
ASSESSING THE IMPACT OF SUBSTANCE ABUSE ON CONSTRUCTION PROJECTS IN JOS, NIGERIA

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ABSTRACT

The use of drugs and other related substances in the construction industry is fast becoming a serious challenge. These substances when abused could have negative impact on the psyche of workers which affects the success of construction projects. This study therefore assesses the impact of substance abuse on construction projects with view to suggest possible measures for ameliorating those impacts towards successful project management. Questionnaire was used in collecting the data; mean score and charts were the instruments used in analysing the data. The major causes of substance abuse on construction sites were the stress of working long hours and pressure to meet up with strict deadlines. Substances commonly abused were locally brewed beer (burkutu), cannabis and prescription drugs such as emzol and tutoline. The rate of substance abuse among construction was adjudged to be high. Substance abuse affects workers' ability to achieve project specifications, compromises clients' satisfaction, causes cost and time overruns. The study suggests developing workplace drug and alcohol policies, pre-employment and random testing of workers and harsh punitive measures for offenders as effective strategies against substance abuse on construction sites in the study area.

Keywords: Assessing, Construction, Drug Abuse, Impact, Nigeria.

1. INTRODUCTION

One key industry that contributes much to the provision of shelter, infrastructure, employment and socioeconomic development of a nation is the construction industry (Ntili, Emuze and Monyane 2015). However, these benefits may not be fully achieved if the factors that interfere with the smooth day-to-day running of activities on construction sites are not adequately dealt with. Substance abuse is one of the factors that affect workplace productivity through disruption of coordination and judgement, delays and absenteeism, increased risk of accidents among workers, increased fatigue due to hangover and instant mood swing resulting into conflict with coworkers, problems with job tasks and customer relations (Chris, 2022). The abuse of substances and other related drugs in workplace such as construction sites may affect the overall project outcome as well as the capacity of the employer to actively compete in the construction market.

Substance abuse refers to the use of harmful products such as drugs and alcohol among others for the purpose of altering one's mood in a given period (McLellan, 2017). The use of drugs and related substances in the construction industry is high because of the nature of construction activities which include high hazard tasks necessitating workers to use drugs in order to ease workplace stress. In addition, the energy-demanding nature of construction makes workers to resort to substances such as alcohol and other drugs like marijuana or cocaine as coping strategies (Landmark Recovery, 2020). Workers handling heavy equipment and those working in high-risk areas such

as masonry and concreting sections are prone to fatigue and stress. These categories of workers often use prescribed drugs (such as opioids) and other non-prescribed substances for recreation and to relief pains. Many of these drugs are addictive in nature, and if overused, it becomes difficult to quit. Studies have reported that substance abuse in workplace such as construction sites is on the increase and that it has tremendous impact on the success of project objectives (Rohini and Ajayakumar, 2019; Mushi and Manege, 2020; United Nation Office of Drugs and Crime, 2021).

Strong correlation has been established between substance abuse, high rate of accidents and low productivity among workers on construction sites. Substance abuse has also been linked with health related issues such as depression, mental health, heart disease, withdrawal syndrome and other psychosocial dysfunctions in workplace such as construction. Furthermore, substance and drug abuse by workers may have tremendous impact on construction business ranging from low productivity, high rate of injuries at work and increase in health insurance claims which adds to overall project cost (Buddy, 2022). The use substances such as marijuana, which is known to be high among youths, has been found to cause short-term memory loss, learning difficulty, psychomotor skills, motivation and psychosexual/emotional development which have negative impact on the health and wellbeing of consumers (Kamlesh and Soma, 2016).

The problem of drug abuse on construction sites is a global phenomenon and the trend is becoming alarming and worrisome. This is exacerbated by the nature of construction workplace which makes it susceptible and vulnerable to the use of drugs and related substances (Mushi and Manege, 2018). A study on substance use disorder by industry had pegged the construction industry as the second highest with 14.3% behind the accommodation and food services industry with 16.9% (Kollaer, 2017). In Nigeria, it had been reported that the proportion of construction workers with documented drug-related psychiatric disorder, excluding dementia increased from 25 to 34 percent between 2013-2017 (Oraegbune, Adole and Adeyemo, 2017). Given the increasing level of drugs and substance abuse among construction workers the construction industry needs adequate innovative measures for managing drug abuse on sites to prevent severe accidents and losses both in terms of human and material resources.

Effective measures for preventing the menace of substance abuse on construction sites must be holistic: the causes among construction workers must be clearly identified, and its impacts on construction projects as well as measures for addressing them must be clearly assessed and evaluated. There are several studies on drug abuse in Nigeria, but few concentrated on the construction industry. For instance, the perception of substance abuse on productivity of workers on construction sites has been investigated (Bamgbade, Amos, Okosun and Akanbi, 2018); the consequences of psychotropic drugs on construction industry workers had been studied (Oraegbune, Adole and Adeyemo, 2017); Flanner, Ajayi and Oyegoke (2019) had investigated alcohol and substance misuse in the Nigerian construction industry in general; On-site waste generation among drug abuse artisans had also been assessed (Haruna, Yamusa and Jibasen, 2022). Despite these studies, impacts of substance abuse on specific objectives of construction projects have not been thoroughly investigated, hence scientific evidence remains scanty and most of the information is reported by the media (Jatau, Sha'aban, Gulma, Shitu, Khalid, Isa, Wada & Mustapha, 2021). This study therefore, investigates the causes of substance abuse as well as its impact on the achievement of specific objectives of construction projects in Jos, Nigeria. This study seeks to provide answers to the following questions: What are the causes of substance abuse among workers on the construction sites in Jos? What are the major substances commonly abused by workers on construction sites in Jos? and How does substance abuse impact on the success of construction projects in Jos?

This research aimed at assessing the impact of substance abuse on construction projects with the view to developing strategies for ameliorating the menace towards successful project management. The objectives of the study were to:

1. Determine the causes of substance abuse among workers on the construction sites in Jos.
2. Identify the major substances commonly abused by workers on construction sites in Jos.
3. Examine the effects of substance abuse on the objective of construction projects in Jos.

2. LITERATURE REVIEW

2.1 The concept Substance Abuse

The surge in the abuse of drugs and other related substances in recent times across the globe is alarming (Bamgbade, et al, 2018). Drugs are substances that interfere with the functioning of our bodies, be it mentally, physically or emotionally. Most of these drugs are addictive; although no drug leads to immediate dependence, frequent use can. Drug use reaches addictive level when the user has little or no control over it and can no longer stop taking drugs; the dependency can be physical, psychological or both (Dumain, 2022). The use of drugs and other related substances such as alcohol and tramadol affects the performance of persons at workplace and also puts the safety of the user and other workers or the general public at great risk. Alcohol or drug use at workplace can increase the risk of problems such as absenteeism, workplace violence and inability to pay attention to details (Generes, 2020).

The major challenges to understanding drug abuse relate to the component words “drug” and “abuse”. First, there is no global consensus on what constitutes a “drug”; the question as to whether certain substance is illegal is a function of the environment because what is illegal in one country might be legal in another. For instance, while many countries officially consider nicotine which is an intoxicating drug as illegal, it is not so in other countries. Secondly, there is no globally accepted standard of use for any substance and at what quantity should a drug or substance be considered as abuse is unclear. In addition, there are cultural variations as to what constitutes drug abuse across the globe. Hence, what is considered an illegal drug and the level it becomes abusive depends on the environment. These illegal drugs activate the reward system in the brain which maintains the behaviour and reinforces it; their level of activation is so intense that they cause severe impairments in the normal functioning of the brain (Sajad, 2017).

2.2 Common causes of substance abuse on construction sites

The common causes of drug abuse on construction sites are grouped into two – those directly related to the worker and those related to the construction environment (Mushi and Manege, 2018). Direct related reasons are those termed as coping strategies which include the need to increase concentration, boost self-confidence, induce strength, reduces anxiety and tension. These reasons explain why alcohol and substance abuse is a popular alternative for many. The work environment related causes include traditions and customs, personal lifestyle, and peer pressure. Workers may also get into substance abuse such as excessive consumption of alcohol due to the nature of construction work which entails coming in contact with hazards on a daily basis (Biggs and Williamson, 2012). Dissatisfaction of construction workers owing to disharmony and conflict in addition to non-appreciation of their efforts on site may trigger alcohol and substance misuse. Other factors contributing to substances abuse on construction sites include physiological effects relating to self-esteem and dissatisfaction with one’s own work and lack of job security (Joseph, Saheed and Adekunle, 2019).

Rohani and Ajayakumar (2019) reiterated that substance abuse among employees on construction sites is influenced by harassment/victimization of workers, less support from management, uncomfortable work position among others. Laad, Adsul, Chaturvedi and Shaik (2013) also reported that individual attitudes of workers and beliefs, social norms, affordability, acceptability, availability, low cost and advertising campaigns may trigger the desire to engage in drugs. In addition, drug and alcohol policies vary from sites to sites; the knowledge of the workers as to the existence of these policies varies so also the degree of enforcement of the policies. These influence the use of drugs by construction workers on sites. Furthermore, due to peer and social pressure, young and “upwardly mobile” employees try drugs to fit in or be accepted by peers, relief loneliness and deal with lack of self-confidence (Armstrong, 2014). Consequently, peer pressure is regarded as one of the factors responsible for abusing drugs and related substances among the youths.

2.3 Substances Commonly Abused on Construction Sites

The substances usually abused by construction workers are generally referred to as Psychotropic Drugs. These are chemical substances such as alcohol, caffeine, nicotine, marijuana, and certain pain medicines that affect how the brain works and causes changes in mood, awareness, thoughts, feelings, or behavior (Ghosal, 2019). The drugs commonly abused by construction workers can be grouped into psycho-stimulants and Psycho-depressants. Psycho-stimulants are drugs that elevate the mood, producing feelings of excitement, feeling good and euphoria. Stimulants give construction workers an adrenaline rush often followed by a crash and they induce temporary improvements in either mental or physical function or both. Heavy use of stimulants such as caffeine, nicotine, tramadol, marijuana, “burukutu” among others results in paranoia, restlessness, fidgetiness (constant body movements), apathy and irritability (Oreagbune, Adole and Adeyemo, 2017).

Psycho-depressants on the other hand, can calm the brain, cause sleepiness, and make the person relaxed but can also cause nightmares, aggression and anxiety (Fletcher, 2022). This class of drugs exact their effects through a number of different pharmacological mechanisms such as slowing down the central nervous systems and most construction workers abusing psycho-depressants may exhibit signs of chirred speech drowsiness, confusion and impaired coordination, poor concentration, slowed pulse and low blood pressure (Oreagbune, Adole & Adeyemo (2017). These have tremendous consequences on the performance of construction workers as well as the objectives of construction projects and must be adequately assessed and addressed for effective project management.

2.4 Impacts of Substance Abuse on Success of Construction Projects

Substance abuse affects project success in diverse ways ranging from the project itself to the environment. One effect of substance abuse on project objectives is cost overrun which is a common problem in the construction industry. Anisha&Yong-Cheol (2020) stressed that, on sites where workers use drugs and other related substances the problem of cost overrun gets worse. The major drug-related causes of cost overrun include delay in construction due to low productivity, compensations and insurance claim, increased health care expenses, training of new employees among others. Substance abuse also impact project safety as well as those of the operatives. Safety risk is higher as workers perform life-threatening jobs under the influence of drugs such as working at reasonable heights, using dangerous tools, and moving heavy equipment around the job site.

Abuse of substances at work interferes with proper functioning of the brain by changing other chemical systems which hurt the judgement, decision-making, memory and the learning ability of the user thereby increasing the likelihood of mistakes through the loss of spatial awareness and control of the body (Dumain, 2022). The quality of work gets hampered due to lack of consciousness and accuracy resulting to shoddy work and in extreme cases, rework of certain building elements (Anisha &Yong-Cheol, 2020). Some drugs such as opioids have sedative qualities that impair the ability to think thereby interfering with the performance of the abuser. Employees who abuse drugs on construction sites are more than three and half times likely to have on-the-job accidents and five times more likely to be involved in an off-the-job accident which affects workplace performance rendering them less productive than their nondrug-abusing colleagues (Nova Recovery Centre, 2018). Loss of productivity from drug-abusing employees could also be due to tardiness/sleeping on the job, hangover or withdrawal syndrome which affect job performance, poor decision making, low morale, increased likelihood of having trouble with coworkers/supervisors or tasks, preoccupation with obtaining and using substances while at work, interfering with attention and concentration, too many errors at work, increase in the number of injuries among others (Anisha & Yong-Cheol, 2020)

3. METHODOLOGY

3.1 The Study Area

Jos is a city in North Central of Nigeria. The city has a population of about 900,000 residents based on the 2006 census. It is the administrative capital and largest city of Plateau State. Jos is located on the Jos Plateau at about 1,238 metres or 4,062 feet above sea level. During British colonial rule, Jos was an important centre for tin mining and is the trading hub of the state as commercial activities are steadily increasing. The city is divided into 3 local government areas of Jos North, Jos South and Jos East. The city proper lies between Jos North and Jos South. Jos East houses the prestigious National Center for Remote Sensing. Jos north is the state capital and the area where most commercial activities of the state take place, although due to the recent communal clashes a lot of commercial activities are shifting to Jos South. The recent politico-religious crisis has led to a religious based way of settlement with many construction activities (both residential and commercial) springing up as people relocate to areas of religious advantage. Consequently, numerous construction activities are going on at the fringes of Jos city which necessitates the investigation of the impact of substance abuse on these construction projects.

3.2 Population and Sample Frame

This study explored the perceptions and understanding of the theories on causes and effects of substance abuse on construction sites. The population of the study comprised of skilled and unskilled workers on construction sites in Jos, but the sample frame consisted only of site managers, bricklayers, masons, machine operators and labourers out of which the study sample was drawn using the multi-stage sampling technique. The need to first identify the Project managers, Bricklayers, Masons, Machine operators and Labourers from the pool of construction workers on site before selecting the study sample from these categories of operatives led to the choice of the multi-stage technique. The Nigeria construction industry faces the challenges of inadequate record keeping especially with respect

to human resources. Consequently, the total population for this study was unknown, so to determine the sample size for administering the questionnaire, a formula proposed by Cochran (1963) was used thus:

$$N = \frac{Z^2(pq)}{e^2}$$

Where: n = Sample size;
e = Maximum estimation error accepted;
Z = Statistical parameter that depends on the confidence level
P = The numerical probability of success
q = 1-p the numerical probability of failure

For this study, the following parameters were used:

Confidence level: 90%
p = 0.7
q = 1-0.7= 0.3
z= 1.645, for confidence level of 90%
e= 0.1

This implies that $n = \frac{(1.645^2)(0.3)(0.7)}{(0.1)} = 56.82$;

Therefore, the population size for this study is 57 respondents.

3.3 Instruments for data collection and analysis

This study examines the impact of drugs abuse on construction projects which is basically a relational study aimed at determining the outcome of project objectives as a results of substance abuse on sites. The study therefore adopted the deductive approach (usually associated with quantitative research) used for establishing casual relationships between variables (Saunders, Lewis and Thornhill, 2009). Deductive approach, been quantitative in nature, the study therefore adopted questionnaire for data collection. In the field of construction management, questionnaire is a useful instrument for obtaining information from stakeholders in relational studies in which opinions of experts are very essential as in this study (Sanda, Anigbogu, Izam and Datukun, 2021).

Structured questionnaire was used which targeted information associated with the demographics of the respondents (gender, age, academic qualification and years of experience), causes of drug and substance abuse on construction sites in the study area and the effects of substance abuse on objectives of construction projects. These variables were sourced from existing literature and the respondents were required to rate them on a 5 point Likert Scale. The data obtained were analysed using mean rating and charts. Mean rating makes use of values assigned to factors or propositions to calculate their mean scores by all respondents of the survey. This technique was used to analyse the respondents' opinion on the major causes of substance abuse, the substances commonly abused by workers on sites and the effects of substance abuse on project objectives.

4. RESULTS AND DISCUSSION

4.1 Demographic Information of Respondents

The respondents' demographics were investigated with the view to determine the reliability or otherwise of the information supplied and the result is presented in Table 1. In terms of age, 43.6% of the respondents were between ages 26-35 years, 40.0 between 15-25 years and 11.0% were between ages 36-45 years. In relation to educational qualification, 36.4% had Diploma/NCE, 29.0% had Technical Certificates while 27.3% had Bachelor degrees; 38.0% of the respondents were Labourers in various sections, 27.2% were Masons and 18.2% were operators. Work experience of the respondents showed that 78.2% have put up about 15 years in construction while 21.8% had over 16 years of experience in the construction industry. The results indicated that the Nigerian construction industry is characterised by youthful workers with the requisite qualifications and experience to supply valid information for the study.

Table 1: Information of respondents

Item	Frequency	Percentage
Age of Respondents		
15 -25	22	40.0
26 – 35	24	43.6
36 – 45	06	11.0
46 -55	02	03.6
> 55	01	01.8
Total	55	100
Educational Qualification		
Technical Certificates	16	29.0
Diploma/NCE	20	36.4
Bachelor Degree	15	27.3
M. Sc/M.Tech	03	05.5
Ph.D	01	01.8
Total	55	100
Position on Site		
Labourer	21	38.0
Operator	10	18.2
Project Manager	09	16.6
Mason	15	27.2
Total	55	100
Years of Experience		
01-05	24	43.7
06-10	13	23.6
11-15	06	10.9
16-20	05	09.1
>20	07	12.7
Total	55	100

4.2 Causes of Substance Abuse on Construction Sites in Jos

The abuse of drugs and other substances is caused by certain factors which vary between projects as well as the operating environment. The causes of substance abuse on construction sites in Jos were investigated and the result is presented in Table 2. The stress of working long hours (4.15), pressure to meet strict deadlines (4.12), lack of education among workers (4.02) and Availability and affordability of alcohol and drugs (3.89) were rated as the major causes of substance abuse on construction sites in Jos. Dissatisfaction with work environment (2.69), absence of recreational facilities (2.65), unhygienic working environment, discrimination (1.88) and prejudice at workplace (1.78) were rated as the least caustic factors.

Construction is labour intensive in nature and most times project managers insist on labourers working longer hours on sites to meet up with predetermined datelines. Similarly, some project durations are highly tight and unrealistic hence project managers overwork construction workers to deliver projects within schedules. Bowen, Edwards, Lingard and Cattell (2014) had earlier reported that construction workers use intoxicating substances not only for recreation but also to cope with the strenuous nature of construction work and time taken at work. The quest to meet up with work demand necessitates workers to resort to abuse of substances on sites to boost their energy levels. An examination of the relationship between hardness of job and level of drug abuse on construction sites revealed that the number of substance abusing workers in heavy duties and high risk areas such as concreting section and masonry was higher compared to those in carpentry and painting (Mushi and Manege, 2018). A positive relationship between working long hours and substance abuse on construction sites had earlier been reported (Armstrong, 2014).

Table 2: Causes of Substance Abuse on Construction Sites

Caustic Factors	Mean	SD	Rank
The stress of working long hours	4.15	0.90	1 st
Pressure to meet strict datelines	4.12	1.26	2 nd
Lack of education among workers	4.02	1.11	3 rd
Availability and affordability of alcohol and drugs	3.89	1.16	4 th
Absence or inadequate policies against drug abuse on construction sites	3.82	0.87	5
Exposure to inclement weather conditions	3.80	1.08	6 th
Social and peer pressure	3.65	1.39	7 th
Workplace culture	3.50	1.49	8 th
Lack of work supervision by management	3.50	1.21	9 th
Poverty	3.41	1.34	10 th
Workplace induced depression	3.36	1.49	11 th
Enticing advertisement by manufacturing companies	3.13	1.12	12 th
On-site disharmony and conflict	3.99	1.47	13 th
Lack of job security	2.87	1.37	14 th
Inadequate communication on site	2.70	1.21	15 th
Dissatisfaction with work environment	2.69	1.53	16 th
Absence of recreational facilities	2.65	1.35	17 th
Unhygienic working environment	1.88	1.42	18 th
Discrimination and prejudice at workplace	1.78	1.24	19 th

Furthermore, workers on many construction sites are not learned and so lack basic knowledge about health and drugs; hence their ignorance about the negative effects of drugs on their health contributes to the abuse of substances on sites. Workers with lower understanding of the risks of drug abuse have high tendencies of misusing drugs and other related substances on construction sites (United Nations Office of Drugs and Crime [UNODC], 2021). Similarly, it has been reported elsewhere that, majority of employees that engaged in substance abused were found to be those that do not have enough knowledge of the impact of drug abuse on their physical performance (Ntili, Emuze and Munyane, 2015). The need for advocacy programmes on the effect of substance abuse becomes imperative especially to construction sites workers. Project managers can reduce drug abuse on sites by creating awareness among workers regarding the side effects of drug abuse through regular site briefings, banners, and flyers depicting the health hazards of drug abuse. The availability and affordability of drugs and other substances such as alcohol (both synthesised and locally brewed), tramadol and marijuana also contribute to drug abuse among workers on construction sites. Government can intensify high technology surveillance in addition to imposition of stringent measures on drug peddlers to reduce the supply while clients and contractors can impose heavy fines on drug abusers in order to cut down the demand and subsequently eliminate substance abuse on construction sites.

It is worthy of note that although dissatisfaction with work environment, absence of recreational facilities, unhygienic working environment and discrimination and prejudice were rated low at workplace, it does not indicate that they are less important. Elsewhere, harassment/victimization along with uncomfortable work position and unhealthy environment were reported as major causes of substance abuse on construction sites (Rohini and Ajayakumar, 2019). The legality or otherwise of a substance is contextual and is a function of the environment which could explain the low rating of these factors. In attempt to curb drug abuse on construction sites therefore, these factors should be given adequate consideration for any meaningful success. There is the need for creating a conducive working environment devoid of undue pressure and tension in order to minimise the desire to engage in the use of drugs among workers. Proper project planning and control would ensure projects are executed as planned; these would reduce excessive work pressure owing to the need to overwork operatives in order to meet up with specific datelines.

4.3 Substances Commonly Abused on Site by Construction Workers in Jos

Different substances exert different effects on the users, hence there was the need to investigate the kind of drugs and other substances commonly abused by employees on various construction sites and the results are summarised in Table 3. The result indicated that alcohol (4.30), locally brewed beer (*Burkutu*) (4.11), cannabis (4.03) and opioids such as tramadol and codeine (3.90) were the substances commonly abused on construction sites in Jos. Interestingly, cocaine (2.58), hallucinogens (2.56), caffeine (2.48), anabolic steroids (2.33) were the least substances abused on sites.

Availability and affordability of drugs and related substances have been reported as key motivators for drug abuse among construction workers. Alcohol, *buruku*, Cannabis as well as tramadol and codeine are all local products; they are easily available, accessible and at cheaper prices that construction workers can afford. Coincidentally, they are the substances commonly abused on construction sites in Jos. This confirms the report by researchers that that alcohol and cannabis are the most commonly used drugs on construction sites in Nigeria and that workers smoke cannabis in workplaces as a mode of motivation to work (Armstrong, 2014; Oraegbune, Adole & Adeyemo, 2017; Frank & Sylvester, 2018).

Table 3: Substances Commonly Abused on Construction Sites

Substance	Mean	SD	Rank
Alcohol	4.30	0.97	1 st
Locally brewed beer (Burkutu)	4.11	1.11	2 nd
Cannabis ('wee-wee'/ "marijuana")	4.03	1.13	3 rd
Opioids (e.g. tramadol, codeine)	3.90	0.12	4 th
Cigarette	3.89	1.17	5 th
Cough Syrup	3.85	0.28	6 th
Sniffing of septic tanks	3.84	1.32	7 th
Heroine	3.78	1.21	8 th
Prescription Drugs	3.74	1.22	9 th
Cocaine	2.58	1.14	10 th
Hallucinogens	2.56	1.34	11 th
Caffeine	2.48	1.23	12 th
Anabolic steroids	2.33	1.42	13 th

The Culture of the host environment has a telling effect on the use of drugs at workplace and in some cultures in Jos for instance, the consumption of certain substances especially locally produced drinks such as *buruku* are not prohibited which inform the high use of local contents on such construction sites. Likewise, alcohol abuse was found to exist in all construction sites in Tanzania due to acceptability, easy access to local brews, ability of workers to tolerate side effects of alcohol and fear of the impact of synthetic drugs (Mushi & Manege, 2018). Many construction sites in Jos have no barricades and workers are not checked when coming in or going out. Consequently, workers or even drug peddlers smuggle in substances into such construction sites with ease without the knowledge of the project managers or site supervisors. Workers can be enlightened on the side effects of these local products which are been regarded as less harmful and their production and distribution should be discouraged through heavy taxes and other effective measures. The culture of stopping and searching of workers on entry to construction sites could be introduced in order to reduce access to these local substances so as to minimise (if possible, eliminate) the consumption of these local substances commonly abused on sites.

The low rating received by cocaine, hallucinogens, caffeine and anabolic steroids may not be unconnected with unavailability of the substances and the perception of the respondents with respect to what constitute drug or substance abuse. Cocaine is a controlled drug, very difficult to procure and highly unaffordable especially to the low class such as construction workers (especially labourers) which explains the low rating. Anabolic steroids are prescription medicines that are sometimes taken without medical advice which are available and easily accessible so also Caffeine which is a natural stimulant found in tea and coffee plants. These classes of substances are consumed daily by workers but because they are not considered as harmful products, they are not considered as substance abuse. The control of drug abuse must be holistic; programmes aim at eliminating substance abuse must consider all forms of substances which consumption is detrimental to the health of the users no matter how negligible the impact.

On the rate of substance abuse among workers on construction sites, 40% of the respondents said it was high, 29% termed it as average, 25.5% posited that it was very high, while 5.5% said it was low (Figure 1). The result shows that substance abuse on construction sites in Jos is high. Education is one of the key influencing factors in determining the level of drug use. Although the background information of the respondents (Table 1) indicated that 29.0% have at least Diploma Certificates, these qualifications were rarely drug related. In addition, majority of the casual workers who are mostly involved in substance abuse are semi-illiterates with no or little knowledge on the effects of drugs abuse. This explains the high use of drugs on those construction sites. A study elsewhere had also reported that, the rate of substance abuse is high among construction workers (Kikwasi, 2015). Interestingly, this was among the less educated and those involved in high risks and difficult-level jobs. Educating the workers on the dangers

of substance abuse by way of graphic displays such as flyers and posters would help in reducing the level of use and abuse of drugs on construction sites.

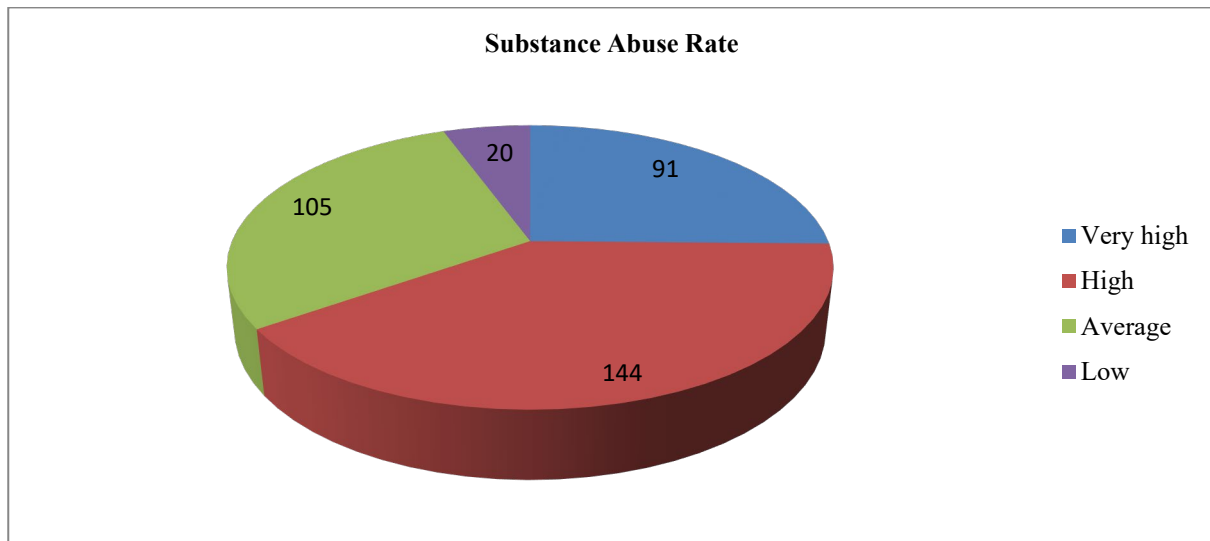


Figure 1: Rate of Substance abuse among workers on Construction Sites

4.4 Effect of Substance Abuse on the Success of Construction Projects

The results of the impact of drug and substance abuse on construction projects are shown in Table 4. Inability to achieve project specifications (4.41), compromised client satisfaction (4.21), late start of daily activities (4.10) and Low quality of work (4.09) were the main impacts of drug and substances abuse on construction projects in Jos. However, increased cost of projects (3.56), delays towards meeting datelines of planned activities (3.54), lowered productivity of workers on site (3.40) and high cost of insurance to cover workers indemnity (3.20) received the least rating.

Construction is a teamwork which requires the inputs of various professionals in the built environment; where there is conflict among the workers on site, it becomes extremely difficult to achieve project objectives. Drug abuse at workplace breeds violence (Generes, 2022) which affects harmonious working relationship of workers on construction sites. In addition, it also impairs the vision of construction workers thereby affecting their ability to follow either verbal or written instructions. In a similar study by Bamgbade, et al. (2018) inability of workers to follow instruction received the highest ranking among the impact of drug abuse on construction site workers. These manifest in poor quality work which compromises client satisfaction resulting to court litigation in some cases. This agreed with the finding by Oraegbune, Adole, and Adeyemo (2017) that a lot of works on construction sites are poorly executed because of drug abuse. Furthermore, errors resulting from substance abuse may lead to rework which increases project cost due to wastage of materials thereby increasing the overall project costs. Due to hangover, workers report late to work and in extreme cases outright absenteeism resulting to late starting of daily activities which translates into delays in meeting deadlines and project time overruns. Low productivity, cost overruns, legal issues and absenteeism had earlier been reported as some of the major impact of substance abuse on construction projects (Deria and Lee, 2020). Construction firms must adopt decisive measures for eradicating substance abuse among workers such as mandatory drugs tests during recruitment to ensure only non-drug users are taken and punitive measures should be taken on offenders such as suspension from work, salary deduction or heavy fine in order to deter intending users from involvement in drugs.

Table 4: Effects of Substance Abuse on the Success of Construction Projects

Effects	Mean	SD	Rank
Inability to achieve project specifications	4.41	0.97	1 st
Compromised client satisfaction	4.21	1.14	2 nd
Late start of daily activities	4.10	1.17	3 rd
Low quality of work	4.09	1.12	4 th
Waste of time and materials	3.94	1.17	5 th
Errors leading to rework	3.90	1.28	6 th
Shortage of materials due to theft	3.83	1.01	7 th
High rate of staff turnover	3.74	1.26	8 th
Increased cost of projects	3.56	1.16	9 th
Delays towards meeting datelines of planned activities	3.54	1.24	10 th
Lowered productivity of workers on site	3.40	1.22	11 th
High cost of insurance to cover workers indemnity	3.20	1.22	12 th

The findings of this study further indicated that, the inconsequential impact of drug abuse on construction were increased cost of projects, delays towards meeting datelines of planned activities, lowered productivity of workers on site and high cost of insurance to cover workers indemnity. Delays in reporting to work or absenteeism may not have been significant because of the high level of unemployment and the difficulty of accessing jobs in Nigeria which make employees including drug users to take their jobs very serious which explains the low rating. In addition, the insurance market in many sub-saharan countries including Nigeria is weak and less developed such that realising claims for indemnity is very difficult which discourages stakeholders from taking insurance cover for construction workers. However, the finding was in contrast with the findings Aneisha and Yong-Cheol (2021) which reported cost overrun as one of the major impacts of substance abuse on construction projects. The cost items that were identified include delays in the delivery of projects due to low productivity among construction workers and compensation due to insurance claims which indicated that drug abuse can also have a significant impact on the objectives of construction projects, especially the overall budget. Clients, contractors as well as site managers must ensure that substance abuse on construction sites is minimised or eliminated to guarantee the delivery of construction projects within cost and budget.

5. CONCLUSIONS

The study assessed the impacts of substance abuse on construction projects in Jos, Nigeria by identifying the causes, substances commonly abused and the effects of abusing such substances on the objectives of construction projects. Determining the impact of substance abuse on specific project objectives would broaden the knowledge base of project managers and stakeholders to appreciate the fight against drugs and related substances especially on construction sites for effective project delivery. The main causes of substance abuse among construction workers were found to be linked with the working environment and the structure of the projects which borders on number of hours spent on site, the need to meet up with planned deadlines, workers' level of education and training; and the ease of access to and affordability of alcohol by site workers. This is an indication that substance abuse can be prevented or mitigated when construction projects are adequately planned and the environment made conducive to workers. The rate of substance abuse on construction sites is high and the substances commonly abused on construction sites were those easily available or locally sourced by workers which suggested that abuse of substances and related drugs can best be controlled from the point of production by adequate and effective policies. The study also showed that, on construction sites where substance abuse is prevalent, project specifications are compromised which affects client satisfaction. In addition, project delivery dates are rarely realised as daily activities often start behind schedule leading to time overruns. Working under the influence of drugs also increases the chances of accidents among workers especially those working at substantial heights and operators of heavy duty and complex equipment. This study has brought to the fore the causes of drug abuse, substances commonly abused on construction sites in Jos and the effects of drug misuse on specific objectives of construction projects which would be useful to construction professionals, stakeholders as well as research students in related fields. Substance therefore needs to be properly controlled on construction sites in order to boost the success of construction projects. This could be achieved by making substance abuse control plan a mandatory document when bidding for contracts and providing evidence of implementation a necessary requirement before payments are made.

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