



Psychosocial Correlates of Psychoactive Substance Use among Pregnant Women

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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ABSTRACT

There is paucity of studies on psychoactive substance use among women in their reproductive years in low and middle-income countries. With this scenario, the preventable consequences of substance abuse on the pregnant woman and unborn child have not received adequate attention in the healthcare systems. This study aimed to determine the psychosocial correlates of substance use among women attending antenatal services at a tertiary hospital in southwestern Nigeria. One hundred and thirty pregnant women attending the antenatal clinic were recruited using systematic random sampling method between March and April 2015. The researchers designed a proforma containing sociodemographic, pregnancy-related and clinical variables. The ASSIST was used to determine the prevalence of lifetime and current psychoactive substance use while General Health Questionnaire-12 (GHQ-12) was administered to screen for psychological distress among the pregnant women. Fifty-three (45.4%) had used at least one psychoactive substance in their lifetime while 22(16.9%) were current users. Prevalence of current use for alcohol was 9.2%, sedatives/sleeping pills 8.5%, pain medication (narcotic analgesics) 2.3%, tobacco and stimulants 1.5% each. History of father's alcohol use, parity, gravida and medical conditions were all associated with substance abuse in the respondents. About half of the respondents in this study use psychoactive substances. There is a need for the introduction of drug abuse prevention and intervention strategies into maternal and child health services.

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1. INTRODUCTION

Psychoactive substance use is a global issue, and the enormous negative consequences arising from it is of concern to the government of nations, parents, guardian, religious organizations, school authorities, medical personnel and researchers [1]. Substance use negatively affects the career, interpersonal relationships as well as behavior in diverse ways [2]. Studies on psychoactive substance use in different groups of people abound in the literature. These include medical students [3-5], undergraduate [6-9], secondary school students, [10,11], commercial sex workers [12], and people with psychiatric disorders [13]. Identified consequences among the different groups include poor academic performance, truancy, dropping out of school, incarceration, road traffic accidents, loss of job, broken marriages, increased risk of contracting blood-borne diseases and increased risk of developing non-communicable diseases like coronary heart disease.

Men tend to use psychoactive substances more than women, the use of psychoactive substances among women is on the increase [14]. Recent studies have focused on differences between men and women in terms of reasons for drug use, types of drugs use, pattern of use i.e. frequency and quantity, adverse effects of drug use, how they present and progress in treatment, factors causing relapse and the kind of perception the public has towards women who use drugs [14]. Alcohol and tobacco use is more common among men; however, the wide gap in the prevalence is narrowing down especially in the young age group [14]. It is noted that women are more likely to take prescribed psychotropic drugs than men and consequently die more from antidepressants than men [15]. Women are also more likely to initiate drug use on account of relationship difficulties than men [1,14]. Exposure to violence and victimization in an intimate relationship also lead women to substance use [16]. Sexual and physical abuse (which are experienced more often by girls than boys) plays a fundamental role in the substance abuse process in females [17,18]. Girls who are abused are more likely to initiate drug use earlier, use more often and in more significant quantities than those who are not [1,19].

Among women, marriage and marital stress are risk factors for alcohol use but marriage lower this risk in men [16-20]. The key risk factors for women involved in drug use include emotional distress resulting from sexual and physical abuse as well as other related problems [21]. Furthermore, women tend to use psychoactive substances to improve mood, increase confidence, reduce tension, cope with difficulties, lose inhibitions, enhance sex and lose weight among others [15]. Women who use drug may have suffered from abuse of any type in childhood, emotionally deprived or unstable, single, separated or divorced, likely to be a victim of spousal or partner maltreatment, unemployed, socially isolated or maladjusted and on the wrong side of the law [22].

When pregnant women use psychoactive substances the damage is in multiple folds; to the pregnant woman and the fetus. Substance use during pregnancy may result in miscarriage, premature birth, and a variety of behavioral and cognitive problems in exposed children [22,23]. Alcohol use in pregnancy is associated with malnutrition, liver disease, altered drug metabolism, coagulopathy, pancreatitis, esophageal varices, and cardiomyopathy [23]. Alcohol intoxication could cause impaired balancing, staggering, perceptual disturbances, delirium, increased gastric acidity and volume, vomiting and aspiration, hypoglycemia and falls. Ethanol is a known teratogen and a leading cause of learning disability [24]. The fetal alcohol syndrome first described in France in 1968 is a syndrome involving a spectrum of symptoms including intra-uterine growth retardation (IUGR), characteristic facial appearance, learning disability, musculoskeletal, urogenital and cardiovascular abnormalities [25,26].

Tobacco use in pregnant women is associated with lung, cervical and breast cancers, and an increased risk of stroke with infertility and menstrual irregularities [15]. These women are highly predisposed to developing atherosclerosis, peripheral vascular diseases, coronary artery disease and have a 4 fold increased the risk of developing myocardial infarction [13]. They could also experience spontaneous abortion, IUGR, premature rupture of membranes, and preterm labor. Heavy tobacco smoking in pregnancy is associated with placenta abruption and sudden infant death syndrome (SIDS). Small for gestational age (SGA) and Low Birth Weight

(LBW) infants are also commoners in these mothers [14]. Other studies have shown that use of cigarette, alcohol and cannabis in pregnancy is associated with neurobehavioral and cognitive deficits in products of such pregnancies. Such neurobehavioral and cognitive deficits includes inattention, impulsivity, increased externalizing behaviors, decreased general functioning and decline in learning and memory tasks [22,27,28].

Concerns have arisen regarding the adverse effects of cocaine use during pregnancy on the fetus and neonate [29,30]. The pregnant woman may experience hypertension, tachycardia, malignant arrhythmias, myocardial ischemia and infarction; all life-threatening complications of cocaine abuse. Others include seizures, hyperreflexia, fever, dilated pupils, emotional instability, proteinuria and oedema. The combination of hypertension, proteinuria and oedema may lead to convulsions that may mimic eclampsia. Published scientific "report" of infants exposed to cocaine in-utero, describe a variety of adverse effects including disordered neurobehavioral function, depressed birth weight, shorter length, smaller head circumference, reduced IQ and learning disabilities and higher rates of congenital malformations, including limb reduction defects [30,31]. Opioid use before and during pregnancy is associated with increased risk of birth defects including atrioventricular septal defects, hypoplastic left heart syndrome, spinal bifida and gastroschisis [32]. Furthermore chronic opioid use by pregnant women could also be associated with increased risk of fetal growth restriction, abruptio placentae, fetal death, preterm labor, intrauterine passage of meconium and Neonatal Withdrawal Syndrome [33] Virtually all classes of psychoactive substances can cause NWS and these signs and symptoms are remarkably similar despite the differences in the properties of causative substances. These signs and symptoms include high pitched cry, tremors, jitteriness, hypertonia, generalized convulsions, diarrhea, sweating, fever, apnea, poor feeding, etc. [34,35]

There is an alarming lack of studies and consequent dearth of information on psychoactive substance use in pregnancy in low income countries of the world leading to a neglect of this highly vulnerable group of individuals [36]. Evidence has shown that there is an increase in the use of psychoactive substances among women and it is well known

that women of reproductive age group constitute a large percentage of female population [1,37,38]. There are enormous negative consequences of drug use in pregnancy to the pregnant woman and fetus. With the current National Maternal and Child Health service drive in Nigeria, most pregnant women may attend antenatal clinic and this can be a point of contact for intervention.

The aim of this study is to determine the prevalence and correlates of psychoactive substance use among pregnant women, and the objectives included identifying the relationship between psychological wellbeing, socio demographic, pregnancy-related clinical variables and psychoactive substance use among pregnant women attending antenatal clinic at Federal Medical Centre, Abeokuta, Ogun state, Southwest, Nigeria

2. METHODOLOGY

2.1 Study Population and Design

This is a descriptive cross sectional study of psychoactive substance use among pregnant women attending antenatal clinic at a federal government owned tertiary hospital in Ogun state, southwestern Nigeria. The hospital is a 250 bed specialist hospital established in 1993. It currently has over 60 specialists in various fields of Medicine and Surgery and serves a population of over 4 million (3). The antenatal clinic runs for 4 days a week and attends to about 250 pregnant women seeking antenatal care each week.

Sample size was calculated using the formula ($N=Z^2pq/d^2$) and prevalence from a previous study (36). Pregnant women who gave consent were included in the study, while those who presented in labor or with hyperemesis gravidarum were excluded from the study. Systematic random sampling method was used to select 130 participants from the sample frame generated from the daily clinic register.

2.2 Instruments

A proforma was designed by the researchers to obtain social and clinical details of respondents. It elicited basic parameters such as age, ethnicity, marital status, religion, educational level, employment status, last menstrual period

(to determine trimester), number of pregnancies, number of deliveries, history of substance use in spouse, family history of substance use and history of sexual abuse.

The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) was developed under the auspices of the World Health Organization (WHO) by an international group of addiction researchers and clinicians in response to the overwhelming public health burden associated with psychoactive substance use worldwide. It was designed to be used in primary health care settings where hazardous and harmful substance use among clients may go undetected, or become worse. The ASSIST (version 3.0) is an 8 item questionnaire designed to be administered by a health worker to a client using paper and pencil, and takes about 5-10 minutes to administer.

The ASSIST was designed to be culturally neutral and useable across a variety of cultures to screen for use of the following substances: tobacco products, alcohol, cannabis, cocaine, amphetamine-type stimulants (ATS), sedatives and sleeping pills (benzodiazepines), hallucinogens, inhalants, Opioids and "other" drugs. The ASSIST determines a risk score for each substance which is used to start a discussion (brief intervention) with clients about their substance use. The score obtained for each 38 substance falls into a "lower" "moderate" or "high" risk category which determines the most appropriate intervention for that level of use (no treatment, "brief intervention" or "referral to specialist assessment and treatment" respectively). The ASSIST obtains information from clients about lifetime use of substances, and use of substances and associated problems over the last 3 months.

The GHQ -12 is brief, simple and easy to complete and its application in research settings as a screening tool is well documented in Nigeria [38]. The GHQ - 12 was used to measure psychological distress. The scale asks whether respondents have experienced a particular symptom or behavior recently. Each item is rated on a 4-point scale (less than usual, no more than usual, rather more than usual and much more than usual). The common scoring methods are bimodal (0-0-1-1) and Likert (0-1-2-3) scoring styles. The bimodal scoring was used with a cut off score of 3 and above to assess psychological distress.

Ethical approval for the study was obtained from Research and Ethical committee of the Federal Medical Centre, Abeokuta, Ogun State, Nigeria. A written consent was obtained from selected pregnant women after detailed explanation of the protocol, aims, objectives, nature and duration of the study was presented to them. The women were informed about the voluntary nature of their decisions to participate which will not in any way expose them to any risk or deprivations. The questionnaires were administered by the researcher in the consulting room at the clinic during the waiting period. This was done to avoid prolonging patients waiting time in the hospital. The questionnaires took between 15-20 minutes to administer. To ensure confidentiality, only serial numbers were used. Anonymity was strictly maintained, as no name or hospital numbers were included in the questionnaires. Participants found to be at moderate/severe risk of psychoactive substance use and those with high GHQ-12 score were briefly counseled and then referred to the hospital mental health team with the consent of the managing consultant obstetricians. Data analysis was done using Statistical Package for Social Sciences (SPSS), version 21. A P-value of less than 0.05 was accepted as the level of statistical significance.

3. RESULTS

A total of 140 pregnant women on the clinic attendance register were approached for participation in the study. One hundred and thirty (92.9%) consented to participate in the research, with 10 declining participation. The reasons given for not participating include being tired, hungry, has no time for interview or not interested in research.

The ages of the pregnant women ranged between 21 and 44 years with a mean age of 31.3 and standard deviation (SD) of ± 4.59 years. Most of the women were married 126(96.9%), All had at least basic education and 126 (81.5%) of the pregnant women had tertiary level of education.

Majority, 92 (70.8%) of the women were employed; of Yoruba tribe 119 (91.5%) and ninety three (71.5%) practiced Christianity. Thirteen (10.0%) of the women were in their first trimester; 60 (46.2%) were in second trimester and 57 (43.8%) in third trimester. Thirty eight (29.2%) of the pregnant women were primigravida, while 92 (70.8%) were multigravida. Eighty six (66.2%) were multiparous. In one

hundred and ten (84.6%) of the women the pregnancy was planned.

Fifty-nine (45.4%) of the women reported being from a polygamous family, while 63(48.5%) were from a monogamous family background and only 8 (6.2%) from single parent families. Twenty-two (16.9%) of the respondents reported the use of alcohol by their father. Four (3.1%) women reported the use of cigarette and or cannabis by their father. None of the pregnant women reported the use alcohol, cigarette or Indian hemp by their mothers. Only 13 (10.0%) and 1(0.8%) of the women reported their partner's use of alcohol and cigarette respectively. Twelve (9.2%) of the respondents have been diagnosed with at least a medical condition and 2 (1.5%) of the women reported having been diagnosed with a psychiatric illness. Eight (6.2%) of the women reported been rarely sexually abused as a child and 4 (3.0%) reported that they were occasionally sexually abused as a child. (Table 1)

Table 2 shows the prevalence of psychoactive substance use among respondents. Fifty-nine (45.4%) of the study participants reported lifetime use of at least one psychoactive substance while 38(29.2%), 26(20.0%), 10(7.7%), 6(4.6%), 4(3.1%) and 1(0.8%) reported lifetime use of alcohol, sedatives/sleeping pills, pain medications(e.g. tramadol), stimulants (e.g. kola nut), tobacco (e.g. cigarette) and marijuana respectively. None of the women reported any lifetime use of cocaine, inhalants, hallucinogens or any other form of psychoactive substance.

One in six (16.9%) respondents reported current use (within the last 3 months) of at least one psychoactive substance. Alcohol was the most currently used substance with 12(9.2%) reporting use. This was closely followed by sedatives/sleeping pills reported by 11(8.5%) of the women. Pain medication (narcotic analgesic) was reported by 3(2.3%), while tobacco and stimulants were reported by 2(1.5%) each. None of the women reported current use of marijuana, cocaine, inhalants, hallucinogens or any other psychoactive substance. Thirty six (61%) of lifetime users of drug had used only one drug while 18(30.5%) had used 2 types of drugs and the rest had used more than two, however among current users, 16 (72.7%) had used one drug, 4 (18.2%) had used two drugs. About 1 in 5 (19.2%) of the pregnant women have psychological distress as evidenced by a score of 3 and above on GHQ 12 questionnaire.

As shown in Table 3, none of the sociodemographic variables are significantly associated with psychoactive substance use. Alcohol use in father, parity, gravida and presence of medical condition was significantly related to substance use in respondents. GHQ scores were not significantly associated with psychoactive substance use.

Logistic regression analysis found history of father's alcohol use and presence of medical condition to be of positive predictive value of psychoactive substance use among respondents. Respondent with a history of father's alcohol use were 3 times more likely to use alcohol in the lifetime and 4 times more likely to use at least one psychoactive substance. Furthermore, those with medical conditions are 4 times more likely to use psychoactive substances.

4. DISCUSSION

The most prevalent age group in this study (26-30 years) is within the age range reported in similar studies in Nigeria and other countries [36,39,40,41]. This is not surprising since the study was conducted among women of reproductive age group. In the United States women in their reproductive years are at the highest risk of developing psychoactive substance use disorders. This implies that pregnant women or those soon to be pregnant may be at increased risk for alcohol and drug abuse [42]. The study found 96.9% of the pregnant women being married, this is consistent with other studies conducted among similar participants in Nigeria [43,42] but differ sharply from what Choi and colleagues and Williams [36,44,45] found in South Africa where 66.9% of pregnant women were single and never married. This difference may have stem from differences in cultural beliefs about marriage and societal norms among the different tribes in the two sub regions of Africa where the studies were carried out. In this study most of the pregnant women were in the second trimester of their pregnancy. This is similar to what Idowu and her colleagues and Ibrahim found in their study in Abeokuta where more women were in their second trimester of pregnancy [39,43]. It is common for women to wait till their pregnancy is well above 3 months before presenting in the antenatal clinic and this could be responsible for the majority of the women being in their second trimester [39]. This is also similar to what Williams and colleagues found in South Africa [36]. Women

who have delivered at least once in their lifetime were found in this study to be more than primigravida; this is similar to findings in studies among pregnant women in this environment and other African countries [36,39,43]. Women who have delivered more than once may certainly be better informed about pregnancy than primigravida and may present more for antenatal care. It was also found in this study that majority of the pregnant women had planned their pregnancy. This is expected in studies among married Africans, who regard child bearing in marriage as essential.

Table 1. Sociodemographic and pregnancy related variables of respondents

Variables	Frequency (%)
Age (years)	
21 – 25	11(8.6)
26 – 30	53(40.7)
31 – 35	40(30.7)
≥36	26(20.0)
Mean (SD)	31.3(±4.59)
Marital status	
Married	126(96.9)
Not Married	4(3.1)
Educational level	
Below tertiary	24(18.5)
Tertiary	106(81.5)
Employment status	
Employed	92(70.8)
Unemployed	38(29.2)
Ethnicity	
Yoruba	119(91.5)
Others	11(8.5)
Timing of Pregnancy	
First trimester	13(10.0)
Second trimester	60(46.2)
Third trimester	57(43.8)
Gravida	
Primigravida	38(29.2)
Multigravida	92(70.8)
Parity	
Nulliparous	44(33.8)
Multiparous	86(66.2)

This study found lifetime and current prevalence of psychoactive substance use among pregnant women to be 45.4% and 16.9% respectively. This is consistent with current prevalence of 19.6% found among women attending antenatal clinic in South Africa [36] and 18.2% among women receiving prenatal care in Brazil [46].

Prevalence of substance use among pregnant women in United States has increased slightly in the last 3 decades. In 1990, Chasnoff used toxicological screening for 715 pregnant women enrolled for antenatal visit in Florida, USA and found an overall prevalence of 14.8% [47]. A national survey of substance use among pregnant women conducted in the USA in 2012 found current prevalence of cigarette smoking to be 15.9%, alcohol 8.5% and illicit drugs 5.9%. Similar prevalence has been reported for Australia and Europe. [48-50]. This finding shows that there is not much variation in current prevalence of drug use in low and middle income countries and high income countries among women attending antenatal care, with reports from USA suggesting an increase in drug use among women of reproductive age group in the last 3 decades [2].

Table 2. Family and personal variables

Variables	Frequency (%)
Family background	
Polygamous	59(45.4)
Monogamous	63(48.5)
Single parent	8(6.1)
Father's alcohol use	
Yes	22(16.9)
No	108(83.1)
Father's tobacco/cannabis use	
Yes	4(3.4)
No	126(96.6)
Mother's alcohol use	
Yes	0(0.0)
No	0(0.0)
Mothers' tobacco/cannabis use	
Yes	0(0.0)
No	0(0.0)
Partner's alcohol use	
Yes	13(10.0)
No	117(90.0)
Partner's tobacco/cannabis use	
Yes	1(0.8)
No	118(99.2)
Presence of medical illness	
Yes	12(9.2)
No	118(90.8)
Presence of psychiatric illness	
Yes	2(1.5)
No	128(98.5)

The drastic reduction in the prevalence of any drug use from 45.4% lifetime to 16.9% current

use, may be a reflection of the fact that most pregnant women are likely to stop drug use when aware of being pregnant [44]. This reduction may also be due to their awareness of the deleterious effects of drug use to the unborn child.

Table 3. Prevalence of Psychoactive substance use among respondents

Psychoactive substance use	Prevalence (%)
Any substance	
Lifetime	59(45.5)
Current	22(16.9)
Tobacco	
Lifetime	4(3.1)
Current	2(1.5)
Alcohol	
Lifetime	38(29.2)
Current	12(9.2)
Sedatives(sleeping pills)	
Lifetime	26(20.0)
Current	11(8.5)
Mild stimulants	
Lifetime	6(4.6)
Current	2(1.5)
Pain medication	
Lifetime	10(7.7)
Current	3(2.3)
Marijuana	
Lifetime	1(0.8)
Current	0(0.0)
Cocaine	
Lifetime	0(0.0)
Current	0(0.0)
Others	
Lifetime	0(0.0)
Current	0(0.0)

There has been a decline in tobacco smoking among pregnant women globally except in a few countries like India [51]. The WHO has attributed this to the framework convention on tobacco control, intervention introduced about a decade ago [52]. Caleyachetty [53] in their review of tobacco smoking among pregnant women in 54 low and middle income countries have reported a low prevalence of 1.2%- 2.9% in the African region. Therefore the 3.1% lifetime and 1.5% current use prevalence of tobacco among the pregnant women is in consonance with the findings. This may also possibly reflect the current situation in use of cigarette by women in Nigeria as reported by the national survey on drugs use [54] which report 3.1% lifetime, 1.5% current prevalence among women in the country.

Alcohol was the most commonly used substance in this study followed by sleeping pills and narcotic pain medications. The most widely used substances in United States among prenatal women are nicotine, alcohol, marijuana and cocaine [42]. This is similar to finding in Brazil, among 394 pregnant women interviewed, nicotine was the commonest drug used followed by alcohol, marijuana and cocaine [46]. The current prevalence of alcohol use in this study (9.2%) is similar to 8.5% reported in the US national survey in 2012 [55] may be considered low when compared 38.8% reported in South Africa [36]. These findings may reflect methodological differences, socio-economic variations and ethno-religious factors in the population studied. Sociocultural beliefs and views about use of alcohol in the pregnancy across various communities might also account for this differential prevalence. The followers of certain religion which proscribe alcohol (e.g. Islam, Hinduism and the Baptist Church) are less likely than the general population to use alcohol [56]. It is also worth noting that the Non-white population in both USA and the UK are less likely to drink excessively than the white population [56,57].

Sedatives/sleeping pills are the second most commonly used psychoactive substance by women in this study. In this study 20.0% of the women reported lifetime use and 7.7% was still using even in the last three months preceding this study. Previous studies have found that women are more likely to use prescribed medications than other drugs [14]. Ebie and Pela [58] also reported that girls are more likely to use hypno-sedatives than boys. Pain medications especially tramadol had been used by 8.5% of the women in their lifetime and 2.3% were still using currently. This may represent the emergence of another drug of dependence which may be acceptable to pregnant women. Okonkwo and Nwakwe [59] in their study found 33.4% of the pregnant women using analgesics although they did not specify which group of analgesics, but with the knowledge that some pregnant women will experience heartburn and that Non-steroidal anti-inflammatory drugs (NSAIDs) may worsen their condition they may turn to other analgesic like tramadol. This study found only one woman (0.8%) among the 130 respondents who had ever used cannabis in her lifetime. Although there is a dearth of studies on cannabis use among pregnant women in Nigeria, this finding is comparable to what Croxford and Viljeon [60] found among pregnant women

attending antenatal clinics in the Western Cape of South Africa, where they also found only one of their respondents using cannabis. However, around the world, studies among pregnant women show varying prevalence rates such as 2.9% current use in Cape Town, South Africa [36], 0.7% in Australia, 9.5%-27% in USA and 5% in New Zealand. These studies all used biological screening which may give a more reliable result with illicit drug use screening. Williams also used ASSIST questionnaire in addition. These variations in prevalence may reflect the level of use and acceptance of cannabis in the different localities where the studies were carried out. Some of these countries e.g. USA also facilitate the statutory obligation in some state to test and report drug using pregnant mothers for compulsory intervention and this in some way may also have affected their findings [54]. With globalization and biological screening, researchers in Nigeria may soon report a different finding. Only 4.6% of the respondents reported lifetime use of stimulants, while 1.5% reported current use. The use of kola

nut is common in Nigeria but more in men than women, so it is not surprising to find some pregnant women using it. This is similar to 1.3% reported by Abasiubong [42] in his study in Uyo South-South Nigeria but different from 25.7% reported by Okonkwo [61] in Nnewi South East Nigeria. This may reflect cultural diversity in the use of kola nuts among different ethnic nationalities in Nigeria. Differences in methodology between the studies may also be responsible for the variation in prevalence. The use of cocaine, inhalants, hallucinogen, heroin, and other form of psychoactive substances was not reported by any of the pregnant women studied. However this finding differs from what Chasnoff and colleagues [47] found in USA. They found a prevalence of 3.4% and 0.3% for use of cocaine and opiates respectively among the pregnant women they studied. In agreement to the findings of this study Williams [36] found 0% prevalence for both heroin and cocaine among pregnant women in South Africa. This may be due to the fact that users of these

Table 4. Relationship between sociodemographic and pregnancy related variables and psychoactive substance use

Variables	Any substance (%)		Alcohol (%)		Others (%)	
	lifetime	current	lifetime	current	lifetime	current
Age(years)						
≤30	16(34.8)	7(15.2)	11(23.9)	3(6.5)	18(39.1)	6(13.0)
≥ 31	43(51.2)	15(17.9)	27(32.1)	9(10.7)	29(34.5)	12(14.3)
	$\chi^2=.15, p=.07$	$\chi^2=.15, p=.70$	$\chi^2=.97, p=.32$	$\chi^2=.62, p=.43$	$\chi^2=.27, p=.60$	$\chi^2=.04, p=.85$
Marital status						
Married	58(46.0)	22(17.5)	37(29.4)	12(9.5)	47(37.3)	18(14.3)
Not married	1(25.0)	0(0.0)	1(25.0)	0(0.0)	0(0.0)	0(0.0)
	$\chi^2=.69, p=.41$	$\chi^2=.84, p=.36$	$\chi^2=.04, p=.85$	$\chi^2=.42, p=.52$	$\chi^2=2.34, p=.13$	$\chi^2=.66, p=.42$
Education						
Tertiary	48(45.3)	20(18.9)	29(27.4)	10(9.4)	41(38.7)	16(15.1)
Below tertiary	11(45.8)	2(8.3)	9(37.5)	2(8.3)	6(25.0)	2(8.3)
	$\chi^2=.23, p=.96$	$\chi^2=1.5, p=.21$	$\chi^2=.97, p=.32$	$\chi^2=.03, p=.87$	$\chi^2=1.59, p=.21$	$\chi^2=.75, p=.39$
Employment						
Employed	37(40.2)	13(14.1)	24(26.1)	6(6.5)	30(32.6)	12(13.0)
Unemployed	22(57.9)	9(23.7)	14(36.8)	6(15.8)	17(44.7)	6(15.8)
	$\chi^2=3.39, p=.06$	$\chi^2=1.75, p=.19$	$\chi^2=1.50, p=.22$	$\chi^2=.62, p=.09$	$\chi^2=.27, p=.19$	$\chi^2=.17, p=.68$
Trimester						
First	6(46.2)	2(15.4)	3(23.1)	0(0.0)	4(30.8)	2(15.4)
Second	25(41.7)	10(16.7)	15(25.0)	5(8.3)	18(30.0)	6(10.0)
Third	28(49.1)	10(17.5)	20(35.1)	7(12.3)	25(43.9)	10(17.5)
	$\chi^2=.66, p=.72$	$\chi^2=.04, p=.98$	$\chi^2=1.70, p=.43$	$\chi^2=2.01, p=.37$	$\chi^2=.27, p=.27$	$\chi^2=1.42, p=.49$
Gravida						
Primi	20(52.6)	6(15.8)	12(31.6)	2(5.3)	19(50.0)	7(18.4)
Multi	39(42.4)	16(17.4)	26(28.3)	10(10.9)	28(30.4)	11(12.0)
	$\chi^2=1.14, p=.02$	$\chi^2=.04, p=.03$	$\chi^2=.14, p=.70$	$\chi^2=1.00, p=.31$	$\chi^2=.46, p=.05$	$\chi^2=.94, p=.33$
Parity						
Nullip	24(54.5)	8(18.2)	14(31.8)	2(4.5)	22(50.0)	9(20.5)
Multip	35(40.7)	14(16.3)	24(27.9)	10(11.6)	25(29.1)	9(10.5)
	$\chi^2=2.25, p=.01$	$\chi^2=.07, p=.03$	$\chi^2=.21, p=.64$	$\chi^2=1.74, p=.18$	$\chi^2=5.22, p=.03$	$\chi^2=.43, p=.11$

substances may not seek prenatal care because of fear, guilt and shame, as well as concerns about medical and legal implications [62,54]. Hans had also earlier reported “that substance abusing women are more likely to present to hospital in labor without attending antenatal care” [63].

Number of deliveries (parity) and number of pregnancies (gravida) were both found to be associated with psychoactive substance use. This is in keeping with the documented evidence that the single most important factor in substance use during pregnancy is the use of drug before pregnancy [44]. This render the effects of pregnancy and pregnancy characteristics itself of little importance. History of fathers alcohol use is the most robust correlate found in this study. It was found to be associated with drug use across various time periods. Hans [63] reported in his review article of substance use among pregnant women that substance abusing women are likely to have being raised by fathers that abuse substances especially alcohol. Similarly; another study showed that drug abuse/dependence tends to run in families; environmental and genetic factors have been demonstrated to have significant influence on this [64]. There was an association between presence of medical condition and lifetime use of other drugs. Hans reported that pregnant women that abuses substances are likely to have a medical condition than those not abusing [63]. He opined that this may be for self-medication among other reasons.

This study has some limitations. Laboratory screening for drugs was not used in this study and this could be a limitation as this may have corroborated the findings. The study was conducted in only one tertiary institution in one geopolitical region of the country; it will be difficult to generalize the findings to other geopolitical zones in Nigeria. Due to the cross-sectional nature of the study, causal relationship cannot be established between the variables and drug use.

The instrument used to assess psychoactive substance use was developed by the WHO, and is highly recommended because of its additional clinical utility for risk assessment and prescription of the required intervention for the respondents. The ASSIST is an internationally recognized and accepted instrument that makes it easy to compare the results of this study to other conducted in other parts of the world. This study addressed an important preventive maternal and

child healthcare topic that can enhance the achievement of certain aspects of the sustainable development goals.

5. CONCLUSION

This study highlights the magnitude of psychoactive substance use among pregnant women attending antenatal care in a resource-constrained setting. It also draws attention to the paucity of studies on this topic of public health importance. The commonest psychoactive used by respondents are alcohol, sedatives/sleeping pills and narcotic analgesics. It is recommended therefore that health talk rendered to pregnant women should include talk on drug abuse in pregnancy, highlighting the risks of the drug use on the pregnant woman and the fetus. To do this efficiently, obstetricians should be sensitized on drug abuse in pregnancy in our environment and to train other health care workers who provide care in the antenatal clinics. Future studies should focus on exploring additional factors predisposing to substance use among women in their reproductive years and providing appropriate interventions.

CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the author(s)

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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