



SURVIVAL STRATEGIES FOR CONSTRUCTION MICRO SMALL AND MEDIUM ENTERPRISES DURING COVID-19 PANDEMIC IN ABUJA, NIGERIA

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ABSTRACT

Most construction Micro Small and Medium enterprises (MSMEs) could not survive and keep the wheels turning during the Covid-19 lockdown period and the impact of the starts up was a way more brutal as they have scarcer cash reserves with a smaller margin for managing sudden slumps. This study assessed the survival strategies for construction MSMEs during Covid-19 Pandemic in Abuja, Nigeria. The research employed the survey design approach using quantitative method. A total of 120 structured questionnaires were administered to Chief Executive Officers (CEOs) of the construction Micro, Small and Medium enterprises operating in the FCT on issues relating to survival strategies for construction MSMEs during Covid-19 pandemic in Nigeria. The collected data was analysed using Relative Importance Index. The study found that creation and adoption of E-commerce system by construction MSMEs during pandemic, financial broadening of MSMEs by the government, creation of interactive forums by government with owners/managers on the way forward for construction MSMEs, and sound marketing strategies to enhance smooth and profitable business operations during pandemic were the key survival strategies for construction MSMEs during Covid-19 pandemic. Based on these findings, it can be concluded that creation and adoption of new strategies (like, E-commerce system/E-business relationships) by the construction MSMEs and constant deliberations and interactive forums with the government and the construction MSMEs key players on the way forward would translate into drastic reduction in the failure of MSMEs during covid-19 pandemic.

Keywords: construction MSMEs, covid-19 pandemic, start-ups, survival strategies.

INTRODUCTION

The construction industry plays a significant role in the economic growth of any nation and also remains a major player in the economic development of Nigeria (Okoye *et al.*, 2015). However, like every other industry, the construction Micro, Small and Medium Enterprises (MSMEs) in Nigeria are battling with the uncertainty of general closure as a result of the global Corona Virus (Covid-19) pandemic (Yusuff, 2020). The Covid-19, due to its mode of transmission through human-to-human, via respiratory droplets, construction sites were

completely shot down globally, and many countries have suspended most activities through the lockdown exercise, of which the construction industry was not an exception (Odinaka & Josephine, 2020). During the period, construction activities have witnessed severe and negative productivity impacts (James, 2020). Owing to this, the World Health Organization (WHO), and other international and local entities, recommended the implementation of containment protocols for construction, in order to provide maximum safety for construction workers and for adequate prevention and control of the spread of the virus on construction sites (James, 2020). Some of the new protocols and restrictions require construction to continue, only if the project is considered critical, while others limit how to operate day-to-day, such as reducing work hours, implementing shorter shifts, increasing distances between workers, disinfecting tools and equipment between shifts, avoiding site visits, and having high risk employees stay at home, among others (James, 2020). Therefore, budget and time management certainly are the prime issues for the construction industry, but the human factor is also in great danger, as the number of construction workers that could lose their jobs and livelihood was very high. Thus, Goodman (2020) suggested that the best management method was to find a way to minimise job casualties to companies, projects, and personnel.

The nature of the impacts and extent of the ramifications are in large part dependent upon the location of both the respective businesses and underlying projects. Direct impacts have ranged from a slowdown of available materials and labour through to suspensions and, in some instances, terminations of parties or entire projects (Lee, 2020). Construction activities remain in flux in some states and cities depending upon whether construction is classified as an essential business or not (Lee, 2020). As a result, the COVID-19 crisis has led to the need for industry members to address both short-term and long-term business challenges, as well as formulating project-by-project solutions in the face of a new global and national environment. The full breadth and scope of the changes needed to address issues arising from the pandemic are still unknown, and this analysis is likely to continue to evolve until a curative measure is in place on a global basis (James 2020).

Hit by the Covid-19 in Nigeria was followed by social distancing and nationwide lockdown which reflected a devastating effect on the construction Micro, Small and Medium Enterprises (MSMEs) and the economy in general (Yusuff, 2020). Construction MSMEs in Nigeria experienced major impacts, no matter how established they are, and are having to re-look at how to manage and operate businesses, including re-visitation of their construction business plans (James 2020). It has become a challenge for most construction MSMEs to keep the wheels turning during the Covid-19 lockdown period, due to less revenue churn and the general uncertainty in the global financial environment (Thukral, 2021). The impact of the starts up was a way more brutal as they have scarcer cash reserves with a smaller margin for managing sudden slumps (Petropoulos, 2020).

To solve this problem, this paper aims to assess survival strategies for construction MSMEs during Covid-19 Pandemic in Abuja, Nigeria.

Preceding researchers have identified and addressed issues concerning covid-19 globally. Numerous studies have also found that the outbreak of covid-19 has affected the activities of construction MSMEs in Nigeria and across the globe. However, none of the research concentrated specifically on survival strategies of Construction Micro, Small and Medium Enterprises (MSMEs) during Covid-19 pandemic in Abuja, Nigeria. Therefore it is pertinent to carry out this study in order to evaluate the survival strategies adopted by construction MSME during Covid-19 pandemic.

LITERATURE REVIEW

Factors Affecting Survival of Construction MSMEs during COVID-19

Some of the basic factors that affect the survival of most construction MSMEs during covid-19 pandemic are listed below:

Pandemic

The entire world came to a standstill for over four months with the outbreak of an unparalleled pandemic Covid-19 (Letsuwa, 2021). This pandemic affected not only human health but also the operative health of businesses and organizations, the construction industry not left out. The Nigerian economy was negatively obstructed.

Material delays

Absence and delay in materials supply is contended to be one of the most important factors that lead to delay in construction project delivery worldwide. Conversely, many projects experience extensive delays and thereby exceed initial time and cost estimates (Letsuwa, 2021).

Supply chains

Disruption of world supply chains will gradually affect construction activities, with scarcities of raw materials and other inputs, contractors and subcontractors, and workers. Some building material supply chains have suspended production and distribution because of the Covid-19 pandemic (Letsuwa, 2021).

Quarantine and travelling bans

Following the rise in the cases of Covid-19, attempts to contain its spread have resulted in the implementation of emergency protocols, and in many cases, the city-wide and state-wide shutdown and travel bans. Such measures can affect the broader community and trigger significant challenges to the construction MSMEs workforce (Jennifer, 2020).

Legal issues and contractual implications

Jack (2020), businesses who are engaged in construction related activities, whether on public or private projects, including owners, contractors, subcontractors, and material suppliers, as well as sureties under payment and performance bonds, can expect that there will be new and challenging legal problems resulting from the impact of the Coronavirus.

Lack of jobs/contracts for MSMEs

Companies are suffering huge economic losses due to this lockdown because of lack of new jobs / contracts. These make it difficult for companies to pay their employees properly and the company is laying off a lot of workers. Due to this, many construction MSMEs find it difficult to survive (Muzaffar, 2021).

Employee's health and safety

Work has been halted and new projects paused while construction practices come to terms with new ways of working. Sites had to adjust to social distancing, implementing new hygiene and personal protective equipment (PPE) measures, and accommodating a greater level of working from home for roles that are not essential to front-line work (Shelly *et al.*, 2021).

Suspension of projects and termination

Some covid-19 factors can lead to project suspension or termination; suspension is an alternative to termination. Where the contract excludes a pandemic as not being of force majeure, a party facing a default as a result of Covid-19 could, instead, resort to suspend the performance of its obligations (Tom *et al.*, 2020).

Cash flow challenges

Cash flow challenges experienced by contractors and subcontractors is also a major factor affecting productivity and efficiency in the construction MSMEs. Cash flow issues were particularly a problem due to escalating material prices and challenges that owners experienced with making timely payments to the contractors (Alsharif *et al.*, 2021).

Interruption of planning and scheduling

Most projects during the Covid-19 are faced with the problem of interrupted project schedule and have caused a pause to project work directly and indirectly (Letsuwa, 2021).

Bankruptcy of construction companies

Construction SMEs are facing bankruptcy in mass numbers and that puts lifelong construction professionals in the unemployment line due to the pause of construction activities in recent time caused by the COVID-19 challenges. (Muzaffar, 2021).

Staff retrenchment

It has been interestingly asserted by the International Labour Organization that workers and businesses are facing catastrophe, in both developed and developing economies. We have to move fast, decisively, and together. The right, urgent measures could make the difference between survival and collapse (Yusuff, 2020).

Survival Strategies For Construction MSMES During COVID-19 Pandemic.

Financial broade

According to Justin (2014), the financial base of MSMEs should be broadened by government helping to integrate the operations of the formal financial institutions with that of informal financial agents. The banks should rely on the informal agents for loan repayment by the MSMEs since they have inbuilt control to ensure full repayment of loans when they become matured.

Creating interactive forum:-Government and Non-governmental organizations to create forum for interaction between MSMEs owners/managers and thereby improving on their management capabilities (Justin, 2014).

Provision of Infrastructures

Government should provide necessary infrastructures in order to encourage and promote rural industrialization. (Afrid *et al.*, 2021).

Capacity building

MSMEs operators should strive to develop their competences in managing and sustaining their businesses by constantly engaging in capacity building, training, research and development. (Justin *et al.*, 2014).

Proper financial record

MSMEs owners/managers should be encouraged to maintain adequate and proper financial records; which is a vital tool for good management and sound decision making.

Marketing strategies

MSMEs operators should device effective marketing strategies such as creative personal selling, customer oriented product lines or services, adroit advertising and good business location; which all enhance smooth and profitable business operations (Afrid *et al.*, 2021).

Personnel management policy

MSMEs owners and managers should develop good personnel management policy. The success of an enterprise greatly depends on the owner's relationship with his employees. The hiring policy in MSMEs should not be based on non-business considerations, such as friendship and family relations (Afrid *et al.*, 2021).

Planned business

Entrepreneurs should only go into business after taking a realistic view of their strengths and weaknesses. They should analyze their administrative adequacy and avoid rushing into any business for the mere fact that there are no job opportunities for them; and that other people who are already in such businesses are succeeding (Afrid *et al.*, 2021).

Government should create a stable macroeconomic environment

Macroeconomic stability is desirable because it is characterized by low inflation, stable and investment friendly interest and exchange rates. It aids planning and enables businesses to make reasonable forecast on costs, turnover and returns on investment (Afrid *et al.*, 2021).

E-Commerce

Afrid *et al.* (2021), Spotlight that to strengthen the selling power of MSME players who were experiencing a decline during the Pandemic, a strategy was needed related to the use of technology through online media.

Service strategy

Sternad *et al.* (2017) explain that MSMEs must respond to customer needs and the market as a form of service to consumers to achieve business excellence.

Product quality improvement strategy

During the Covid-19 Pandemic, MSME players must adjust and condition the sales of their products and services. It is necessary to improve the quality of products and services appropriate to attract consumers' attention (Afrid *et al.*, 2021).

Pricing strategy

During a pandemic, economic activity around the world has decreased. This is a challenge itself for MSME actors in maintaining their business. During a pandemic, MSME players can apply promotional strategies to economical packages that are attractive to consumers and affordable prices (Afrid *et al.*, 2021).

Promotion strategy

In running a business, MSME players must carry out product marketing in a good and appropriate way. Digital marketing is the right platform for MSME players (Afrid *et al.*, 2021).

RESEARCH METHODOLOGY

The research employed the survey design approach utilising the features of quantitative method by administering well-structured questionnaires to the respondents. The population for this research constituted a total of 389 Construction Micro, Small, and Medium Enterprises (MSMEs) registered and operating in Abuja, Nigeria. This number was gotten from finelib.com directory.

The population of the 389 construction MSMEs was broken into sample frame constituting 200 micro enterprises, 113 small enterprises, and another 76 medium enterprises making a total of 389 respondents. To determine samples size for this research, the population value of 389 construction MSMEs in Abuja was subjected to Krejcie and Morgan Table for determining sample size at 5% limit of error and at 95% confidence level. The value was reduced to a total of 120 which is the minimum sample of questionnaire to be administered. Therefore 120 represent the sample size for the study.

Moreover, the stratified random sampling procedure was adopted, that is by grouping each set of respondents (micro, small, and medium enterprises) and subsequently selecting members (CEOs) in each group at random to enable every respondent have equal chances selection within the population.

A well-structured questionnaire was designed and administered to collect primary data for this research. The respondents included the Chief Executive Officers (CEOs) of the construction Micro, Small and Medium enterprises operating in the FCT. The questionnaire covered issues relating to survival strategies for construction MSMEs during Covid-19 pandemic_in Nigeria. The collected data was analysed using descriptive method. That is the Relative Importance Index (RII) to analyse survival strategies for construction MSMEs during Covid-19 pandemic in Nigeria.

The formula for Relative Important Index is written as:

$$\text{Relative Important Index (RII)} = \frac{\sum P_i U_i}{A \times N} \quad \text{Where;}$$

P_i = respondent rating of factors,

U_i = Number of respondents placing identical weighting/rating on factor

A = highest weighting (i.e. 5 in this case).

N = Sample size.

Table 1 shows the decision rule adopted for the result interpretation adapted from Morenkeji (2006).

Table 1: Decision rule for RII

Decision	Very important	Important	Fairly important	Less important	Not important
Scale	0.80 to 1.00	0.60 to 0.79	0.40 to 0.59	0.20 to 0.39	0.00 to 0.19

Adapted from Morenkeji (2006).

RESULTS AND DISCUSSION

Factors Affecting Survival of Construction MSMEs during Covid-19 Pandemic

Table 2 shows that the key factors affecting the survival of Construction MSMEs during Covid-19 pandemic are: lockdown (Stay at home); quarantine and travelling ban to contains the spread of covid-19 virus; stoppage of jobs/contracts for MSMEs; financial issues relating to late payment; increase in prices of material and project cost; suspension/termination of projects due to inability to continue; and delay/absence in material supply. These factors were deemed very important by the respondents because they fall between RII values of 0.80 to 1.00. These results are in line with findings of Muzaffar (2021) and Jennifer (2020) that following the rise in the cases of Covid-19, attempts to contain its spread have resulted in the implementation of emergency protocols and such measures could affect the broader community and trigger significant challenges to the construction MSMEs workforce.

Other factors deemed fairly important by the respondent were: Interruption of planning and scheduling of construction project; labour shortages; and challenges of asses to income, security and health care facility. They were considered fairly important by the respondents because they fall between RII values of 0.40 to 0.59.

Table 2: Factors affecting the survival of Construction MSMEs during Covid-19

S/N	Factors affecting the Survival of Construction MSMEs during Covid-19	RII	Ranking
1	Lockdown (Stay at home)	0.89	1 st
2	Quarantine and travelling ban to contains the spread of COVID-19 virus	0.88	2 nd
3	Stoppage of jobs/ contracts for MSMEs	0.87	3 rd
4	Financial issues relating to late payment, increase prices of material and increase project cost	0.86	4 th
5	Disruption of supply chain	0.82	5 th
6	Suspension/termination of projects due to inability to continue	0.82	6 th
7	Delay/Absence in material supply	0.81	7 th
8	Cash flow challenges as a result of increase in the cost of materials	0.76	8 th
9	Difficulties in getting loans and bonds to fund construction projects	0.73	9 th
10	Low productivity and production margin	0.71	10 th
11	Staff retrenchment in construction MSMEs due to lack of job	0.69	11 th
12	Bankruptcy of construction companies	0.68	12 th
13	Interruption of Planning and Scheduling of construction project	0.49	13 th
14	Challenges of asses to income, security and health care facility	0.48	14 th
15	Understanding the legal issues and contractual implication relating to COVID-19	0.47	15 th
16	Labour shortage	0.45	16 th

Survival strategies for construction MSMEs during covid-19 pandemic

Table 3 shows that important survival strategies for construction MSMEs during covid-19 pandemic are: Adoption of E-commerce system by construction MSMEs during pandemic; financial broadening of MSMEs by the government, through formal and informal financial agent; creation of E-business relationships and diversification of services during the pandemic; creation of interactive forums by government with owners/managers on the way forward for construction MSMEs during the Covid-19 pandemic; and sound marketing strategies to enhance smooth and profitable business operations during pandemic. The factors were deemed very important by the respondents because they fall between RII values of 0.80 to 1.00. The results corroborate the findings of Justin (2014) and Afrid *et al.* (2021) on the need for the construction MSMEs to diversify their mode of operation through online system and government to broaden their financial means.

Table 3: Survival strategies for construction MSMEs during covid-19 pandemic

S/N	Survival Strategies for construction MSMEs during COVID-19 pandemic	RII	Ranking
1	Adoption of E-commerce system by construction MSMEs during pandemic	0.92	1 st
2	Financial broaden of MSMEs by the government (formal and informal financial agent)	0.91	2 nd
3	Creation of E-business relationships and diversification of services during the pandemic	0.91	2 nd
4	Creation of interactive forums by government with owners/managers on the way forward for construction MSMEs during the Covid-19 pandemic	0.89	4 th
5	Sound marketing strategies to enhance smooth and profitable business operations during pandemic	0.88	5 th
6	Adherence to ethical business practices, and keeping abreast to the key factors of change	0.79	6 th
7	Utilisation of promotion strategies, such as social media /internet as means of advert to improve their sales	0.78	7 th
8	Consideration of a realistic view of strengths, weaknesses and the technical knowhow of the company during pandemic	0.78	7 th
9	Good management and employees relationship for the success of the enterprise	0.75	9 th
10	Derive a service strategy to respond to customer and market needs during the pandemic	0.73	10 th
11	Establishment of stable microeconomic environment by government to minimise inflation, stable and friendly interest and exchange rates for construction MSMEs.	0.71	11 th
12	Proper financial records by MSMEs for good management and easy decision making	0.70	12 th
13	Adoption of best practices and good quality service delivery to customers	0.69	13 th
14	MSMEs capacity building by development of competence to sustain growth of businesses	0.68	14 th
15	Improving product quality and services to attract customers	0.67	15 th
16	Provision of infrastructures facilities by the government to encourage and promote growth of Construction MSMEs	0.66	16 th

CONCLUSION

Most construction MSMEs could not survive and keep the wheels turning during the Covid-19 lockdown period, due to the general uncertainty in the global financial environment. The impact of the starts up was a way more brutal as they have scarcer cash reserves with a smaller margin for managing sudden slumps. Thus, this study aims to assess survival strategies for construction MSMEs during Covid-19 Pandemic in Abuja, Nigeria. The study found that the key factors affecting the survival of Construction MSMEs during Covid-19 pandemic are: lockdown (Stay at home); quarantine and travelling ban to contains the spread of covid-19 virus; stoppage of jobs/contracts for MSMEs; financial issues relating to late payment; increase in prices of material and project cost; suspension/termination of projects due to inability to continue; and delay/absence in material supply.

The study also revealed that creation and adoption of E-commerce system/E-business relationships by construction MSMEs during pandemic; financial broadening of MSMEs by the government, through formal and informal financial agent; diversification of services during the pandemic; creation of interactive forums by government with owners/managers on the way forward for construction MSMEs during the Covid-19 pandemic; and sound marketing strategies to enhance smooth and profitable business operations during pandemic are the key

survival strategies for construction MSMEs during Covid-19 pandemic in the FCT. Based on these findings, it can be concluded that creation and adoption of new strategies (like, E-commerce system/E-business relationships) by the construction MSMEs and constant deliberations and interactive forum with the government and the construction MSMEs key player would translate into drastic reduction in the failure of MSMEs during covid-19 pandemic.

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CONTRACTING FIRMS' COMPLIANCE TO COVID-19 OCCUPATIONAL SAFETY AND HEALTH STANDARDS IN ABUJA

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ABSTRACT

The measures put in place by most construction firms in Nigeria to control Covid-19 pandemic are proven to be ineffectual and contributed to the total shutdown of construction activities during Covid-19 pandemic. Thus, the need for compliance with the Occupational Safety and Health Acts (OSHA) standards on Covid-19 to ensure a holistic management of Covid-19 virus in construction firms. This study assessed the compliance level of the construction firms to the COVID-19 OSHA standards in Abuja with a view to suggesting strategies for ensuring effective compliance to the standards by construction firms. The study adopted survey design. A total of 173 structured questionnaires were administered to management staff /health officers of construction firms within the Abuja, who are responsible for health issues in small, medium and large construction firms in the FCT. The collected data was analysed using mean item score. The study found that instructing all infected /tested positive/displayed symptom workers to stay home, implementation of physical distancing in all communal work areas for unvaccinated workers, practicing good personal hygiene and hand wash, performing routine cleaning and disinfections and regular testing on Covid-19 especially in area of high community transmission are the key OSHA standards complied with by construction firms in Abuja. However, measures relating to workers education and training, constant record taking and reporting and encouraging workers to get vaccinated were given less attention by the construction firms. The study concludes that the average compliance rate to OSHA standards by the contracting firms in Nigeria was high; and full compliance standards would lead drastic reduction in Covid-19 virus in construction firms. It was recommended that construction firms should always sensitize and educate it workers on the importance of Covid-19 vaccination, as full doze vaccination would ensure absolute management of the virus.

Keywords: Abuja, compliance, construction firms, covid-19, and OSHA standard

INTRODUCTION

The construction industry contributes to the economic growth of any nation through strategic planning, design, and construction by transforming various production processes into constructed facilities (Isa *et al.*, 2013). The industry is unique among other sectors because it provides the necessary infrastructures that stimulate national development (Gamil *et al.* 2020). In Nigeria, about 25% of the workforce are attributed to the construction industry (Gamil *et al.*

2020). However, the industry is recognised as one of the most dangerous and high-risk industries, as the fatality rate in construction has recorded a 6 percent increase in 2019 which is the highest, since 2007 (U.S. Bureau of Labour Statistics (BLS), 2020). The coronavirus disease also known as COVID-19 is a global pandemic that has affected all sectors of developments. It is caused by the virus named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (World Health Organisation, 2021) (WHO, 2021). The virus is confirmed as being transmitted from human to human and results in symptoms including fever, dry cough, fatigue, and shortness of breath (CDC, 2021).

The outbreak of Covid-19 pandemic has tested the resilience of the construction industry, putting the safety of workers and overall businesses at risks (Alsharif *et al.*, 2021). The Nigerian construction firms have been adversely affected by the COVID-19 pandemic The Center for Construction Research and Training (PWR, 2020). For instance, in the early stage of the pandemic in 2020, a significant number of construction workers reportedly tested positive, which led to a total shutdown of construction firms in Nigeria (Alsharif *et al.*, 2021), and the risk of the infections among construction firm workers were about five time more likely to be hospitalized than workers in other industries (OSHA, 2020).

The Centers of Disease Control and Prevention (CDC) noted in 2019 that, recent studies indicate that the virus can be spread by people who are not showing symptoms. Older adults and people of any age who have serious underlying medical conditions may be at higher risk of severe illness from COVID-19” (CDC, 2021). While construction workers are the heartbeat of every construction project, there has been limited discussion on the perception of workers in the pandemic and the compliance to the newly established safety measures. One tool that has been available to workers in both developed and developing countries of the world Nigeria inclusive to report on their safety concerns is the OSHA Complaint tracker. OSHA is a large regulatory agency of the United States Department of Labour with a main mission to inspect and examine the health and safety in workplaces in various industries, including the construction industry (OSHA, 2020). Construction workers had access to the OSHA Complaint tracker during the pandemic, and complaints made by construction workers nationwide were compiled into a database that is published on the OSHA website. The investigation of this database can provide great insights into the perception of the construction workers of how well the construction projects were managed during the pandemic. Due to the above stated findings, the Occupational Safety and Health Administration (OSHA), came up with guide lines to help employers keep workers safe in the construction industry. Hence, this study is focused on assessing the compliance to occupational safety and health administration (OSHA) standards on covid-19 pandemic in construction firms in Abuja, FCT.

In order the curb or minimise the menace of the total lockdown of construction activities by constructions firms in Nigeria, strong measures have to be put in place to minimise the spread of the covid-19 virus amongst workers (Ogunnusi *et al.*, 2020). The measures put in place by construction firms in Nigeria to tackle the virus are proven to be common, generic, ineffectual, and not construction related, which led to the total shutdown of construction activities (Ogunnusi *et al.*, 2020). Since the construction industry requires all stakeholders to be on site, Ogunnusi *et al.* (2021) advocated for alliance to the global measure, like the OSHA guidelines to ensure a holistic management to enable the continuation of construction works, with minimum or no risk of contracting the Covid -19 virus in the construction firms in FCT. Thus, this study assesses the compliance level of the construction firms to the OSHA standards in FCT with a view to suggesting strategies for ensuring effective compliance to the standards by construction firms.

LITERATURE REVIEW

OSHA Standards/Guidelines on Covid -19 Pandemic

OSHA provides the guidance for employers as recommendations to use in protecting unvaccinated workers and otherwise at-risk workers, and to help those workers protect themselves. This guidance also incorporates CDC's recommendations for fully vaccinated workers in areas of substantial or high transmission. Employers and workers are mandated to use the guide to determine any appropriate control measures to implement (OSHA, 2020).

The common OSHA recommendations to mitigate the spread of COVID-19, include the following:

1. Facilitate employees getting vaccinated

Employers should grant paid time off for employees to get vaccinated and recover from any side effects. The Department of Labour and OSHA, as well as other Federal agencies are expected to be working diligently to ensure access to COVID-19 vaccinations (OSHA, 2021).

2. Implement physical distancing in all communal work areas for unvaccinated and otherwise at-risk workers

A key way to protect workers is to physically distance them from other such people (workers or customers). Generally at least 6 feet of distance is recommended, although this is not a guarantee of safety, especially in enclosed or poorly ventilated spaces. In a workplace, workers often are required to work in close proximity to each other and/or customers or clients for extended periods of time. Maintaining physical distancing at the workplace for such workers is an important control to limit the spread of COVID-19 (Oksanen *et al.*, 2020).

3. Provide workers with face covering masks, as appropriate, unless their work task requires a respirator or other PPE

In addition to unvaccinated and otherwise at-risk workers, CDC recommends that even fully vaccinated people wear masks in public indoor settings in areas of substantial or high transmission and notes that fully vaccinated people may appropriately choose to wear masks in public indoor settings regardless of community level of transmission, particularly if they are at risk or have someone in their household who is at risk or not fully vaccinated (CDC, 2020).

4. Educate and train workers on COVID-19 policies and procedures using accessible formats and in languages they understand

Train managers on how to implement COVID-19 policies. Communicate supportive workplace policies clearly, frequently, and via multiple methods to promote a safe and healthy workplace. Communications should be in plain language that unvaccinated and otherwise at-risk workers understand (including non-English languages, and American Sign Language or other accessible communication methods, if applicable) and in a manner accessible to individuals with disabilities. Training should be directed at employees, contractors, and any other individuals on site, as appropriate (OSHA, 2020).

5. Maintain ventilation systems

The virus that causes COVID-19 spreads between people more readily indoors than outdoors. Improving ventilation is a key engineering control that can be used as part of a layered strategy to reduce the concentration of viral particles in indoor air and the risk of virus transmission to unvaccinated and otherwise at-risk workers in particular. A well-maintained ventilation system is particularly important in any indoor workplace setting and when working properly, ventilation is an important control measure to limit the spread of COVID-19 (CDC, 2021).

6. Perform routine cleaning and disinfection

If someone who has been in the facility within 24 hours is suspected of having or confirmed to have COVID-19, follow the CDC cleaning and disinfection recommendations. Follow requirements in mandatory OSHA standards 29 CFR 1910.1200 and 1910.132, 133, and 138 for hazard communication and PPE appropriate for exposure to cleaning chemicals (CDC, 2021).

7. Record and report COVID-19 infections and deaths

Under mandatory OSHA rules, employers are required to record work-related cases of Covid-19 illness on OSHA's Form 300 logs if the following requirements are met: (1) the case is a confirmed case of COVID-19; (2) the case is work-related; and (3) the case involves one or more relevant recording criteria. Employers must follow the requirements in 29 CFR part 1904 when reporting COVID-19 fatalities and hospitalizations to OSHA. More information is available on OSHA's website. Employers should also report outbreaks to local health departments as required and support their contact tracing efforts (OSHA, 2020).

8. Note on recording adverse reactions to vaccines

OSHA, like many other federal agencies, is working diligently to encourage COVID-19 vaccinations. OSHA does not want to give any suggestion of discouraging workers from receiving COVID-19 vaccination or to dis-incentivize employers' vaccination efforts. As a result, OSHA will not enforce 29 CFR part 1904's recording requirements to require any employers to record worker side effects from COVID-19 vaccination at least through May 2022. OSHA will reevaluate the agency's position at that time to determine the best course of action moving forward. Individuals may choose to submit adverse reactions to the federal Vaccine Adverse Event Reporting System (OSHA, 2021).

9. Implement protections from retaliation and set up an anonymous process for workers to voice concerns about COVID-19-related hazards

Section 11(c) of the OSH Act prohibits discharging or in any other way discriminating against an employee for engaging in various occupational safety and health activities. Examples of violations of Section 11(c) could include discriminating against employees for raising a reasonable concern about infection control related to COVID-19 to the employer, the employer's agent, other employees, a government agency, or to the public, such as through print, online, social, or any other media; or against an employee for voluntarily providing and safely wearing their own PPE, such as a respirator, face shield, gloves, or surgical mask (OSHA, 2021).

10. Follow other applicable mandatory OSHA standards

All of OSHA's standards that apply to protecting workers from infection remain in place. These mandatory OSHA standards include: requirements for PPE, respiratory protection, sanitation, protection from blood borne pathogens: OSHA's requirements for employee access to medical and exposure records. Many healthcare workplaces will be covered by the mandatory OSHA Covid-19 Emergency Temporary Standard. More information on that standard is available on OSHA's website. Employers are also required by the General Duty Clause, Section 5(a)(1) of the OSH Act, to provide a safe and healthful workplace free from recognized hazards that are causing or likely to cause death or serious physical harm (OSHA, 2021).

RESEARCH METHODOLOGY

The research adopted survey design approach through quantitative means to assess the compliance to occupational safety and health administration standards on Covid-19 Pandemic in construction Firms in Abuja. The targeted population for the study constituted the management staff members/health and safety officers of construction firms within the FCT, who are responsible for health related issues in the construction firms. The sample frame consisted of all staff including, chief executive officers and construction site health and safety officer of the small, medium and large construction firms in the study area.

The samples size for this research was developed from a population of 210 Chief Executive Officers and Health and Safety Officers of the Small, Medium and Large Construction Firms in Abuja Nigeria. The value was subjected to Krejcie and Morgan Table for determining sample size at 5% limit of error and at 95% confidence level. The value of 210 was reduced to 173 which is the minimum sample of questionnaire administered. Therefore 173 represent the sample size as shown in Table 1.

Table 1: Sample size

S/N	Executive officers	Health officers	Population	Sample size using Morgan's Table
Small firm	35	37	72	59
Medium firm	43	43	86	70
Large firm	25	27	52	44
Total	103	107	210	173

The sampling technique adopted for this study is simple random sampling method (of small, medium and large construction firms) to enable every respondent have equal chances selection within the population. The data for this research work was collected using well-structured questionnaire on the compliance by the construction firms on the available OSHA standards on Covid-19 Pandemic. The procedure involved in the administration of the questionnaire was done by personal visitation to the field and the questionnaire administered was collected immediately after they have been filled.

To give meanings to the collected data, it was analysed and interpreted statistically. The study employed descriptive statistics method only. The descriptive methods included Mean Item Score (MIS) was used to rank on average the level of compliance of the construction firms to the OSHA standard.

The decision rule used for the MIS was that adopted from Morenikeji (2006), that factors with MIS value of 0.00 to 1.49 was considered as very low compliance; 1.50 to 2.49 as low compliance; 2.50 to 3.49 as average compliance; 3.50 to 4.49 as high compliance; and 4.49 to 5.00 as very high compliance.

RESULTS AND DISCUSSION

The results of compliance level with the OSHA standard by construction firms in FCT are presented in this section.

Demographic Information of the Respondents

Table 2 shows that 49.15% and 50.85% of the respondents from small sized firms are Executive officers and Health and safety officers respectively.

The respondents of the Medium sized firms were 47.14% and 52.86% Executive officers and Health and safety officers respectively.

However, only 43.18% of the respondents were Executive officers and 52.86% were Health and safety officers from the large sized firms.

Table 2: Demographic information of the respondents

SN	FIRM TYPES	EXECUTIVE OFFICERS		HEALTH AND SAFETY OFFICERS		TOTAL NUMBER OF RESPONDENTS
1	SMALL	29	49.15%	30	50.85%	59
2	MEDIUM	33	47.14%	37	52.86%	70
3	LARGE	19	43.18%	25	56.82%	44

Compliance to OSHA Standards on Covid-19 Pandemic by Construction Firms

Table 3 shows that the top OSHA standards mostly complied with by the construction firms in Abuja are: Instructing all infected /tested positive/displayed symptom workers to stay home; this was followed by implementation of physical distancing in all communal work areas for unvaccinated workers; then, practicing good personal hygiene and wash hands often; performing routine cleaning and disinfections; and regular testing on Covid-19 especially in area of high community transmission. These standards were deemed very highly complied because they fall between MIS of 4.50 to 5.00. These results corroborate the submissions of OSHA (2020), CDC (2020) and that of Oksanen *et al.* (2020) on standards for mitigating the Covid-19 in workplaces.

However, the least OSHA standard complied with by the construction firms are: recording and reporting Covid-19 infection and deaths to NCDC; and facilitating employees to get vaccinated. They were deemed least complied factors because they fall between MIS of 1.50 to 2.50.

The average compliance rate of the small, medium and large sized firms to OSHA Standards on Covid-19 Pandemic was deemed high with MIS value of 3.69.

The result is an indication that most construction firms in the study area concentrated on the common Covid-19 prevention measures, which include stay at home, maintaining physical distancing and personal hygiene of using hand sanitizers and regular testing. But measures relating to workers education and training, constant record taking and reporting and encouraging workers to get vaccinated were given less attention.

Table 3: Compliance to OSHA Standards on Covid-19 Pandemic by Construction Firms

SN	OSHA Standards on Covid-19 Pandemic	MIS	Rank
1	Instruct all infected /tested positive/displayed symptom workers to stay home	4.57	1 st
2	Implementation of physical distancing in all communal work areas for unvaccinated workers	4.55	2 nd
3	Practice good personal hygiene and wash hands often.	4.53	3 rd
4	Perform routine cleaning and disinfections	4.52	4 th
5	Regular testing on Covid-19 especially in area of high community transmission.	4.50	5 th
6	Maintaining a good ventilation system	4.14	6 th
7	Implement protection from retaliation and set up anonymous process for workers to voice concern about covid-19 related hazard	4.11	7 th
8	Participation in training on Covid-19 related issues	4.00	8 th
9	Educating workers on Covid-19 policies and procedures using accessible formats and in language they understand.	2.49	9 th
10	Provision of safe and healthy workplace free from the hazard of Covid-19.	2.48	10 th
11	Record and report Covid-19 infection and deaths to NCDC	2.20	11 th
12	Facilitating employees to get vaccinated	2.19	12 th
Average compliance level		44.28/12	3.69

CONCLUSION

The measures put in place by most construction firms in Nigeria to control Covid-19 pandemic are proven to be common, generic, ineffectual, and not construction related, which led to the total shutdown of construction activities. Thus, the need for alliance to the OSHA guidelines to ensure a holistic management to enable the continuation of construction works, with minimum or no risk of contracting the Covid-19 virus in construction firms in FCT. This study assesses the compliance level of the construction firms to the OSHA standards in FCT with a view to suggesting strategies for ensuring effective compliance to the standards by construction firms. The study concludes that instructing all infected /tested positive/displayed symptom workers to stay home; implementation of physical distancing in all communal work areas for unvaccinated workers; practicing good personal hygiene and hand wash; performing routine cleaning and disinfections; and regular testing on Covid-19 especially in area of high community transmission are the key OSHA standards complied with by construction firms in FCT. However, measures relating to workers education and training, constant record taking and reporting and encouraging workers to get vaccinated were given less attention by the construction firms.

The average compliance rate of the small, medium and large sized firms to OSHA Standards on Covid-19 Pandemic was deemed high.

The study recommends construction firms should always sensitize and educate it workers on the importance of Covid-19 vaccination, as full doze vaccination would ensure absolute management of the virus.

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