Volume 1(5), pages 312-321, October 2025
DOI: 10.65221/0028
eISSN: 3115-5898

https://reports.afjur.com

African Research Reports

Regular Research Paper

Prevalence and factors influencing codeine abuse among women of reproductive age in Ilorin, Kwara State, Nigeria

Temidayo Eunice Williams-Imade[1], Mary Oluwakemi Olowookere[2], David Tolulope Oluwole[3], Oyedayo Phillips Akano[4] and Ayodeji Folorunsho Ajayi[2,5,6]*

[1]Department of Nursing, College of Medicine and Health Sciences, Afe Babalola University Ado Ekiti, Ekiti-State. Nigeria.
[2]Department of Physiology, Ladoke Akintola University of Technology, Ogbomoso, Oyo State, Nigeria.
[3]Department of Physiology, College of Health Sciences, Crescent University, Abeokuta, Ogun State, Nigeria.
[4]Department of Physiology, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, Nigeria.
[5]Anchor Biomed Research Institute, Ogbomoso, Oyo State, Nigeria.
[6]Department of Physiology, Adeleke University, Ede, Osun State, Nigeria.

Received 19 July, 2025; Accepted 22 September, 2025

Codeine, an opioid analgesic, is widely used for pain and cough management. However, its misuse has become a significant public health concern, particularly among women of reproductive age. Hence, this study seeks to investigate the prevalence, influencing factors, and consequences of codeine abuse among women of reproductive age in Ilorin Metropolis. A cross-sectional descriptive survey was conducted using a self-administered questionnaire. Data were collected from 280 women of reproductive age residing in Ilorin Metropolis. The study reported a 25.71% prevalence of codeine use, predominantly driven by peer introduction and influence. Significant associations ($p < 0.05$) were observed between codeine use and socio-demographic factors: age, religion, family type, and relationship status as well as usage patterns: age at first use, frequency, and causes. The study underscores the growing issue of codeine misuse among women of reproductive age, driven largely by peer influence and calls for urgent public health interventions.

Key words: Addict, female reproductive health, Nigeria, reproductive age women, substance abuse.

INTRODUCTION

Codeine, an opium-derived alkaloid, is widely prescribed for the treatment of mild-to-moderate pain and cough (Li and Argáez, 2020; Khangura and Argáez, 2021). Despite its therapeutic value, its increasing use has been associated with dependence, misuse, overdose, and mortality (Mattson et al., 2017; Cohen et al., 2017). Globally, opioid use among women of reproductive age is a growing concern, with reports indicating that approximately one in six women in these demographic use opioid medications annually (Flannagan et al., 2020; Pinzón-Gómez et al., 2024).

Like other opioids, codeine carries a significant risk of misuse. Once ingested, it undergoes hepatic metabolism to morphine, which exerts its analgesic effect but also

*Corresponding author. E-mail: aajayi22@lautech.edu.ng. Tel: +2348033834495.

induces adverse reactions such as nausea, vomiting, and dizziness (Becker, 2010). The safety of codeine during pregnancy remains controversial. Some studies suggest limited safe use (Engeland et al., 2008), with reported prevalence ranging from 1 to 3.5% during pregnancy, while other reports highlight its potential risks. Of particular concern is the growing trend of non-prescription use among women of reproductive age, which increases the likelihood of unintended opioid exposure during conception or pregnancy.

Codeine use is often linked to common painful conditions such as dental pain, abdominal pain, lower back pain, and non-migraine headaches (Desai et al., 2014; Pasricha et al., 2018). In obstetric and gynecological practice, codeine-containing medications are also frequently prescribed following vaginal or cesarean delivery (Jarlenski et al., 2017; Bateman et al., 2017), miscarriage management (Griffith et al., 2018), and assisted reproductive technology procedures (Bortoletto et al., 2018). Consequently, reports of the centre for substance abuse and treatment in 2009 reported that women who are pregnant, postpartum, or undergoing fertility treatments may be at increased risk of opioid exposure.

Beyond its analgesic applications, experimental evidence suggests that chronic codeine use adversely impacts female reproductive health. Laboratory studies have shown that prolonged codeine administration disrupts ovarian function, inhibits steroid hormone production, impairs follicular development, and damages ovarian tissue architecture (Akhigbe et al., 2022). These findings underscore the potential long-term reproductive risks associated with codeine misuse.

Olawuni and Oladele (2019) noted widespread drug abuse among adult learners in Ilorin, often associated with violent behavior. Similarly, Oshodi et al. (2010) reported frequent use of alcohol, codeine, tobacco, and psychostimulants, with lifetime prevalence among secondary and university students ranging from 1.5% for tobacco to 47% for psychostimulants in Ilorin, Kwara State.

Despite growing evidence of its adverse health effects, codeine remains one of the most misused opioids worldwide. The rising trend of non-prescription use, particularly among women of reproductive age, is alarming. Therefore, the present study aims to investigate the factors contributing to codeine abuse among women of reproductive age in Ilorin metropolis.

METHODOLOGY

Research design

This study employed a cross-sectional descriptive survey design to investigate the factors associated with codeine abuse among women of reproductive age in Ilorin metropolis. A descriptive survey approach was utilized to provide an in-depth examination of the existing situation, encompassing human behavior and attitudes. A standardized instrument was used to collect data.

Research setting

This research was conducted in Ilorin metropolis, the capital city of Kwara State in Western Nigeria. According to the 2006 census, Ilorin has a population of 777,667, ranking it as the 6th most populous city in Nigeria.

Population of the study

The targeted population for this research comprised women of reproductive age (between 15 and 45 years), with a total estimate of 2000 women in their reproductive age in Ilorin, Kwara State.

Sample size determination

In order to get the representative data, random sampling technique was employed. Ilorin is a very big and populous city; some areas were selected for the research within Ilorin. The areas selected have estimates of about 2000 women in their reproductive age. The sample size was determined using the sample size estimation formulas developed by Levin (1992) and Krejcie and Morgan (1970), which provided a statistically reliable estimate of the population:

$$S = \frac{N}{1 + N(d^2)}$$

where S = the desired sample size, d = the maximum discrepancy (0.05), N = the target population.

$$S = \frac{2000}{1 + 2000(0.05^2)}$$

$$S = 333.3$$

$$\text{Sample size} = [\text{desired sample size (S)} + (s \times 15\% \text{ of S})]$$

$$\text{Sample size} = [333 + (333 \times 0.05)] = 350$$

Hence, the sample size for the study was 350

Sampling technique

Random sampling was used to select the 350 women of reproductive age out of a total of 2000 in the selected area of Ilorin metropolis.

Data collection instruments

A self-administered questionnaire, written in simple English, was used to collect data for this study. According to Creswell (1994), a well-designed instrument is crucial for ensuring the simplicity and accuracy of responses in research. The questionnaire was structured into four logical sections to gather relevant information from respondents. The first section focused on collecting socio-demographic data; the second section assessed the current prevalence of codeine abuse among women of reproductive age. The third section explored the factors influencing codeine use among this population, and the fourth section evaluated their knowledge of the associated risks of codeine abuse.

Pilot study

A pilot test was conducted with 10 reproductive-aged women from a nearby town to evaluate the questionnaire's internal consistency (Cronbach's alpha), as well as the clarity of instructions, language simplicity, and completion time

Psychometric properties of instrument

The questionnaire's validity was established through literature comparison, face validity (assessment of appearance), and content validity (evaluation of clarity, coverage, consistency, and relevance). Reliability was confirmed using the test–retest method to ensure consistency and stability.

Method of data collection

Prior to data collection, formal permission was obtained from the school authority through an official letter, which was subsequently approved by the Research and Ethics Committee. The researcher then visited the faculty to engage with potential participants, providing a clear explanation of the study's purpose and addressing any questions or concerns they may have had. Informed consent was obtained from each participant before distributing the questionnaire. The questionnaires were then administered to the selected participants, who completed and returned them to the researcher. All returned questionnaires were collected, and prepared for further analysis.

Study variables

The study examined several key variables, with demographic characteristics of the respondents, including age, serving as the independent variables religion, occupation, relationship status and family type

Techniques of data processing and analysis

The data obtained from the questionnaire administration were inputted into SPSS version 21 for data management. Subsequent data analysis involved descriptive statistics, including frequency distributions, means, and standard deviations and binary logistic regression (Odd Ratio) to show the degree of relationship with risk factors. The findings were presented in a clear and concise manner using frequency distribution tables and charts.

Ethical consideration

Prior to administering the questionnaires, informed consent was obtained from all respondents. Participants were assured of the confidentiality and anonymity of their responses, and were informed that the data collected would be used solely for educational research purposes and would not be shared or utilized for any other purpose. Ethical approval was obtained from the University of Ilorin Teaching Hospital after consideration and approval to commence the study.

RESULTS

Results of the study respondents were described accordingly. First, is the demographic characteristics of the respondent's which was analyzed using frequency and percentage statistic, second, codeine abuse among the respondents was analyzed by using frequency and bi-variate statistics (chi-square). Risk factors and practice of codeine abuse were analyzed using bi-variate statistics. Finally, associated problems of codeine abuse among respondents were described by using binary logistic regression (Odd Ratio) to show the degree of relationship with risk factors.

Using Levin's formula, the planned number of samples (subjects) selected to fill the questionnaire were 350 reproductive women. However, only 280 respondents completed the questionnaire correctly and consistently. In this study, the 20% who did not return valid questionnaires reported no regard to codeine use and have been less willing to disclose sensitive information, resulting in an underestimation of true prevalence. Thus, the results were analyzed based on 280 subjects.

Demographic characteristic of the respondents

The background information of the respondents includes age, religion, occupation, marital status and family type of the respondents. The results for individual characteristics are given as follows. Of the 280 respondents contacted, 100 were students representing 35.71% of the total population; civil servants accounted for 144, giving a 51.43% of total population; 36 respondents were employees in a private organization representing 12.86%, none of the respondents was into business (Figure 1). As given in Figure 2, the religious characteristics of respondents were 124 to be Muslims, a 44.29% while 156 were Christians, giving a 55.71% of total study population (Figure 2).

Of the study respondents, 38.57% are single, and the remaining 61.43% are married with no widowed, divorcee among the study respondents (Table 1). The largest percentage of the study population was within the age range of 36-45 years (Figure 3). However, majority are from the extended family (Figure 4).

Prevalence of codeine intake and abuse

From the responses given, 74.29% of respondents do not take codeine in one form or the other representing 208 respondents, while 72 respondents take codeine, representing 25.71% (Figure 5).

Prevalence of codeine use with socio-demographic variables of women of reproductive age in Ilorin metropolis

The Chi-square test was conducted to ascertain whether a statistically significant dependency (relationship) exists

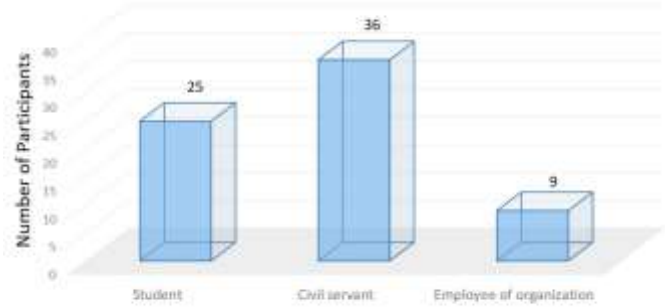

Figure 1. Study respondents' occupations.

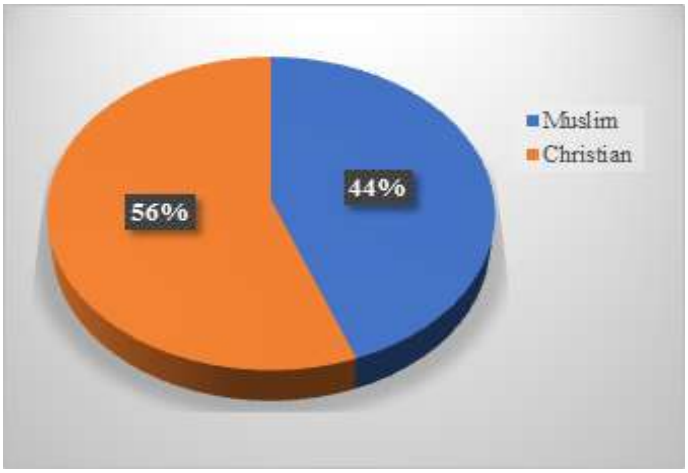

Figure 2. Study population religion practice.

Table 1. Relationship status of study respondents.

Relationship status	Frequency	Percentage
Single	108	38.57
Married	172	61.43
Divorce	0	0.00
Widowed	0	0.00
Others	0	0.00
Total	**280**	**100.00**

between codeine use and selected demographic characteristics variables which include age, religion, family type, relationship status and occupation.

As presented in Table 2, there is statistically significant association between codeine use among women of reproductive age and age ($x^2_{(9.279)}$= 0.0023 p < 0.05), religion ($x^2_{(24.97)}$= < 0.0001, p < 0.05), Family type ($x^2_{(11.55)}$= 0.0007, p < 0.05) and relationship status ($x^2_{(13.04)}$=0.0111, p < 0.05). This implies that the significant predictors of

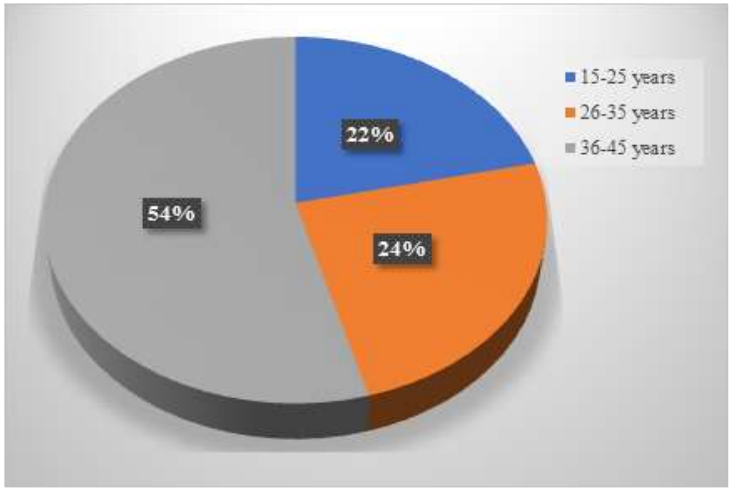

Figure 3. Age range of the study population.

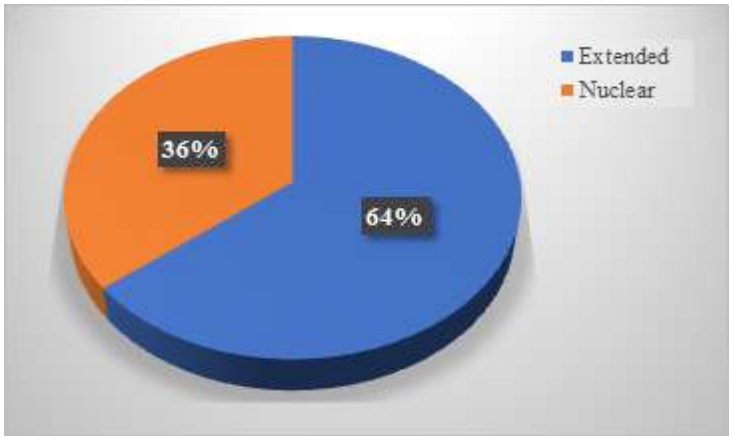

Figure 4. Family type of the study population.

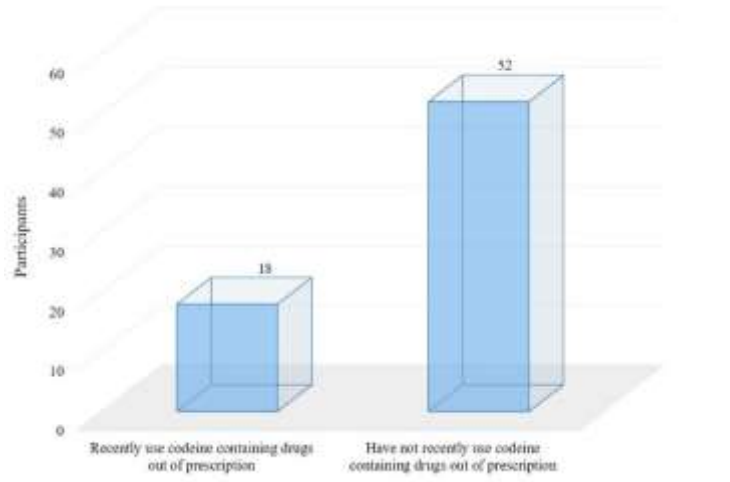

Figure 5. Study respondents who had use codeine containing drugs out of prescription.

Table 2. Prevalence of codeine use with socio-demographic variables of women of reproductive age in Ilorin metropolis.

Variable	Codeine Use (%)	X^2	P-Value
Age			
15-25years	38.89	9.279	0.0023*
26-35years	44.44		
36-45 years	16.672		
Religion			
Christian	27.78	24.97	< 0.0001*
Muslim	72.22		
Family type			
Nuclear	16.67	11.55	0.0007*
Extended	83.33		
Relationship status			
Single	11.11	13.04	0.0111*
Married	88.89		
Occupation			
Students	61.11	3.172	0.2047
Civil Servants	5.56		
Employee of organization	33.33		

*statistically significant at P< 0.05.

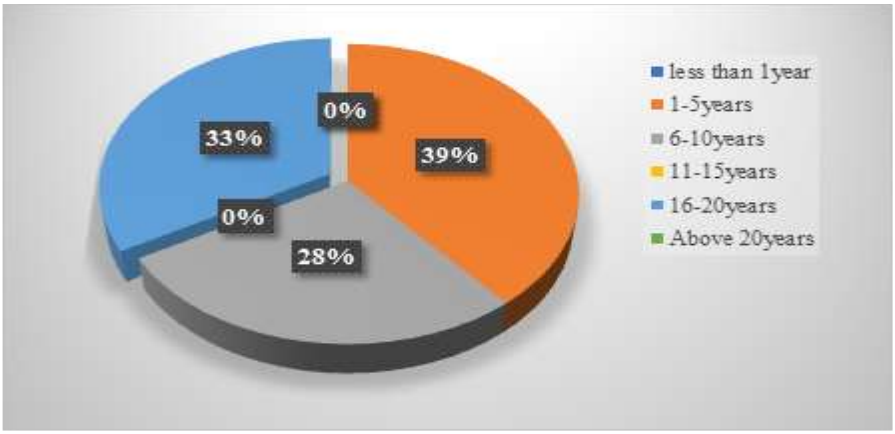

Figure 6. Duration of use of codeine containing drugs.

codeine use were age, religion, family type, and marital status (all p < 0.05). Occupation did not show a statistically significant association as shown in Table 2.

Factors responsible for codeine abuse among women of reproductive age in Ilorin metropolis

Among the seventy-two (72) respondents, twenty-eight (28) reported taking codeine-containing drugs without prescription for the past 5 years, twenty (20) for the past 10 years, and the remaining twenty-four (24) for about 20 years (Figure 6). When asked about the ages at which they first used codeine, 83.33% reported initiating use between ages 16 and 20 (Table 3). Regarding their general perception of codeine use, 208 respondents (74.29%) had a high perception, 40 respondents (14.29%) had a normal perception, and 32 respondents (11.43%) had a weak

Table 3. Age range at the first intake of codeine.

Year	Frequency	Percentage
10-15	0	0.00
16-20	60	83.33
21-25	8	11.11
26-30	4	5.56
31-35	0	0.00
Above 35	0	0.00

Table 4. Perception about codeine intake.

Perception	Frequency	Percentage
High	208	74.29
Normal	40	14.29
Weak	32	11.43
Total	**280**	**100.00**

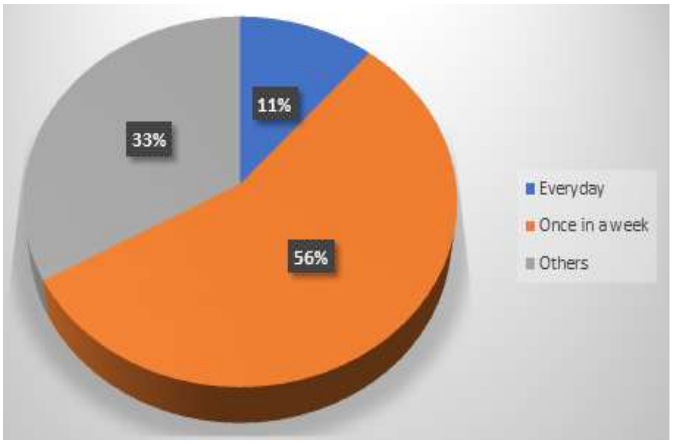

Figure 7. Frequency of codeine intake.

Table 5. Causes of codeine intake.

Response	Frequency	Percentage
Peer influence	68	94.44
Youthful exuberance	4	5.56
Others	0	0.00
Total	**72**	**100.00**

perception (Table 4). Concerning frequency of use, eight (8) respondents reported daily intake, while fifty-two (52) used it once a week (Figure 7). Peer influence accounted for the major reason for engaging in codeine abuse (Table 5), with friends identified as the primary individuals introducing them to codeine use (Table 6).

Table 6. Introduction to codeine intake.

Response	Frequency	Percentage
Friends	68	94.44
Family	0	0.00
Medical practitioner	0	0.00
Others	4	5.56
Total	**72**	**100.00**

Prevalence of codeine use and factors influencing codeine use among reproductive women in Ilorin Metropolis

A Chi-square test was conducted to determine whether a statistically significant relationship exists between codeine use and selected influencing factors among women of reproductive age, including duration of use, age at first use, frequency of use, causes of use, and mode of introduction to codeine use. As presented in Table 7, there is statistically significant association between codeine use among women of reproductive age and age at first use ($x^2_{(10.72)}$= 0.0011 p < 0.05), frequency of codeine use ($x^2_{(11.86)}$= 0.0027, p < 0.05), causes and introduction to codeine use ($x^2_{(12.95)}$= 0.0112, p < 0.05). This implies that codeine abuse is significantly dependent on age at first use, frequency of use, cause and introduction to first use of the study participants. Therefore, a significant relationship exists between the variables as shown in Table 7.

Consequences of codeine intake

Most respondents agreed that codeine intake enhanced their sexual activity, as shown by a Relative Importance Index (RII) of 5.00. However, respondents strongly disagreed with the necessity of maintaining a constant dose of codeine and also disagreed that codeine is beneficial to the body (Table 8).

Risks in codeine intake

Although most users (72.22%) indicated that it was easier to obtain codeine from pharmacies because they are women (Table 9), 27.78% of the participants engaged in out-of-prescription codeine use were classified as excessive users (Figure 8). Meanwhile, 81.43% of all participants reported having knowledge of drug use and abuse (Table 10).

Frequency of codeine use

Figure 8 illustrates the patterns of codeine use among

Table 7. Prevalence of codeine use of Factors influencing codeine use among reproductive women in Ilorin metropolis.

Variable	Codeine Use %	X^2	P-Value
Duration of codeine use			
Less than 1 years	33.33	1.969	0.5788
1-5years	38.89		
6-10 years	27.78		
Age at first use			
16.23 years	83.33	10.72	0.0011*
21-25 years	11.11		
26-30 years	5.56		
Frequency of codeine use			
Once in a week	55.56	11.86	0.0027*
Everyday	11.11		
Other	33.33		
Causes of codeine use			
Peer Influence	94.44	12.95	0.0115*
Youthful Exuberance	5.56		
Introduction to codeine use			
Friends	94.44	12.95	0.0115*
Others	5.56		

*statistically significant at P< 0.05.

Table 8. Consequences of codeine intake.

S/N	Parameter	SA (5)	A (4)	UN (3)	D (2)	SD (1)	SWV	RII	Remarks
A	Taking codeine is good for the body	20	24	48	100	88	157	2.24	Disagree
B	A constant dose of codeine is necessary	8	20	36	76	140	130	1.86	Strongly disagree
C	Taking codeine help me perform better sexually	68	0	0	4	0	10	5.00	Strongly agree

Table 9. Ease of access to codeine.

Response	Frequency	Percentage
Very easy	52	72.22
Rarely	8	11.11
Very scarce	20	16.67
Total	**72**	**100.00**

respondents who admitted to consuming codeine-containing drugs. The majority were Light Users (72%), who reported taking codeine occasionally or in small amounts, suggesting recreational or experimental use rather than sustained dependence. In contrast, Frequent/Heavy Users (28%) reported regular or heavy consumption, representing those at greater risk of dependence, addiction, and health complications associated with codeine abuse.

DISCUSSION

This study revealed a 25.71% prevalence of codeine use among women of reproductive age in Ilorin, while 74.29% reported no history of codeine intake. This prevalence is consistent with earlier findings by Flannagan et al. (2020),

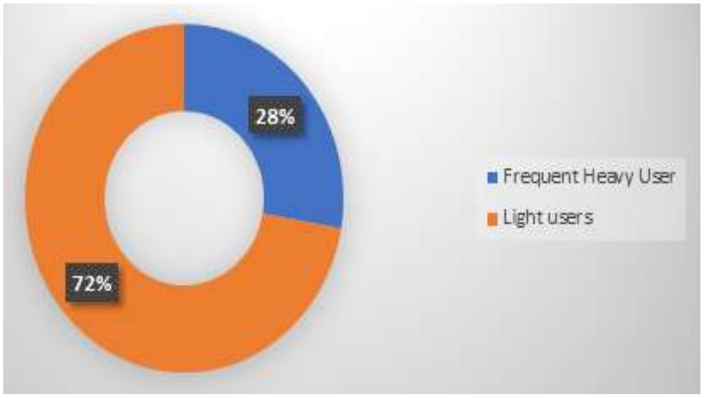

Figure 8. Frequency of codeine use.

Table 10. Education on drug usage and abuse.

Response	Frequency	Percentage
Yes	228	81.43
No	52	18.57
Total	**280**	**100.00**

who reported a 26% prevalence of opioid use in a similar population, indicating that codeine remains a significant public health issue among women in this age group. The finding that 39% of codeine users had been consuming the drug for 1–5 years highlights the risk of early initiation, peer-facilitated exposure, and subsequent dependence. The findings from this study suggested that codeine use is more common among younger adults, Muslims, respondents from extended families, and married individuals; whereas occupation alone does not explain variations in use. Such patterns are consistent with reports linking prolonged opioid use to addiction and heightened risk of health complications (Mattson et al., 2017).

Awareness and perception of codeine were high among the respondents. More than 80% reported having received education on drug use and abuse, while 74.29% demonstrated a strong perception of the risks associated with codeine use. This suggests that knowledge alone does not necessarily translate into avoidance, as a significant proportion of respondents continued to use the drug despite being aware of its harmful effects. This aligns with existing literature, which indicates that substance use is often sustained by psychosocial factors such as peer influence, self-medication, and perceived functional benefits, even in populations with adequate knowledge (UNODC, 2024). For instance, while respondents strongly disagreed that codeine use was beneficial to health or required constant intake, many reported perceived benefits such as enhanced sexual activity. This contradiction underscores the complexity of drug use behavior, where immediate perceived benefits may override awareness of long-term risks.

When placed in a national and global context, the findings of this study remain significant. The United Nations Office on Drugs and Crime (2024) reported that 14.4% of Nigerians aged 15–64 years had used psychoactive substances in the past year, corresponding to approximately 14.3 million individuals. Of these, 4.7% reported non-medical opioid use, with women constituting one in every four drug users. Although the prevalence of codeine use among women in Ilorin appears lower than national figures, the presence of one in four women reporting use still represents a major public health concern. Regional differences, particularly Ilorin's strong religious and cultural environment, may account for the relatively lower rates observed in this study. This interpretation aligns with Hussain-Abubakar (2011), who emphasized that religiosity and moral values often serve as protective factors against substance use.

Another notable finding is that while national data consistently indicate higher rates of substance abuse among men, emerging evidence suggests a narrowing gender gap, with increasing numbers of women initiating or sustaining opioid use (Ailes et al., 2015; Tassinari et al., 2024). The rise in female participation may be driven by psychosocial stressors, peer pressure, gender-specific health challenges (such as reproductive or postnatal pain), and increasing access to prescription opioids (Herzberg et al., 2016). In this context, the Ilorin findings may reflect both the influence of protective cultural norms and the beginning of a broader trend toward higher female engagement in opioid use.

The implications of this study are multi-faceted. First, the finding that peer influence is a major pathway for initiation suggests the need for peer-focused interventions, such as youth mentorship programs and community sensitization campaigns. Second, the recognition by respondents of the dangers of codeine, alongside their proposed solutions (education, prayer, counselling, and youth monitoring), highlights the importance of culturally sensitive and community-driven interventions. Religious institutions and community leaders, who wield strong influence in Ilorin, can play a pivotal role in reinforcing anti-drug messages. Third, healthcare providers should adopt stricter guidelines for prescribing codeine-containing medications, particularly in reproductive health contexts such as post-partum pain management, miscarriage care, and fertility treatments, where women are at heightened risk of opioid exposure (Jarlenski et al., 2017; Bateman et al., 2017).

Furthermore, the reproductive health risks associated with chronic codeine use cannot be overlooked. Laboratory studies have shown that prolonged codeine exposure disrupts ovarian function, impairs follicular development, and damages ovarian tissue (Akhigbe et al., 2022). This suggests that codeine abuse among women of reproductive age may have long-term consequences for fertility and sexual health. Given these risks, integrating reproductive health education into substance abuse

prevention programs may provide a dual benefit of protecting both general health and reproductive outcomes.

Finally, while this study provides valuable insights, its scope is limited to women in Ilorin metropolis. Cultural and religious values in this region may not be generalizable to other parts of Nigeria or sub-Saharan Africa where different socio-cultural dynamics exist. Future research should therefore adopt larger, multi-site studies to better capture national trends. Qualitative approaches may also be useful in exploring the deeper psychosocial drivers of codeine use, including stigma, mental health factors, and socio-economic pressures.

Conclusion

This study examined the prevalence and determinants of codeine use among women of reproductive age in Ilorin metropolis. Findings revealed that 25.71% of respondents reported using codeine-containing drugs, with peer influence being the most common route of initiation. A considerable proportion of users had sustained codeine use for 1–5 years, indicating early exposure and risk of dependence. Despite high awareness of the risks of codeine and widespread education on drug abuse, some respondents still reported perceived benefits, such as enhanced sexual activity, highlighting the gap between knowledge and behavior.

The findings are consistent with national reports by the United Nations Office on Drugs and Crime, which highlight rising opioid use in Nigeria, including among women. However, the relatively lower prevalence observed in Ilorin may be attributed to the influence of strong cultural and religious values, which act as protective factors against substance abuse. Nevertheless, the presence of one in four women using codeine underscores a significant public health concern with implications for reproductive health, family life, and community well-being.

Codeine use among women of reproductive age in Ilorin remains a pressing issue despite high awareness of its risks. Peer influence, social factors, and prolonged exposure drive continued use, while cultural and religious contexts appear to moderate prevalence levels. Addressing this problem requires a multi-faceted approach involving stricter prescription regulations, peer- and community-based interventions, religious and cultural advocacy, and reproductive health-focused education. Expanding future research to include larger and more diverse populations across Nigeria will provide a clearer picture of the growing opioid epidemic and inform targeted interventions.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

1. Policy and regulation: Government should strengthen regulations on the prescription and distribution of codeine-containing medications, with strict monitoring to prevent diversion into non-medical use.
2. Health education: Public health campaigns should intensify awareness on the dangers of codeine abuse, targeting women of reproductive age through schools, healthcare centers, religious institutions, and media platforms.
3. Healthcare practice: Healthcare providers should adopt safer alternatives for pain management, especially in obstetric and gynecological care, while ensuring responsible prescribing practices.
4. Community and religious engagement: Community leaders, religious institutions, and families should be actively involved in drug prevention initiatives, providing counselling, guidance, and social support to vulnerable women.
5. Youth-focused interventions: Peer-led programs, mentorship schemes, and school-based drug education should be implemented to counter peer influence, a major driver of initiation.
6. Further research: Larger multi-regional studies should be conducted to better understand the scope of codeine use among women in Nigeria, with qualitative approaches exploring underlying psychosocial and cultural factors.

REFERENCES

Ailes EC, Dawson AL, Lind JN, Gilboa SM, Frey MT, Broussard CS, Honein MA (2015). Opioid prescription claims among women of reproductive age—United States, 2008–2012. MMWR Morb Mortal Wkly Rep, 64(2):37.

Akhigbe RE, Ebiwonjumi OS, Ajayi LO, Ajayi AF (2022). Codeine alters female reproductive function by targeting ovarian steroidogenesis and folliculogenesis via the induction of oxidative stress, inflammation, and apoptosis. Reprod Toxicol, 109:1-9.

Bateman BT, Cole NM, Maeda A, Burns SM, Houle TT, Huybrechts KF, Leffert LR (2017). Patterns of opioid prescription and use after cesarean delivery. Obstet Gynecol, 130(1): 29-35.

Becker DE (2010). Pain management: Part 1: Managing acute and postoperative dental pain. Anesth Prog, 57(2): 67-79.

Bortoletto P, Prabhu M, Garry EM, Huybrechts KF, Anchan RM, Bateman BT (2018). Opioid dispensing patterns after oocyte retrieval. Fertil Steril, 110(5): 905-9.

Center for Substance Abuse Treatment (2009). Substance abuse treatment: addressing the specific needs of women. Treatment Improvement Protocol (TIP) series 51, HHS Publication No. (SMA) 09-4426. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Cohen A, Osorio R, Page LM (2017). Substance misuse in pregnancy. Obstet Gynaecol Reprod Med, 27(10): 316-21.

Desai RJ, Hernandez-Diaz S, Bateman BT, Huybrechts KF (2014). Increase in prescription opioid use during pregnancy among Medicaid-enrolled women. Obstet Gynecol, 123(5): 997-1002.

Engeland A, Bramness JG, Daltveit AK, Rønning M, Skurtveit S, Furu K (2008). Prescription drug use among fathers and mothers before and during pregnancy. A population-based cohort study of 106,000 pregnancies in Norway 2004–2006. Br J Clin Pharmacol, 65(5): 653-60.

Flannagan KS, Sjaarda LA, Mumford SL, Schisterman EF (2020). Prescription opioid use among populations of reproductive age: effects on fertility, pregnancy loss, and pregnancy complications. Epidemiol Rev, 42(1): 117-33.

Griffith KC, Clark NV, Zuckerman AL, Ferzandi TR, Wright KN (2018). Opioid prescription and patient use after gynecologic procedures: a survey of patients and providers. J Minim Invasive Gynecol, 25(4): 684-8.

Herzberg J, Barrier B, Sprague DJ, Vinson DC (2016). Substance use in women of reproductive age. Mo Med, 113(3): 182.

Hussain-Abubakar S (2011). An appraisal of the activities of Muslim women in Ilorin during Ramadan: the Islamic perspective.

Jarlenski M, Bodnar LM, Kim JY, Donohue J, Krans EE, Bogen DL (2017). Filled prescriptions for opioids after vaginal delivery. Obstet Gynecol, 129(3): 431-7.

Khangura SD, Argáez C (2021). Codeine for acute dental pain and acute pain related to dental procedures. Can. J. Health Technol., 1(2).

Li Y, Argáez C (2021). Codeine for pain related to osteoarthritis of the knee and hip: a review of clinical effectiveness. Ottawa: CADTH.

Mattson CL, Schieber L, Scholl L, Rudd RA, Seth P, Xu L, Paulozzi LJ (2017). Annual surveillance report of drug-related risks and outcomes—United States, 2017. MMWR Surveill Summ, 66: 1-78.

Olawuni AO, Oladele JI (2019). Effects of drug abuse and violence among the adult learners in Ilorin Metropolis. IFE PsychologIA, 27: 1 .

Pasricha SV, Tadrous M, Khuu W, Juurlink DN, Mamdani MM, Paterson JM, Gomes T (2018). Clinical indications associated with opioid initiation for pain management in Ontario, Canada: a population-based cohort study. Pain, 159(8):1562-8.

Pinzón-Gómez C, López MBC, Bayona MPG, Gantiva C (2024). Exploring risk prevention and harm reduction behaviours among snorted cocaine users. Rev Int Investig Adicciones, 10(2): 127-35.

Tassinari DL, Pozzolo Pedro MO, Negrão AB, Abrantes do Amaral R, Malbergier A, Castaldelli-Maia JM (2024). Artificial intelligence-driven and technological innovations in the diagnosis and management of substance use disorders. Int Rev Psychiatry, pp. 1-7.

United Nations Office on Drugs and Crime (2024). World Drug Report 2024. Vienna: UNODC. Available from: https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2024.html