

A comparative analysis of construction workers' mental health before and during COVID-19 pandemic in Nigeria

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Abstract

Purpose – Because of the sort of working environment and the nature of construction jobs, a high rate of poor mental health has been recorded in the construction industry. The aim of this study is to compare construction workers' mental health before and during the COVID-19 pandemic in Nigeria.

Design/methodology/approach – A survey questionnaire was developed and administered online to building environment professionals working on construction sites. Data were analysed using descriptive statistics such as mean and standard deviation. An independent sample *t*-test was also conducted to determine whether there was a significant difference in the mean before and during the COVID-19 infection.

Findings – The results show that mental health challenges were more prevalent during the COVID-19 pandemic compared to before the pandemic. The result of the independent sample *t*-test revealed that there exists a significant difference in all the mean before and during COVID-19 except sleeping too much or too little; having low or no energy and lack of emotion that shows no significant difference.

Originality/value – This study is the first to compare the mental health of construction workers before and during COVID-19 in Nigeria. The significance of this study was that it would provide an insight for construction managers and other decision-makers on the most critical mental health challenges on construction sites, which will help in an attempt to improve the mental well-being of construction workers.

Keywords Accident, Suicide, Fatigue, Stress

Paper type Research paper

1. Introduction and background

Any country's building industry is critical to employment and growth. In Nigeria, the construction industry employs 20% of the workforce and generates 50% of domestic fixed capital formation (National Bureau of Statistics, 2018). The industry is time-consuming, with job overload, unrealistic deadlines and a filthy and hazardous working environment (Bowen *et al.*, 2018). These industry traits have a multiplier effect on a worker's life, affecting an individual's reaction to work and its surroundings (Turner, 2013; Turner and Lingard, 2016). Workers are stressed as a result of the mix of stressors, which has an influence on their health and safety (Kuhn, 2013). Thus, research on health and safety in Nigeria's construction



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workplace focused on mental health, and well-being is necessary to establish appropriate health promotion measures to sustain the industry's ability to alleviate unemployment, economic challenges and meet sustainable development goals (SDGs 3 and 8).

According to the [World Health Organization \(2017\)](#), Nigeria has roughly seven million instances of depression and five million cases of anxiety. Mental illness appears to be a serious and crippling problem for all governments and economies. Mental health issues are the second most common type of illness in the workplace after injuries ([Hunsley et al., 2014](#)). Notably, mental health symptoms do not occur in isolation, but rather coexist ([Wang et al., 2016](#)). Mental health is defined as a positive state of mind, a state of well-being, composure in behaviour and actions toward others and the environment ([World Health Organization, 2017](#)). A positive state of mind impacts favourable responses to events and the environment, which is defined as mental wellness. Mental ill health (i.e. poor mental health), on the other hand, can be seen as a negative reaction to circumstances and the environment. Mental illness has an impact on a person's perception, reaction and attitude toward objects, stress and their surroundings ([Australian Government Department of Health, 2017](#)). Poor mental health can have a detrimental impact on workers' productivity, performance, safety, physical health and well-being ([Ran et al., 2020](#)). Distress, depression and anxiety are all common mental health issues ([Risal, 2011](#); [Reed and Sacco, 2016](#)). The construction industry has been identified as having one of the highest rates of poor mental health. This is thought to be due to the type of working environment and culture that creates a stigma. Employers are missing out on early intervention opportunities as a result of barriers like these and a fear of discrimination ([Stevenson and Farmer, 2017](#); [Roche et al., 2016](#)). Low productivity, excessive absenteeism and low employee turnover are all associated with mental health risk factors in the workplace ([Roche et al., 2016](#)). In the United Kingdom in 2016, occupational mental health disorders cost businesses £40 bn and the government £25 bn in lost working days, accounting for nearly 3% of gross domestic product (GDP) ([Office for national Statistics, 2017](#)). Tight budgets, deadlines, a heavy workload, cramped site accommodation and absence of feedback have all been recognized as sources of stress for construction professionals in Nigeria ([Ibem et al., 2011](#)). Similarly, [Oladinrin et al. \(2014\)](#) found personnel shortages and contradictory work tasks as stressors in the construction business, with the impact of such stressors being sadness, hopelessness, helplessness and maladaptive coping behaviour.

The effects of COVID-19 on construction work, notably its impact on workers' mental health, cannot be overstated. According to [Olanrewaju et al. \(2021a\)](#), this pandemic is the most serious health and safety concern for the worldwide construction sector. The coronal virus pandemic conundrum has resulted in lower site productivity, higher compliance costs, project delays and increased the risk of infection for construction workers. The pandemic has also deteriorated the situation of mental health pressure in the construction business, according to the results of a survey conducted by the Associated General Contractors of America ([AGC, 2020](#)). Construction workers are more likely to experience vicarious trauma, sadness, anxiety, tiredness and a lack of attention than other jobs. Employers in the construction industry are only concerned with physical dangers. It is unclear why this is the case. It could be due to a lack of knowledge about mental health and the dangers or causes of mental illness.

The demands on work-life balance in the construction business are tied to the industry's unique working culture, which involves long hours, tight deadlines and extended durations away from home. Construction is likewise a disjointed industry, with over 37% of workers self-employed, compared to 13% nationally ([Rhodes, 2018](#)). Furthermore, zero-hour contracts, workflow volatility, not being paid the agreed-upon amount or working unpaid overtime to meet deadlines, and unfavourable working circumstances were also identified as sources of additional stress ([Alderson, 2018](#)). Industry-specific variables, including difficult workloads, long working

hours, long commutes and more time away from friends or family, according to the [Office for national Statistics \(2017\)](#), can all contribute to mental health difficulties. [Turner and Lingard \(2020\)](#) look at the impact of musculoskeletal bodily pain on the mental health of construction workers. According to the survey results, those who were unhappy at work had significantly higher degrees of melancholy, anxiety and stress severity. Sadness, worry and stress were all found to have a negative relationship with work ability markers, meaning that when workers' mental health is poor, their job capacity is likely to deteriorate as well. A conceptual model was used to show the relationship between job tasks, pain, mental health and work ability. The concept identifies that employees' psychological demands are harmed by anticipated and experienced bodily discomfort, which has an impact on their mental health.

In a similar vein, [Rouhanizadeh and Kermanshachi \(2021\)](#) investigated the causes of mental health issues in construction workers and their impact on productivity. The top three factors leading to mental health issues were identified as workplace stress, emotional and physical demands, and bullying and harassment. The data also revealed that supervisory support is an effective technique for lowering the prevalence of mental health issues and their negative implications. Co-worker communication can also aid in the reduction of stress and, as a result, the bad repercussions that come with it. [Pidd et al. \(2017\)](#) also look into the relationship between alcohol and drug (AOD) use, psychological well-being and the psychosocial environment at work among young construction apprentices. According to the study, construction apprentices are at a higher risk of AOD-related damage and poor mental health than other workers. In a similar vein, [Eyllon et al. \(2020\)](#) investigated mental health stigma and well-being among commercial construction employees. According to the study, stigma was found to be linked to psychological distress and poor sleep but not to substance misuse. The prevalence of stigma on the worksite was explored by key informants and workers, as well as how the industry's male culture and job instability led to stigma. According to the findings, stigma is a barrier to treating mental health among workers; nevertheless, peer support and increased human resources may be beneficial.

In a study of stress management in the Nigerian construction sector, [Oladimirin et al. \(2014\)](#) discovered that the listed impact of stress on professionals included despair and feelings of powerlessness, an increase in anxiety and an increase in health-related disorders. [Langdon and Sawang \(2018\)](#) used job and non-work stressors to assess the mental health of construction craftsmen in Australia. Both criteria were discovered to be connected in the study. As for mental health stressors, concerns about the expense of living and job demand affecting time spent with family and leisure were mentioned. Despite the fact that Australian craftsmen are not low-income workers, the study found that worries about meeting financial obligations have an influence on their mental health. [Sunindijo and Kamardeen \(2017\)](#) used a combination of job and non-work factors to assess the mental health of construction professionals. The study concluded that female professionals had increased anxiety as a result of bullying, gender discrimination, ethnic discrimination and harassment, based on correlation analysis. Work–family conflict, on the other hand, induces mental discomfort among male professionals. [Table S1](#) summarized the identified mental health challenges of construction workers.

Though several studies on mental health in the construction sector and other industries have been undertaken around the world, no studies on the mental health of workers during the COVID-19 pandemic in Nigeria have been conducted, necessitating this study. Based on this background, this study is set to compare construction workers' mental health before and during COVID-19 in Nigeria.

2. Methodology

A cross-sectional survey research strategy was used to solve the research problem in order to attain the study's goal. According to [Bryman \(2016\)](#), this is a quantitative research technique

in which a researcher distributes a survey to a representative sample or the entire population in order to identify the population's opinions, thoughts, behaviours or characteristics. Convenience sampling was used to collect the primary data. The approach is appropriate when there is insufficient information on population size and sample frame. While the findings may not be generalizable, the conclusion may be representative of a large population. The central limit theorem (CLT) proves this. The CLT principle states that as sample size increases, the sample mean distribution approaches a normal distribution (Olanrewaju and Idrus, 2020). For the CLT principle to be valid, a sample size of 30 or greater is statistically required. Following the CLT, which states that a sample size of 30 is appropriate for statistical analysis, the 54 responses for this study are deemed adequate (Darko *et al.*, 2017; Chan and Adabre, 2019; Olanrewaju *et al.*, 2021a, b). Similarly, due to the COVID-19 restriction, which forced many construction sites to shut down, only construction professionals that were accessible and willing to respond to the questionnaire were randomly selected for this study. In order to collect data, a thorough assessment of the literature was conducted before creating a questionnaire survey to gather data and the 35 mental health challenges identified from the literature were used to develop a well-structured, closed-ended questionnaire and distributed online to built environment experts working on construction sites. The survey was open from November 15, 2021 to February 4, 2022. Respondents were asked to rate how often they suffered from mental health challenges before and during COVID-19 on a six-point scale, with "6" denoting "extremely often", "5" denoting "strongly often", "4" denoting "moderately often", "3" denoting "less often", "2" denoting "least often" and "1" denoting "not at all." During the COVID-19, they were also asked to rate the level of mental health support their organization currently provides on a six-point scale, with "6" denoting "extremely frequent", "5" denoting "strongly frequent", "4" denoting "moderately frequent", "3" denoting "less frequent", "2" denoting "least frequent" and "1" denoting "not at all." The acquired data were analysed using descriptive statistical tools such as means and standard deviation. A mean score of 83.5–100 indicates extreme frequency, 66.8–83.5 indicates strong frequency, 50.1–66.8 indicates moderate frequency, 33.3–50.1 indicates less frequency, 16.7–33.3 indicates least frequency and 1.00–16.7 indicates not at all.

An independent sample *t*-test was conducted to determine whether there was a significant difference in the mean before and during the COVID-19 infection. On a continuous variable, the independent samples *t*-test is used to compare the mean scores of two different groups of respondents. The results of the test would reveal whether or not there is a statistically significant difference in mean scores among the clusters (Pallant, 2013). The results of Levene's test for equality of variances are presented in the first section of the independent samples test output box. This determines whether the score variance (variation) is the same for the two groups (before and during COVID-19). If the sig. value for Levene's test is greater than 0.05, the first line in the table, which refers to assumed equal variances, will be used (e.g. 0.06 or 0.20). If the sig. value for Levene's test is less than 0.05 (e.g. 0.01 or 0.04), the second line in the table, which pertains to equal variances not assumed, will be used in the output box, in the region labelled *t*-test for equality of means in the segment labelled sig. (2-tailed). One value represents equal variation, whereas the other represents uneven variance. The value to be utilized from the two is determined by the value of Levene's test result. There is a significant difference if the mean scores on the dependent variable for each of the two groups in the sig. (2-tailed) segment are equal or less than 0.05 (e.g. 0.03, 0.01 and 0.001). There is no significant difference between the two groups if the value is greater than 0.05 (e.g. 0.06 and 0.10) (Pallant, 2013).

3. Result analysis and discussion

Table S2 contains the demographics of the respondents. It was deduced that 57.4% of the respondents fall within the category of the highest officers on construction sites, which are

construction manager and site supervisor. These officers are saddled with the responsibility of coordinating the activities of other construction workers on site, and this put them in the best position to answer the questions correctly based on their broad knowledge of construction sites. It can also be deduced that the respondents cut across various categories of construction workers as the remaining 42.6% were cut across six other positions on site. The table also revealed that 88.9% of the respondents had more than five years of working experience on construction sites, which again validated their eligibility to answer the questions correctly based on their experience.

The table also contained that all the respondents had a minimum of diploma qualification and that 70.4% of the respondents had a higher degree qualification, which again validated their eligibility to correctly answer the questions based on their level of understanding. The table also revealed that all the respondents had their academic background within the built environment. Furthermore, the table revealed that 83.1% of the respondents had at least one safety officer on their construction site, who are saddled with the responsibility of ensuring health and safety compliance and as well giving health and safety briefs on construction sites. This is an indication that the majority of the respondents had knowledge of health and safety and were hence qualified to answer the questions correctly. Finally, the table shows that the questionnaire responses cut across different organizational types, indicating the importance of having opinions from various organizations in order to gain a broad perspective.

Figure 1 shows that a majority representing 31.5% of the respondents agreed that mental health during COVID-19 creates between 31.5 and 40% skill shortages for their current project. It also shows that only 27.8% of respondents indicated that it created less than a 30% skill shortage, while the remaining 72.2% indicated that it created more than a 30% skill shortage. This is also consistent with the findings of Olanrewaju *et al.* (2021a, b), who discovered that COVID-19 has resulted in a 40% skills shortage in most construction companies.

This is actually not surprising as most of the procedures inaugurated to curb the spread of COVID-19 add additional costs to the operative's expenses without any increment in their wages. In most cases, the majority of these operatives were even compelled to half their wages or salaries due to the economic downturn during this period. Hence, the majority of the skill labour prefer not to work rather than working for half or no wages or salary. The issue of movement restrictions during this period also added to the skill shortage as foreign workers were not allowed to migrate, and in extreme cases, some workers were restricted from travelling outside their state. According to Figure 2, 9.3% of respondents said that complying with health and safety standards of procedures (SOPs) as a result of the COVID-19 will reduce project progress or productivity by 30% or less, while the remaining 90.7% said it will reduce project progress or productivity by more than 30%. This is also consistent with the findings of Olanrewaju *et al.* (2021a, b), who discovered that site productivity had been reduced by about 50% on average.

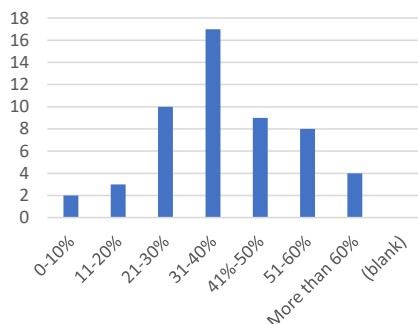


Figure 1. Extent to which mental health has creates skill shortage during the COVID-19

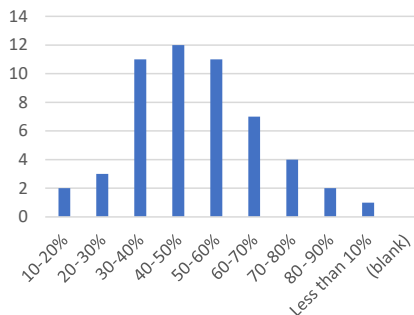
This can be due to many reasons, one of which is a skilled shortage, as indicated in [Figure 1](#). When there is a skilled shortage, productivity will invariably be reduced as there will not be adequate workers to execute the task. Also, one of the reasons for this is the control of crowds on site in compliance with social distancing as part of the SOPs. This in turn will affect the process of work in that a task that requires a minimum of 50 workers at a time, like concrete casting, will have to be done in batches in order to comply with the SOPs. Similarly, the process of disinfecting a surface used by one worker before allowing another worker to use the same surface will invariably increase the time it takes for a task to be completed and, in turn, reduce the project's progress.

In [Figure S1](#), 51.9% of the respondents indicated that workers understand their roles in accordance with health and safety protocols. This is not surprising as 83.1% already indicated in the table that they have at least one health and safety officer on their construction site and one of their responsibilities is to ensure workers are clear of their health and safety responsibilities and, in most cases, remind them of this responsibility frequently.

Some organizations have already introduced incentives as a means of motivating their workers towards these responsibilities. The figure also shows that 46.3% of the respondents indicated that some workers have self-isolated due to health concerns. This is to justify the level of skilled shortage as shown in [Figure 1](#) and their level of compliance with SOPs as shown in [Figure 2](#). It shows that regular check-ups are performed for workers on site and any worker that shows a symptom will have to undergo self-isolation for a certain period. Another 46.3% also indicated that they have had labour shortage relations difficulties. This is also not surprising as it still supports their earlier claim in the figure on skilled shortage. Finally, the figure shows that 44.4% of workers indicated that they are happy to continue working on site. The implication of this is that even though the majority of the respondents indicated that workers understand their roles in accordance with health and safety protocols, some workers still find it difficult to adapt to some of these responsibilities being required of them; hence, they are not happy.

[Figure 3](#) shows the overall average of respondents' answers to how often they suffered from all the 35 identified mental health challenges. It can be deduced from the figure that 3.7% indicated that these challenges were suffered extremely often before as against 6.1% during COVID-19. Similarly, 8.3% indicated that the challenges were suffered strongly often before as against 31.3% during COVID-19. Also, 15.4% indicated that they suffered from these challenges moderately often before as against 28.6% during COVID-19. Equally, 35.5% indicated that they suffered these challenges less often before as against 12.9% during COVID-19. Similarly, 20.5% indicated that they suffered from these challenges least often as against 7.5% during COVID-19. Finally, the figure shows that 16.6% indicated that these challenges were not suffered at all before as against 13.6% during COVID-19.

Figure 2.
Extent to which compliance with health and safety standard of procedures due to the COVID-19 reduces the progress/productivity of project on sites



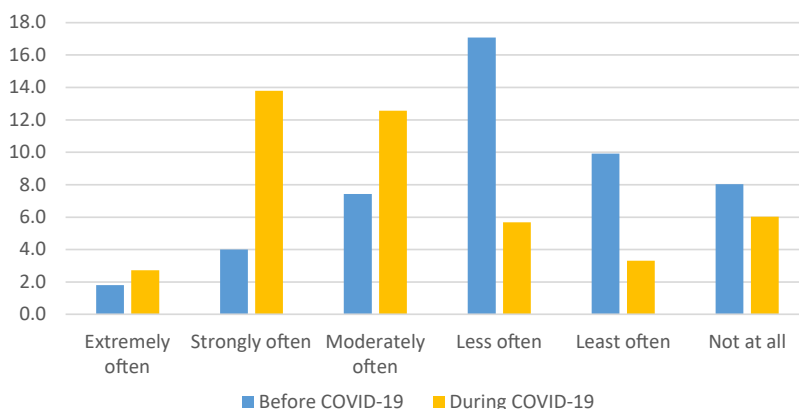


Figure 3. Summary of responses to the extent workers suffered mental health before and during COVID-19

It can be concluded from the figure that mental health suffered more during COVID-19 as all the percentages were higher from extremely often up to moderately often, while the percentages were lower from least often to not at all. Furthermore, Table S3 contains the respondent's opinion on how often they normally experience the 35 identified mental health challenges before and during COVID-19 based on their experience. From the table, it can be deduced that during the COVID-19, only 11.4% of the variables fall between strongly and moderately often, as discussed in the methodology, while the remaining 88.6% of the variables fall between moderately and strongly. The standard deviation for all the variables was also seen to be low, which implies that all the responses were concentrated around the mean. The average of the total mean and standard deviation was 62.5 and 24.6, respectively, which implies that mental health was suffered moderately often. This was in support of Figure 3.

The table also showed that before the COVID-19, only 31.4% of the variables fell between moderately often while the remaining 68.6% of the variables fell between less often. The standard deviation for all the variables was also seen to be low, which implies that all the responses were concentrated around the mean. The average of the total mean and standard deviation was 48.3 and 21.3, respectively. This implies that mental health was suffered less often. This was also in support of Figure 3. The overall mean shows that 94.3% of the variables fall into this moderately often while the remaining 5.7% of the variables fall into this less often. The average of the total mean and standard deviation was 55.4 and 22.9, respectively. This implies that mental health problems were moderately common. Therefore, because of space constraint, only variables that have a mean above the average overall mean will be discussed in this study.

It is not surprising to see that during COVID-19, workers suffer from more stress, which may be due to their difficulty adapting to all of the new SOPs that they were not used to, such as wearing noise cover all of the time in inclement weather, keeping a social distance from others and regular handwashing, among others. The shortage of skilled labour on site, as shown in Figure S1, may also add to their usual task, coupled with the fact that this additional task does not come with any incentive, and this will also reduce the time they have to rest. Similarly, stress was ranked first as the overall mental health issue for construction workers. This is consistent with the findings of Ibem *et al.* (2011), who discovered that stress on Nigerian construction sites is unavoidable due to tight budgets, deadlines, a high volume of work, cramped site offices and a lack of feedback. Feeling overwhelmed is another mental health issue. This is when you feel you do not have enough time to get things done or when you are completely exhausted. This is usually caused as a result of stress outweighing the

coping ability of an individual. This, according to [Nwaogu et al. \(2019\)](#), is also common among construction workers. Next on the list is fatigue. This is also not surprising due to the nature of construction work, which is described by 3D as “dirty, difficult and dangerous” ([Oni et al., 2019](#)). In most cases, workers work under unfavourable weather conditions from the morning till evening, especially during block setting. The average construction worker is required to stand for long hours on site due to the nature of their job. Most of them also find it difficult to rest for a few minutes during working hours in order to meet their daily targets. Another mental health issue is eating too much or too little. When a worker is stressed or feels overwhelmed, they also lose their appetite for food. In most cases, for instance, stressed construction workers will eat too much food to relieve their stress or lose their appetite for food due to the stress. The complexity and energy-consuming nature of construction work also cause construction workers to have unexplained aches and pains after work. Alleviating this pain is one of the reasons construction workers are normally involved in drug abuse ([Roche et al., 2015](#)). Because of the pain and ache, the workers either sleep too much or too little. They sleep too much as a result of drugs taken to reduce the pain, while they sleep too little when the pain and aches are excruciating. Furthermore, these persistent thoughts also set in as a result of unresolved issues on site, an inability to meet the daily target as a result of unforeseen circumstances and some other family issues. According to [Ajayi et al. \(2019\)](#), construction work requires a lot of thinking. Feeling unusually worried is another mental health issue for construction workers. This feeling normally sets in whenever work is not going as planned or when there is a delay in material supply.

Furthermore, construction workers become unpredictable, especially after drinking too much alcohol or drug abuse. It is difficult to tell what they are going to do or how they are going to behave during this period. This is further supported by [Chan et al. \(2020\)](#), which revealed that drug abuse among construction workers is one of the reasons for accidents on site. Another issue is having low or no energy. Whenever a worker is fatigued, they tend to have no motivation and hence no energy to carry out their task. Due to overtime work, [Bowen et al. \(2018\)](#) revealed that having low or no energy is common among construction workers. Next on the table is feeling unusually confused. This also may be due to the complexity of construction work. Most often, construction workers find it difficult to choose the best way to carry out a task out of a pool of options. In a bid to meet the target, anxiety begins to set in as the deadline approaches. This is when a person is concerned, tense or terrified about something that is about to happen or could happen in the future. This is also in line with the findings of [Nwaogu et al. \(2021\)](#), which revealed that anxiety is one of the top mental health issues on construction sites. Feeling hopeless or helpless is another issue. This feeling usually sets in when a worker finds it difficult to think of how to solve a problem; hence, they lose hope and feel despair. Similarly, drug abuse among construction workers can also lead to a lack of emotion. Workers under the influence of alcohol usually lack interest or concern about something; they feel indifference about everything around them. Lack of concentration is another mental health issue faced by construction workers. This is the inability of workers to focus their thoughts on something. This can also lead to accidents or job errors on site. Feeling depressed is another mental health issue. This is a long-term poor mood that interferes with daily functioning. This is also in line with the findings of [Nwaogu et al. \(2021\)](#), which revealed depression as part of the top mental health issues faced by construction workers. Next is the inability to get to work on time. Lateness begins to set in when a worker is having a sleeping disorder or depression. Finally, when a worker is stressed or overwhelmed, that worker will feel unusually upset. This is when a worker will take an offence to any small thing and also feel pissed off easily.

As contained in [Table S4](#), an independent sample *t*-test was used to determine the level of significance between workers’ experience before and during COVID-19. As discussed in the methodology, all variables with a level of significance less than 0.05 show a clear difference in workers’ opinions before and during COVID-19 on construction sites, whereas those with a level

of significance greater than 0.05 show no clear difference in workers' opinions before and during COVID-19 on construction sites. The table shows that only 8.57% have no noteworthy variance, while the remaining 91.43% have a noteworthy variance. The table demonstrated that on construction sites, sleeping too much or too little, having little or no energy, and lacking emotion were all experienced in the same way before COVID-19 and during COVID-19. This suggests that these mental health issues should be taken into account more frequently on construction sites as they are all too common among construction employees.

Lack of feeling, often known as apathy, is a serious mental illness marked by a lack of interest in social or emotional situations (a state of indifferent mood). Apathy is defined as a lack of feeling, interest or care for a specific situation or for life as a whole (Le Heron *et al.*, 2018). Despite the fact that many people only have a limited amount of time, apathy is a long-term symptom related with particular mental states or diseases in the medical sense. While many people experience brief bouts of indifference throughout their lives (e.g. shrugging off disappointment or emotions of "cannot be bothered"), apathy in the medical sense is a long-term syndrome associated with certain mental states or disorder. The World Health Organization (WHO) defines optimal health as "being in a state that maximizes one's capacity for physical, mental and emotional growth." As a result, apathy does not meet the WHO's criteria for good health. Apathy is often confused with depression and vice versa. Apathy is a symptom of depression; however, it differs from depression in that apathetic persons rarely exhibit symptoms of long-term sadness and hopelessness. According to Le Heron *et al.* (2018), apathy is not "normal," and continuous apathy should be considered a neurological or psychiatric symptom, most likely linked to an underlying brain problem. Sleeping too much or too little is another mental health issue that requires care. Too little sleep was defined as four hours or less per night, while too much sleep was defined as ten hours or more per night. According to the National Sleep Foundation, the recommended amount of sleep is seven to eight hours per night. Sleep is important because it allows the body and mind to replenish. A sufficient amount of sleep also aids in maintaining health and preventing disease. The brain cannot function correctly without enough sleep, limiting concentration, clear thinking and memory processing. Another major mental health issue is low energy, which is defined as a persistent condition of lethargy in which one's attitude never rises above usual. The low-energy individual, who is neither thrilling nor dull, perplexes people by being idle and low-key despite continually shifting life situations.

3.1 Research implication and limitation

This research has contributed to the growing body of knowledge on the mental health of construction workers by looking at the construction workers mental health during and before COVID-19 pandemic. The findings of this study would provide an insight for construction managers and other decision-makers on the most critical mental health challenges on construction sites, which will help in an attempt to improve the mental well-being of construction workers.

This study will also serve as a basis on which researchers can consolidate in an effort to develop a model that will help construction stakeholders to improve construction workers mental health. Notwithstanding the study contribution, the study's major limitation is the small sample size; hence, further research may be conducted with a larger sample size. Similarly, further longitudinal research needs to be carried out to validate the result of this research; also similar research needs to be conducted in other countries where COVID-19 is more predominant.

4. Conclusion

This research is one of its kind in comparing the mental health of construction workers before and during the COVID-19 pandemic in Nigeria. The study revealed that the rate at which

construction workers suffer from mental health problems is comparatively high during COVID-19 compared to what they suffered before COVID-19. Stress, feeling overwhelmed, feeling unusually confused, fatigue and unpredictable were suffered more during the pandemic while fatigue, feeling overwhelmed, sleeping too much or too little, stress and having low or no energy was more prevalent before the pandemic. The result of the independent sample *t*-test revealed a significant difference in how construction workers suffered some mental health challenges, as only 8.57% showed no significant difference. This implies that construction workers suffered more from different mental health challenges during COVID-19 as against what they suffer before the pandemic. The reason for this may be due to the measures put in place in an attempt to curb the spread of COVID-19 on construction sites, such as social distancing, wearing noise cover and using hand sanitizer, among others, all which are difficult for construction workers to practise easily due to the nature of their work. Evaluating the mental health challenges of construction workers in an attempt to implement strategies to promote the mental health of construction workers remains a necessity with prospective advantages for workers, organizations and society given that the construction industry is a significant provider of jobs as well as contributes to the gross domestic product of any country.

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Supplementary material

The supplementary material for this article can be found online.

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