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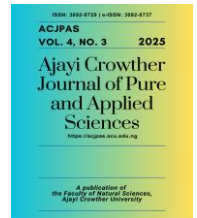
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Article

Prevalence of Drug Abuse among Youth in Ibarapa Central Local Government Area of Oyo State

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Abstract

This study employed statistical tools to analyze the prevalence of drug abuse in Ibarapa Central Local Government Area, Oyo State, Nigeria, over the period 2006 to 2015. The research focused on three commonly abused substances: Cannabis Sativa, heroin, and cocaine. Data for the analysis were obtained from the security department of the National Drug Law Enforcement Agency (NDLEA). Chi-square test and Time Series analysis were utilized to achieve the study's objectives. The findings reveal that males are more likely to abuse drugs than females; with Cannabis Sativa emerging as the most frequently abused substance among youths aged 21–25. Furthermore, the study demonstrates that drug abuse is independent of both the sex and age of the abusers.

Keywords: Cannabis sativa, Cocaine, Drug abuse, Heroine, Seasonal Variation, Trend

1. Introduction

Drug abuse, described as the excessive or harmful use of substances for non-medical purposes, poses a serious threat to individuals and society at large [1]. It involves the consumption of drugs in quantities or manners that are detrimental to physical and mental health, often leading to addiction and dependency. The World Health Organization [2] [3] characterizes drug abuse as a state of periodic or chronic intoxication caused by the repeated consumption of natural or synthetic substances, which negatively impacts both the individual and society. Historically, drugs were primarily obtained from medicinal plants, but advancements in organic synthesis have made various substances more accessible, increasing their availability and potential for misuse [3].

While pharmaceutical drugs play a vital role in managing illnesses and chronic conditions [4], their misuse has become a widespread concern. Reports from the United Nations Drugs Control Programme [5] indicate that approximately 4.8% of the global population uses drugs, with young people representing a disproportionately high percentage of users. In countries like China, drug use is rising while the age of first-time users is decreasing. Similarly, a survey in the Czech Republic revealed that 37% of new drug users are teenagers aged 15 to 18, while in Pakistan, the percentage of heroin users aged 15–20 has doubled. Africa has also emerged as a significant player in the global drug supply chain, ranking as the second-largest region for cannabis production, trafficking, and consumption, with 26% of global cannabis seizures reported in 2001 [6] [7].

In Nigeria, the prevalence of drug abuse has reached alarming levels, particularly among the youth. According to the National Agency for Food and Drug Administration and Control [8], drug abuse has spread rapidly across the country, affecting students in secondary schools, colleges, and universities. Historically, drug use in Nigeria was embedded within traditional practices, where substances like alcohol were consumed under strict societal norms. These practices were often reserved for elders and were closely monitored by strong social structures that upheld traditions and values. However, these controls have eroded over time, resulting in widespread misuse of drugs such as cannabis, heroin, and cocaine.

The implications of drug abuse among Nigerian youth are profound, spanning academic, social, and psychological domains. Students who abuse drugs often cite reasons such as peer pressure, the desire to feel good, or the aspiration to emulate role models [9]. Unfortunately, this behavior often progresses to addiction, which negatively affects academic performance and fosters disruptive tendencies like truancy, hooliganism, and even violent acts. [10] further attributes drug abuse to underlying psychological issues, such as anxiety and fear of failure, which drive individuals toward substances as a coping mechanism [11].

Despite intensified efforts by the government and various organizations to combat drug abuse through awareness campaigns and policy interventions, the issue persists, particularly among students. This is evident in the increasing number of youths engaging in drug misuse, with alarming consequences for their personal and academic lives. The widespread nature of the problem highlights an urgent need for targeted interventions to curb the trend and its associated impacts.

This study seeks to investigate the prevalence of drug abuse among youths in Ibarapa Central Local Government Area, Oyo State, Nigeria. It aims to explore the patterns of drug use, identify the substances most commonly abused, and understand the factors driving this behavior. By shedding light on these issues, the study hopes to provide actionable insights for addressing drug abuse among Nigerian youths and fostering a healthier, more productive society

2. Materials and Methods

Data for this study was obtained from the security division of the National Drug Law Enforcement Agency (NDLEA) in Ibarapa Central Local Government Area, Oyo State. The research employed both descriptive and inferential statistical methods for analysis.

The target population for this study comprises individuals within the Ibarapa Central Local Government Area of Oyo State. The sample data, covering the years 2006 to 2015, was sourced from the NDLEA's security department in the same local government area [12]. The data was categorized into three sections: Section A detailed the distribution of individuals arrested for classified drug offences between 2006 and 2015; Section B outlined the distribution of arrests by gender within the same period; and Section C presented the distribution of arrests by age group for classified drug offences over the specified timeframe.

Descriptive statistics were utilized through the use of tables and percentages to summarize the data, while inferential analysis involved the application of chi-square tests and time series techniques to achieve the study's objectives.

3. Results

This section presents the dataset, data analyses, findings and summary of major findings and results from this study. The table below provides the dataset utilized in this study.

Table 1: Distribution of individuals apprehended for classified drug offenses (2006–2015)

Year	<i>Cannabis sativa</i>	Heroin	Cocaine	Total
2006	17	2	3	22
2007	20	3	2	25
2008	25	2	1	28
2009	11	5	2	18
2010	35	7	2	44
2011	10	1	1	12
2012	19	4	2	25
2013	21	6	5	32
2014	8	2	2	12
2015	22	5	7	34
Total	188	37	27	252

Source: National Drug Law Enforcement Agency Ibarapa L.G.A.

Table 2: Distribution of persons arrested according to sex (2006–2015)

Year	Male	Female	Total
2006	21	6	27
2007	11	7	18
2008	20	6	26
2009	22	11	33
2010	22	6	28
2011	8	5	13
2012	12	7	19
2013	25	3	28
2014	18	4	22
2015	24	14	38
Total	183	69	252

Source: National Drug Law Enforcement Agency, Ibarapa L.G.A.

Table 3: Distribution of persons arrested for classified drug offence by age

Year	CannabisSativa	Heroin	Cocaine	Total
11 – 15	14	2	2	18
16 – 20	21	5	3	29
21 – 25	35	8	7	50
26 – 30	32	6	5	43
31 – 35	29	4	2	35
36 – 40	20	3	3	26
41 – 45	17	4	2	23
46 – 50	10	3	1	14
51 &above	10	2	2	14
Total	188	37	27	252

Source: National Drug Enforcement Agency, Ibarapa L.G.A

The results of this study highlight that **Cannabis Sativa** is the most commonly abused substance, accounting for 75% of all arrests related to drug offenses during the study period. This is followed by

Heroin, which recorded 14.7%, and **Cocaine**, contributing to 10.7% of the cases. These findings emphasize the dominance of Cannabis Sativa in drug-related offenses in the region.

In terms of gender distribution, the data reveals that males are significantly more involved in drug use and arrests, representing 72.6% of the total, whereas females account for 27.4%. This suggests a substantial gender disparity in drug abuse and related offenses, with males being the primary offenders.

When analyzing the age demographics of individuals apprehended for drug-related offenses, the study provides the following detailed distribution:

Ages 11–15: 7.1%

Ages 16–20: 11.5%

Ages 21–25: 19.8%

Ages 26–30: 17.1%

Ages 31–35: 13.9%

Ages 36–40: 10.3%

Ages 41–45: 9.1%

Ages 46–50: 5.6%

Ages 51 and above: 5.6%

The data clearly indicates that drug usage and related offenses peak among individuals aged 21–25, who account for nearly 20% of the total arrests. This is followed closely by the age groups 26–30 and 16–20, suggesting that drug abuse is most prevalent during late adolescence and early adulthood. However, a noticeable decline in drug-related arrests is observed among individuals aged 36 and above, with the lowest percentages recorded for those aged 46–50 and 51 and above.

These findings underscore a significant trend where drug abuse is predominantly concentrated among the youth and young adults, declining as individuals grow older. This pattern highlights the critical need for targeted interventions focusing on younger age groups to effectively combat drug abuse and mitigate its impact on society.

This study reveals that Cannabis Sativa: have highest numbers of people that were arrested which is 75%, Heroin recorded 14.7% and Cocaine: have 10.7%. Moreover, male are more into usage of with 72.6% while female have 27.4%. based on ages of people data were arrested for drug usage 11– 15 ages recorded 7.1%, 16– 20 ages have 11.5%, 21– 25: ages have 19.8%, 26– 30 have 17.1%, 31– 35 ages have 13.9%, 36– 40 ages have 10.3%, 41– 45: ages have 9.1%, 46– 50 ages have 5.6% and ages 51 and above have 5.6%. From this we can see that drug usage rise in your ages and drop at old age.

The relevant hypothesis was tested at the 5% significance level ($\alpha = 0.05$), as indicated in the analysis.

Hypothesis 1

The Independence of Drug Abuse from Gender of the Abuser

H_{01} : Drug abuse is independent of the gender of the abuser

H_{11} : Drug abuse is dependent on the gender of the drug abuser.

Table 4: Chi-square test of gender and *Cannabis sativa*

		Value	Df	P-value
Pearson Square	Chi	6.000	4	0.199

Given that the p-value exceeds the alpha level of 0.05, we fail to reject the null hypothesis. Therefore, we conclude that the use of Cannabis Sativa is independent of gender, indicating no significant relationship between gender and the likelihood of using this substance.

Table 5: Chi-square test of gender and Heroin

		Value	Df	P-value
Pearson Square	Chi	6.000	4	0.199

Since the p-value is greater than the alpha level of 0.05, we fail to reject the null hypothesis. Consequently, we conclude that the usage of Heroin is independent of gender, suggesting that gender does not significantly influence the likelihood of Heroin use.

Table 6: Chi-square test of gender and Cocaine

		Value	Df	P-value
Pearson Square	Chi	3.000	2	0.233

Since the p-value is greater than the alpha level of 0.05, we fail to reject the null hypothesis. Consequently, we conclude that the use of Cocaine is independent of gender, suggesting that gender does not have a significant effect on the likelihood of Cocaine usage. Since the p-value is greater than the alpha level of 0.05, we fail to reject the null hypothesis. Consequently, we conclude that the use of Cocaine is independent of gender, suggesting that gender does not have a significant effect on the likelihood of Cocaine usage.

Hypothesis 2

Independence of Drug Abuse with Respect to Age of the Drug Abuser

H₀₂: Drug abuse is independent on the age of the drug abuser.

.H₁₂: Drug abuse is dependent on the age of the drug abuser.

Table 7: Chi-square test of age and *Cannabis sativa*

		Value	Df	P-value
Pearson Square	Chi	63.000	56	0.243

Since the p-value exceeds the significance level of alpha (0.05), we fail to reject the null hypothesis. Consequently, we conclude that the use of *Cannabis sativa* is independent of the age of the drug user

Table 8: chi-square test of age and Heroine

		Value	Df	P-value
Pearson Chi Square	Chi	45.000	40	0.271

Since the p-value exceeds the alpha level of 0.05, we fail to reject the null hypothesis and conclude that there is no significant relationship between the use of heroin and the age of the user. Therefore, we infer that the usage of heroin is independent of the age of the individual.

Table 9: Chi-square test of gender and cocaine

		Value	Df	P-value
Pearson Chi Square	Chi	36.000	32	0.287

Since the p-value exceeds the significance level of alpha (0.05), we fail to reject the null hypothesis. Therefore, we conclude that the use of Cocaine is independent of the age of the user. Thus, from above we conclude that age doesn't affect the usage of drugs.

Time Series Analysis using Least Square

Least square method is used in fitting trend line to a time series data. The linear trend equation is given as

$$y_t = a + bt \quad \dots(3.1)$$

Also the formulae for the parameter estimation are

$$b = \frac{n \sum ty - \sum t \sum y}{n \sum t^2 - (\sum t)^2} \quad \dots(3.2)$$

$$a = \frac{\sum y - b \sum t}{n} \quad \dots(3.3)$$

Table 10: Using least square method to obtain the trend for *Cannabis sativa*

Time (t)	Y _t	Ty	t ²	Trend values
1	17	17	1	20.44
2	20	40	4	20.07
3	25	75	9	19.71
4	11	44	16	19.35
5	35	175	25	18.98
6	10	60	36	28.61
7	19	133	49	18.25
8	21	168	64	17.89
9	8	72	81	17.52
10	22	220	100	17.16
Total	55	188	1004	188

$b= 0.36$ and $a= 20.80$

The trend equation is $y_t=20.80 + 0.36t$

To obtain the trend value we substitute the value of t into our trend equation as shown in the table 10.

Estimation of Seasonal Variation

.The formula is

$$S.V = \frac{\text{Actual Value}}{\text{Trend Value}} \times \frac{100}{1} \dots(3.4)$$

Table 11: Value or season variation of *Cannabis sativa*

Actual Value Y_t	Trend values	Season Variation
17	20.44	83.18
20	20.07	99.64
25	19.71	126.84
11	19.35	56.86
35	18.98	184.39
10	28.61	53.71
19	18.25	104.08
21	17.89	117.38
8	17.52	45.64
22	17.16	128.18
Total: 188	188	999.91

Forecast

To forecast for subsequent years, we use our trend equation thus for year 2016 and 2017

Table 12: Forecast

Year	Y_t	Seasonal index	forecast
11	16.80	0.99	16.80
12	16.44	0.99	16.44

Table 13: Using least square method to obtain the trend for Heroine

Time (t)	Y_t	Ty	t^2	Trend values
1	2	2	1	2.86
2	3	6	4	3.05
3	2	6	9	3.23
4	5	20	16	3.42
5	7	35	25	3.61
6	1	6	36	3.80
7	4	28	49	3.99
8	6	48	64	4.17
9	2	18	81	4.36
10	5	50	100	4.55
Total 55	37	219	385	37.04

$b= 0.18$ and $a= 2.67$.

The trend equation is $y_t=2.67.+ 0.19\tau$

To obtain the trend value we substitute the value of t into our trend equation as shown in the table 13.

Table 14: Value or season variation of Heroine

Actual Value Y_t	Trend values	Season Variation
17	2.86	69.98
2	3.05	98.49
3	3.23	61.84
2	3.42	146.11
5	3.61	193.91
7	3.80	26.33
1	3.99	100.35
4	4.17	143.75
6	4.36	45.85
2	4.55	109.89
Total 35	37	996.50

Forecast

To forecast for subsequent years, we use our trend equation. Thus for year 2016 and 2017

Table 15: Forecast

Year	Y_t	Seasonal index	forecast
11	4.74	0.9965	4.72
12	4.93	0.9965	4.91

Table 16: Using least square method to obtain the trend for cocaine

Time (t)	Y_t	Ty	t^2	Trend values
1	3	3	1	1.21
2	2	4	4	1.55
3	1	3	9	1.88
4	2	8	16	2.21
5	2	10	25	2.54
6	1	6	36	2.87
7	2	14	49	3.20
8	5	40	64	3.53
9	2	18	81	3.819
10	7	70	100	4.55
Total 55	27	176	385	27

$b= 0.33$ and $a= 0.885$

the trend equation is $y_t=0.885 + 0.33\tau$

To obtain the trend value we substitute the value of t into our trend equation as shown in the table 16.

Table 17: Value or season variation of cocaine

Actual Value Y_t	Trend values	Season Variation
3	1.21	246.91
2	1.55	129.45
1	1.88	53.33
2	2.21	90.70
2	2.54	78.90
1	2.87	34.90
2	3.20	62.60
5	3.53	141.84
2	3.86	51.88
7	4.12	167.26
Total 27	27	1057.78

Forecast

To forecast for subsequent years, we use our trend equation . thus for year 2016 and 2017

Table 18: Forecast

Year	Y_t	Seasonal index	forecast
11	4.515	1.0578	4.78
12	4.845	1.0578	5.13

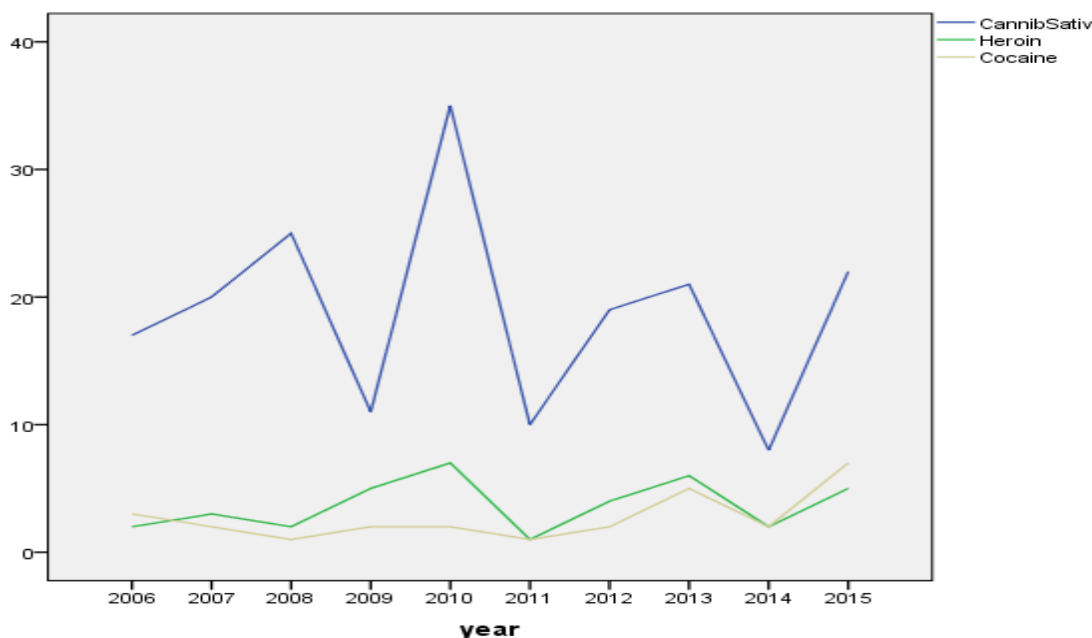


Fig 1: Trend lines of *Cannabis sativa*, Heroin and Cocaine

4. Conclusion

This study examines the prevalence of Cocaine, Heroin, and Cannabis Sativa in the Ibarapa Central Local Government Area. The data were analyzed using both chi-square and time series statistical

methods to achieve the objectives of the research. The findings indicate that drug abuse is more prevalent among males than females. Additionally, Cannabis Sativa was identified as the most commonly abused substance, particularly among individuals aged 21 to 25. The study, drug abuse is not the same over the years, 2010 recorded the highest abuse incidence with forty-four (44) people arrested for different drug related offences while 2011 and 2014 had the least. The study also reveals that drug abuse is independent of both gender and age of the abusers.

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Conflict of Interest

The author declared no conflict of interest in the manuscript.

Authors' Declaration

The author(s) hereby declare that the work presented in this article is original and that any liability for claims relating to the content of this article will be borne by them.

Author Contributions

Conceptualization – A.O.M B.L.A Design – A.D.A; Supervision – A.O.M; Resources – B.L.A, Materials – B.L.A; Data Collection and/or Processing – B.L.A; Analysis and/or Interpretation - B.L.A ; Literature Search - B.L.A ; Writing - A.O.M A.D.A;B.L.A ; Critical Reviews - A.O.M A.D.A

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