A cross-sectional study on the knowledge and use of psychoactive substances among pregnant women attending the antenatal clinic at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos State.

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Abstract
Introduction
This study assessed the knowledge and use of psychoactive substances among pregnant women attending the antenatal clinic at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos State, Nigeria.

Methodology
A cross-sectional descriptive study design was adopted for the study, and the target population was pregnant women attending the antenatal clinic at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos State. A purposive non-probability sampling method was used to select a total of 174 respondents. Data was collected using the researchers' self-structured questionnaire and analyzed using SPSS Version 25, and presented in descriptive and inferential statistics, respectively.

Results
Findings revealed that about 29.3% had poor knowledge of psychoactive substances. Agbo (Alcohol/water-based herbal concoction) (37.9%) and (25.9%) have been used before and are currently in use. About two-thirds (63.8%) agreed that psychoactive substance has no beneficial effect, and the majority (79.3%) of the respondents agreed that psychoactive substance hurts pregnant women, with effects such as the development of chronic disease (50.0%), false perception (25.4%), addiction (9.4%), and poor judgment (8.0%). For the frequency of psychoactive substance use among the respondents, about 41.4% never used psychoactive, 25.9% use it often, 22.4% rarely used it, while 10.3% used it very often and the respondents reason for using psychoactive substance, more half (53.4%) agreed that psychoactive substance use to relieve pain, 37.9% for cultural reason, because it helps them to eat better (36.2%) because of peer pressure (32.8%) and it reduces stress (31.0%). Lastly, there is a significant relationship between knowledge of psychoactive substances and the use of psychoactive substances (p-value <0.001)

Conclusion
A few of the respondents had poor knowledge of psychoactive substances.

Recommendation
There is a need for continuous health educational intervention to boost the respondents' knowledge about the health consequences of the use of psychoactive substances.

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Introduction

A psychoactive substance is usually the non-medical self-administration of a substance to induce mood-altering effects, intoxication, or a change of self-image. These substances have been around for a long time and have played a substantial role in human society [1]. The consumption of these substances during pregnancy is worrisome because they can easily pass through the placenta and get to the fetus [2]. This has multiple health and social problems for both mother and child, including miscarriage, stillbirth, low birth weight, prematurity, sudden infant death syndrome (SIDS), physical malformations, and neurological damage for the unborn fetus [3; 4].

About 30 million people worldwide suffer from drug use disorders, with recent trends in developing countries showing a sharp rise in psychoactive substance use and earlier initiation, particularly among females [5]. A U.S. national survey reported that 5.9% of pregnant women use illicit drugs, 8.5% consume alcohol, and 15.9% smoke cigarettes, exposing hundreds of thousands of unborn children to these substances [5]. Similar trends have also been seen in Europe and Australia, where nicotine is the most commonly used substance during pregnancy, followed by alcohol, marijuana, and cocaine [5;6].

In eastern Ethiopia, 26.5% (95% CI: 22.7, 30.6%) of pregnant women attending ANC reported substance use [6]. In Asia and Africa, the most commonly used substances among pregnant women are opioids, cannabis, and alcohol [6,7]. In Nigeria, the prevalence of substance use during pregnancy was 43.8%, prompting efforts by the Federal Ministry of Health to control the sale of substances such as tramadol and codeine [7].

The use of alcohol in herbal concoctions, as well as bitter kola and kolanut, is common among pregnant women due to limited awareness of their health risks and prevailing myths that these substances prevent miscarriage, ease morning sickness, improve sleep, and promote healthy babies [8;9]. This highlights the need to assess the knowledge and use of psychoactive substances among pregnant women attending antenatal care at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos State. Therefore, the specific objectives are to assess knowledge of psychoactive substances; the various psychoactive substances used, frequency of psychoactive substances use, and reasons for
 using psychoactive substances among pregnant women, while the hypothesis was to determine if there is a relationship between the level of knowledge and the use of psychoactive substances among women attending the antenatal clinic at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos state.

Materials and methods
Research design

A cross-sectional descriptive research design was employed for this study. This design was chosen to allow for the collection and analysis of data at a single point in time, providing a snapshot of the knowledge and use of psychoactive substances among pregnant women attending antenatal care. The descriptive nature of the design enabled the researcher to systematically observe, describe, and document the characteristics and behaviors of the study population without manipulating any variables.

Study location

This study took effect from January 31, 2024, and was conducted at Oke-Eletu Primary Health Centre, located in Ijede, within the Ikorodu Local Government Area of Lagos State, Nigeria. The facility, established on August 4, 2016, is a licensed public hospital registered by the Nigerian Ministry of Health as a Primary Health Care Centre. It operates 24 hours daily and provides a range of services, including Antenatal Care (ANC), Family Medicine, Immunization, HIV/AIDS and Tuberculosis care, Non-Communicable Disease management, Family Planning, Nutrition, Child Survival programs, Health Education, and Community Mobilization. The centre is also equipped with an on-site laboratory and pharmacy. Oke-Eletu is situated in a semi-urban, moderately populated area, with the majority of residents engaged in informal occupations such as petty trading, fishing, farming, and artisan work. The facility is geographically located at latitude 6°35′59″N and longitude 3°34′59″E, serving as a primary point of healthcare access for the local community.

Study participants

The target population for this study comprised pregnant women receiving antenatal care at Oke-Eletu Primary Health Centre, located in Ijede, within the Ikorodu Local Government Area of Lagos State. These women were selected because they represent a key demographic for assessing the knowledge and use of psychoactive substances during pregnancy. The antenatal clinic at the health centre serves a diverse group of women from the surrounding community, making it an appropriate setting for gathering relevant data on maternal health behaviors and substance use patterns.

Sample and sampling technique

The study employed Naegle's rule to calculate sample size as follows:
Sample size (N) was determined using

$$N = \frac{p\,(1-p)\,z^2}{D^2}$$

Where N= sample size

P= prevalence of psychoactive substance use among pregnant women in Nigeria is 11.6% (Adebowale & James, 2018)

Z= standard normal variance, where the confidence level is 1.96 at 95%

D= absolute precision or error margin (5%) or 0.05

Therefore, $N = \frac{0.116\,(1-0.116)\,1.96 \times 1.96}{0.05 \times 0.05}$

$N = \frac{0.116 \times 0.884 \times 3.8416}{0.0025}$

$N = \frac{0.3939}{0.0025}$

$N = 157.6 \approx 158$

The sample size was rounded up to 174 respondents (plus 10% of 158 for attrition). A purposive sampling technique was employed to select 174 pregnant women attending the antenatal clinic at Oke-Eletu Primary Health Centre. This non-probability sampling method was chosen to specifically target and include participants who met the study criteria and were readily available during the data collection period to avoid potential bias that may affect the study outcome. By deliberately selecting these women, the study aimed to gather relevant and focused information on the knowledge and use of psychoactive substances among pregnant women in this specific healthcare setting.

Inclusion criteria

The study included pregnant women who came to the antenatal clinic at Oke-Eletu Primary Health Centre.

Exclusion criteria

The study excluded women of reproductive age who attended the antenatal clinic at Oke-Eletu Primary Health Centre but were not currently pregnant.

Instrumentation

A researcher-structured questionnaire was utilized as the primary tool for data collection in this study. The questionnaire was carefully designed to align with the specific objectives of the research and was divided into several sections to systematically capture relevant information. These sections included demographic details, knowledge of psychoactive substances, patterns of substance use during pregnancy, and related health beliefs and behaviors. The structured format of the questionnaire ensured consistency in data collection, enabling comprehensive and focused responses from the participants. The instrument was validated, and a test-retest reliability result yielded a 0.82 Cronbach's Alpha.

Data collection procedure

The data was collected within 3 weeks with the help of 2 research assistants who were trained by the researchers on the purpose of the research and the procedure for data collection. The researchers introduced themselves and the topic of the study, as well as the objectives, and informed consent was obtained from the respondents. Then, instruction on how the respondents should respond to each of the items was clearly stated. They were assured of the confidentiality and privacy of their responses.

Data analysis procedure

The collected data were systematically collated, entered, and coded to prepare for analysis. Data entry and management were performed using the Statistical Package for Social Sciences (SPSS) version 25. Following data cleaning and verification, descriptive statistical methods, including frequencies, percentages, and charts, were applied to summarize and present the findings. This approach facilitated a clear and comprehensive understanding of the patterns and characteristics within the study population.

Ethical consideration

Ethical approval for the conduct of this study was obtained from two recognized ethical review bodies. Firstly, clearance was granted by the **Babcock University Health Research Ethics Committee (BUHREC),** located at Ilishan-Remo, Ogun State, Nigeria. This approval was obtained following a thorough review of the study protocol to ensure compliance with ethical standards for research involving human participants, as stipulated by the university and national guidelines. The ethical approval took effect from January 31, 2024, with ethical number BUHREC 19/24. In addition, ethical approval was also secured from the **Ethical Review Board of the Lagos State Primary Health Care Board.** This approval was essential due to the involvement of participants and health facilities within Lagos State. The Board reviewed the study's objectives, methodology, consent procedures, and potential risks to ensure the protection of participants' rights and well-being. Both ethical bodies approved after confirming that the study adhered to the principles of voluntary participation, informed consent, confidentiality, and minimization of harm.

All research activities were conducted in accordance with the ethical standards outlined in the Declaration of Helsinki and relevant national regulatory frameworks.

Results

Table 1: socio-demographic characteristics of the respondents

Variables	Frequency (N=174)	Percentage (%)
Age (years); Mean= 26.2±5.6		
<20	27	15.5
20-29	96	55.2
30-39	48	27.6
50-59	3	1.7
Marital Status		
Single	45	25.9
Married	117	67.2
Divorced/Separated	9	5.2
Widow	3	1.7
Highest Educational Attainment		
Primary	24	13.8
Secondary	69	39.7
Tertiary	81	46.6

Table 1 shows the sociodemographic characteristics of 174 respondents. The mean age is 26.2±5.6 years. The majority (55.2%) of the respondents are within the range of 20-29 years. Most (67.2%) of the respondents are married, and for educational attainment,46.6% had a tertiary education.

Knowledge of Psychoactive substance use among pregnant women

Table 2a: Respondents' knowledge of the use of Psychoactive substances

	Yes	No
	N (%)	N (%)
Have you heard of a psychoactive substance?	159(91.4)	15(8.6)
Source of information on psychoactive substances? N=159		
Internet	36(22.6)	
Television	31(19.5)	
Radio	22(13.9)	
Health workers	70(44.0)	
Which of these are psychoactive substances?		
Tramadol, Codeine, Alcohol, Marijuana	90(51.7)	
Tramadol, Codeine, Alcohol, Marijuana, Nicotine	36(20.7)	
Tramadol, Codeine, Alcohol, Marijuana, Kolanut	12(6.9)	
Tramadol, Codeine, Alcohol, Marijuana, agbo, kolanut	24(13.8)	
Tramadol, Codeine, Alcohol, Marijuana, nicotine, kola nut, agbo (herbs), monkey tail	12(6.9)	
Definition of Psychoactive Substance Use		
Consumption of drugs and or alcohol in amounts that are harmful to an individual	90(51.7)	

Use of drugs that make you feel good	21(12.1)	
Use of drugs that are expired drugs	9(5.2)	
Consumption of drugs not prescribed by the doctor	54(31.0)	
Do you think psychoactive substance use has beneficial effects on the child?	63(36.2)	111(63.8)
If yes, what are the benefits?		
Boost immunity	39(61.9)	
Improves brain function	24(38.1)	
No benefit effect	111(63.8)	

Knowledge of Psychoactive substance use among pregnant women

Table 2b: Respondents' knowledge on the use of Psychoactive substances

	Yes	No
	N (%)	N (%)
Do you think psychoactive substance use has harmful effects on the pregnant woman?	138(79.3)	36(20.7)
If yes, what are they? (N=138)		
Excitement	9(6.5)	
False perception	35(25.4)	
Poor judgement	11(8.0)	
Addiction	13(9.4)	
Development of chronic disease	70(50.7)	
Use of psychoactive substances has the following harmful effects on the fetus, except?		
Miscarriage		
Low birth weight		
Premature birth		
healthy baby		
Poor brain development		

Table 2a and Table 2b show respondents' knowledge about psychoactive substances. Most (91.4%) of the pregnant women attending the antenatal clinic at Oke-Eletu Primary Health Centre, Ijede, Ikorodu, Lagos state have heard of psychoactive substances, of which 44.0% said they got the information from health workers. About half (51.7%) agreed that tramadol, codeine, alcohol, and marijuana contained psychoactive substances.

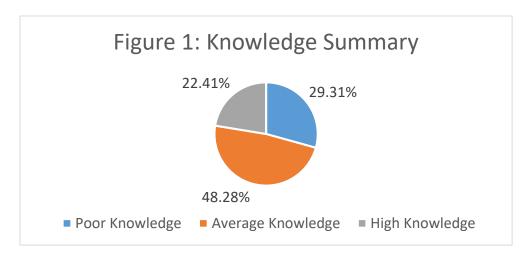Regarding the definition of substance abuse, the majority (51.7%) defined psychoactive substance as the consumption of drugs and or alcohol in an amount that is harmful to an individual. Regarding whether a psychoactive substance has beneficial effects on the child, about two-thirds (63.8%) agreed that the psychoactive substance has no beneficial effect. The majority (79.3%) of the respondents agreed that psychoactive substance has harmful effects on pregnant women, with effects such as the development of chronic disease (50.0%), addiction (9.4%), poor judgment (8.0%), and false perception (25.4).

Figure 1: Knowledge Summary

- 22.41% High Knowledge
- 29.31% Poor Knowledge
- 48.28% Average Knowledge

■ Poor Knowledge ■ Average Knowledge ■ High Knowledge

The majority (48.28%) of the respondents had average knowledge about psychoactive substances.

Use of psychoactive substances among pregnant women

Table 3a: Respondents' substance consumption history

Substance	Pregnant women who have used psychoactive substances before	Pregnant women who have not used psychoactive substances before
Tobacco	27 (15.5)	147 (84.5)
Alcohol	39 (22.4)	135(77.6)
Agbo (alcohol/water-based herbal concoction)	66 (37.9)	108 (62.1)
Sedative	33 (19.0)	141(81.0)
Caffeine	27 (15.5)	147 (84.5)
Kola nut	30 (17.2)	144 (82.8)
Bitter kola	33 (19.0)	141(81.0)
Codeine	15(8.6a)	159(91.4)
Morphine	9(5.2)	165(94.4)
Tramadol	15(8.6)	159(91.4)
Marijuana (cannabis)	15(8.6)	159(91.4)
Cocaine	15(8.6)	159(91.4)
Inhalants like shisha	18(10.3)	156(89.7)

Table 3a shows statistics of the majority (37.9%) of the respondents who had used psychoactive substances before had Agbo (Alcohol/ water-based herbal concoction).

Table 3b: Psychoactive substances currently used by pregnant women

Substance	Psychoactive substances are currently used by pregnant women	Psychoactive substance not currently used by pregnant women
Tobacco	30 (17.2)	144 (82.8)
Alcohol	33 (19.0)	141(81.0)
Agbo (alcohol/water-based herbal concoction)	45 (25.9)	129 (74.1)
Sedative	21 (12.1)	153(87.9)
Caffeine	33(19.0)	141 (81.0)
Kola nut	36 (20.7)	138 (79.3)
Bitter kola	27 (15.5)	147(84.5)
Codeine	15(8.5)	159(91.4)
Morphine	24(13.8)	150(86.2)
Tramadol	18(10.3)	156(89.7)
Marijuana (cannabis)	24(13.8)	14(13.8)
Cocaine	24(13.8)	14(13.8)
Inhalants like shisha	24(13.8)	14(13.8)

Table 3b showed that about 25.9% of the respondents currently using psychoactive substances take Agbo (Alcohol/ water-based herbal concoction).

Frequency of psychoactive substance use among pregnant women

Table 4: Frequency of psychoactive substance use among pregnant women

How often do you consume psychoactive substances?	Frequency	Percent
very often	18	10.3
Often	45	25.9
Rarely	39	22.4
Never	72	41.4
Total	174	100.0

Table 4 shows the frequency of psychoactive substance use among the respondents: about 41.4% never use psychoactive substances, 25.9% use them often, 22.4% rarely use them, while 10.3% use them very often.

Reasons for Using Psychoactive Substances

Table 5: Reasons for Using Psychoactive Substances

Reasons for Using Psychoactive Substances	Yes N (%)	No N (%)
Relieve pain	93(53.4)	81(46.6)
Celebration or social gatherings	51(29.3)	123(70.7)
Addiction	36(20.7)	138(79.3)
Cultural beliefs	66(37.9)	108(62.1)
Peers pressure	57(32.8)	117(67.2)
Ignorance about the outcome	45(25.9)	129(74.1)

Stress	54(31.0)	120(69.0)
Relieve nausea and vomiting	15(8.5)	159(91.4)
Husband influence	21(12.1)	153(87.9)
Help to eat better	63(36.2)	111(63.8)

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Table 5 showed respondents' reasons for using psychoactive substances; more than half (53.4%) agreed that psychoactive substance use was to relieve pain, 37.9% for cultural reasons, because it helps to eat better (36.2), because of peer pressure, 32.8%   stress (31.0%).

Ho1: There is no relationship between the level of knowledge and the use of psychoactive substances among pregnant women attending the antenatal clinic in Oke-Eletu primary health care

Table 6: Knowledge and Psychoactive Substance Use Cross-tabulation

		Psychoactive Substance Use		Total	
		Not use	Use		
Knowledge Summary	Poor Knowledge	9	42	51	X2=98.446
	Average Knowledge	84	0	84	P=0.000
	High Knowledge	24	15	39	DF=2
Total		117	57	174	

Table 6 revealed that there is a significant relationship between knowledge of psychoactive substances and use of psychoactive substances, since the calculated p-value of <0.001 is less than 0.05. Therefore, the null hypothesis is rejected.

Discussion of the findings

The study revealed that 29.3% of the respondents had poor knowledge about psychoactive substances, meaning that the majority of the respondents had above-average and good knowledge. This is similar to the findings of [8], who reported knowledge of psychoactive substances to be significantly poor across the board (p<0.000). Also, in Dodoma Municipality, Tanzania, the knowledge of psychoactive substances among the respondents was found adequate [9]. Similarly, in a study conducted on the knowledge and attitudes of pregnant women at the University of Benin Teaching Hospital, Benin City, Nigeria, it was discovered that most of the respondents (86.3%) were aware of substance abuse [10]. The result from this current study showed that half (51.7%) of the respondents know that tramadol, codeine, alcohol, and marijuana contain psychoactive substances. This supports the assertion that the majority (71.4%) knew that psychoactive substances are harmful during pregnancy [11] and also the majority of the women knew that alcohol exposure, passive smoking, and obesity are maternal risk factors during pregnancy [8]. This finding is higher than that reported at the Natal clinic of a

tertiary hospital in the south of Nigeria [12]. Indeed, the results indicate that the majority of women knew that psychoactive substance use during pregnancy was risky both to the mother and fetus. Moreover, psychoactive substance use among the respondents was high; this result is higher compared to the study conducted in Enugu, where there was low psychoactive drug use during pregnancy [13].

This study found the current prevalence of psychoactive substance to be 63.1%, meaning that majority of the women engage in psychoactive substance use, which is consistent with the lifetime and current prevalence of psychoactive substance use among pregnant women to be 45.8% and 23.5% respectively [11] and also with the findings of an imperative study on the use of psychoactive substances among students in a Nigerian University [1] in Southwestern Nigeria where 45.4% lifetime and 16.9% were current users of at least one psychoactive substance.

This study revealed that Agbo (Alcohol/water-based herbal concoction) (37.9%) has been used before by the respondents in this study, while about 25.9% are currently using Agbo (Alcohol/water-based herbal concoction). This reveals that Alcohol/water-based herbal concoction is the psychoactive substance mostly consumed. Similarly, alcohol was the most commonly used substance in this study, followed by mild stimulants (e.g., caffeine, kola nut), sleeping pills, and opioids or narcotic drugs (e.g., codeine, morphine, tramadol, etc.). 27.7% of the respondents reported lifetime use of stimulants, while 25.8% reported

current use. Pain medication, especially tramadol, had been used by 15.6% of the women in their lifetime, and 7.9% currently using [11].

The findings from this study also showed that 53.4%, 37.9%, 36.2%, 32.8% and 31.0% use psychoactive substances to relieve pain, for cultural reasons, to eat better, under peer pressure influence, and to relieve stress, respectively, stating that different persons consume psychoactive substances for different reasons. A similar study also have various reasons for the use of psychoactive substances such as were lack of knowledge (93.7%), relieve stress (82.5%), husbands influence (79.6%), celebrations/social gatherings (73.5%), relieve nausea and vomiting (57.4%) and boosting of appetite (47.1%), to add to, 11.7% of the women had no reason for taking substances [11].

The study revealed that there is a significant relationship between knowledge of psychoactive substances and use of psychoactive substances (p-value <0.001). The poor knowledge explains the reason for the increased prevalence of psychoactive substance use. This agrees with the findings that (P = 0.16) and (P = 0.15) showed that there is a statistically significant relationship between substance use among pregnant women and the knowledge at (P < 0.001) [7; 12].

Generalizability

The findings of the study cannot be generalized because the study was conducted in only one primary health care center in Ikorodu, despite the number of healthcare centers available in the location. Moreover, the sample size does not represent the total population because the study was conducted on a specific group of people.

Conclusion

The study concluded that a few of the respondents had poor knowledge about psychoactive substances, while the majority still engaged in psychoactive substance use even during pregnancy.

Study limitations

Some of the limitations encountered during the study were a lack of finance, as the study was not funded, and a limited number of participants; this is true because some antenatal days have a higher participant count than others, and the possibility of a pregnant woman filling out the instrument is twice as high.

Recommendations

Based on the findings from this study, it is, therefore, recommended that:

1. There is a need for continuous health educational intervention to boost the respondents' knowledge about the health consequences of the use of psychoactive substances.
2. This should be reinforced by health talks emphasizing physical and mental health benefits to the mother and child of abstaining from all psychoactive substances.
3. Promotion of mass awareness within our community regarding constituents of some substances, such as kolanut, alcohol, or water-based concoction, which can bring harmful effects to the health of the mothers.

Author contributions

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Literature review, methodology, data analysis
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Data availability

The data used to support the findings of the study can be publicly accessed, as it is free and available.

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