firms must also have a written policy and framework for H&S implementation. It is when all the above are put in place that the H&S culture can be engendered.

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