

# Pattern of Use and Effects of Codeine Products and Alcohol among Youths in Keffi, Nigeria

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## ABSTRACT

**Background:** The potential for overuse and misuse of codeine-containing medications and alcohol is not only detrimental to a person's health but has broader consequences in terms of its cost and implications for a wider society. This study assessed the pattern of use of codeine products and alcohol and its effects among the youths in Keffi Community, Nigeria.

**Methods:** This cross-sectional descriptive study was conducted among 172 youths aged 18-40 years who visited Federal Medical Centre, Keffi during the study period. A study-specific questionnaire was self-administered to study participants and in-depth interviews were conducted for 15 participants that met the DSM-IV scale of codeine dependence. The health care professionals were also interviewed. Data analysis was done using SPSS package version 20, univariate and bivariate analysis and chi-square statistics.

**Results:** Of the male participants, 61.8% of them abused codeine products,

and the use of codeine product was significantly associated with male gender, post-secondary, being single, and student ( $P < 0.05$ ) unlike the participants age ( $P > 0.05$ ). About 52.4% of them reported the use of alcohol and other substances was not significantly associated with participants gender, age and educational background ( $P > 0.05$ ) unlike marital and employment status ( $P < 0.05$ ).

**Conclusions:** The Codeine use pattern amongst the youths in Keffi community was found to be associated with the male gender, post-secondary education, being single, and students while alcohol use pattern was found to be associated with being single, students and unemployment status.

**Keywords:** Codeine, Misuse, Overuse, Risk

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## INTRODUCTION

Codeine or 3-methylmorphine is the most commonly consumed opiate worldwide, widely used for its analgesic, antitussive and anti-diarrheal properties. Research shows that awareness of codeine's abuse potential within problematic drug using networks is higher than in the general population, and that it has the potential to alleviate withdrawals from stronger opiates such as heroin. Reported forms of recreational use of intoxication include consumption of codeine cough syrups along with anti-nausea preparations such as promethazine and codeine crushed within caffeine laced drinks popular in the US, and in Thailand, the home production of 'Kratom Cocktails'. In the US, codeine has been labeled "Hillbilly Heroin" with free base smoked on aluminum foil (like heroin "chasing the dragon"). Poly drug taking represents an additional confounding health consequences and drug outcomes for the recreational misuse of codeine.

Alcohol abuse is a pattern of drinking that result in harm to one's health, interpersonal relationship or ability to work. According to previous studies alcohol abuse is linked with suicide. They stated that the risk of suicide is high in older men who have a history of drinking, as well as those suffering from depression. Certain manifestations of alcohol abuse include failure to fulfill responsibilities at work, school, or home; drinking in dangerous situations, including the operation of a motor vehicle; legal concerns association with alcohol use; and continued drinking despite problems that are caused or worsen by drinking. Alcohol abuse can lead to alcohol dependence.

The general effects of abuse or addiction to any drug can be devastating. The specific physical and psychological effects of drug abuse and addiction tend to vary based on the substance involved. Psychologically, intoxication with or withdrawal from a substance can cause everything from euphoria as with alcohol, ecstasy, or inhalant intoxication to paranoia with marijuana or steroid intoxication, to severe depression or suicidal thoughts with cocaine or amphetamine withdrawal. The experimentation with drugs during adolescence (10-25 years) is common. At this age, they try so many new things. They use drugs for so many reasons, including curiosity, because it feels good, to reduce stress, or to feel grown up. They further argued that using alcohol and tobacco at a young age increase the risk of using other drugs later. It is commonly acknowledged that the youths are the pillars of every nation. They are the future leaders as such their wellbeing is of paramount importance to the stability of any nation. The strength and versatility of any society

rest on its productive workforce which comprises mainly of youth. The surge in abuse of codeine products poses serious cause for concern in Northern Nigeria; and supporting data is scanty. This study seeks to contribute to the debate on drug abuse in Nigeria in view of the massive consumption of codeine products for non-medical purposes [1-5]. The study will provide data for use by relevant drug regulatory agencies, doctor, psychiatric hospitals, government agencies and all stakeholders particularly in their decision-making processes. Similarly, it will serve as reference material to researchers and students interested in the issue of codeine and alcohol abuse in Nigeria.

## METHODOLOGY

### Study design

This was a cross-sectional descriptive study to assess the pattern of use and risk factors for codeine, alcohol and other substances of abuse among youths in Keffi community, Nigeria.

### Study setting

The setting for this study comprised the Federal Medical Centre Keffi, Nasarawa State and its environs.

### Population, sampling and sample

The study population included 330 young adult patients (aged 18 to 40 years), who assessed health care services in Federal Medical Centre, Keffi and others met within its environs between 22<sup>nd</sup> May 2016 to 30<sup>th</sup> June 2016; and consented to participate in the study. Of these persons, 172 participants were selected out of the population using simple random sampling technique. Of the 172 participants, fifteen (15) of them who

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were codeine-dependent users were interviewed alongside ten (10) healthcare professionals. The sample size was above the calculated sample size of 150 participants so as to allow for possible loss due to incomplete or non-returning of completed questionnaires.

### Ethical consideration

The ethical approval was obtained from the Ethics Committee on Research, Federal Medical Centre, Keffi, and Nasarawa State. The questionnaires were accompanied by an informed consent form to participants who were briefed on the purpose of the study and their consents were obtained before administering the questionnaire to them.

### Data analysis

Data analysis was performed using Statistical Package for Social sciences (SPSS) software version 20 for windows for phase one of the study. Univariate and bivariate analysis such as frequency distribution mean and standard deviations were performed. Chi-squared statistics was used to test the association between the use of codeine products, alcohol or other substances of abuse with socio-demographic characteristics of the participants [6].

The participant's responses from the Simple Screening Instrument for Substance Abuse (SSI-SA) were converted into a scale of 0 to 50. 'Yes' was assigned a value of 50 whereas 'No' was assigned "0". The mean score for each domain in SSI-SA was calculated by taking the sum of the scores of all question items in each domain divided by the total number of respondents. P-values were two-tailed at 95% confidence interval. For the second and third phases, the interviews were recorded and transcribed verbatim.

## RESULTS

### Socio-demographic characteristics

Out of the 250 participants who were administered the study questionnaires, only 172 (68.8%) of participants returned their completed questionnaires. The mean age ( $\pm$  Standard Deviation) of the participants was 28 ( $\pm$  7.6) years; 64% of the participants were males, 73.3% were single; and 60.4% were either unemployed or students (Table 1).

**Table 1 :** Socio-demographic characteristics of the participants (N=172).

Characteristics	Frequency	Percentage
<b>Sex</b>		
Male	110	64
Female	62	36
<b>Age group</b>		
18-22	35	20.3
23-27	53	30.8
28-32	41	23.8
33-37	23	13.4
38-42	20	11.6
<b>Educational background</b>		
Primary School	8	4.7
Secondary School	72	41.9
Post-Secondary School	78	45.3
None	8	4.7
<b>Marital Status</b>		
Single	126	73.3
Married	26	15.1
Separated	4	2.3
Divorced	12	7
Widowed	2	1.2
<b>Employment Status</b>		

Student	42	24.4
Unemployed	62	36
Employed	48	27.9
Self-employed	16	9.3
Others	2	1.2

Use of codeine products was reported in 98 (57.0%) of the participants. Of the male participants, 61.8% of them abused codeine products, and the use of codeine product was significantly associated with male gender, post-secondary education, being single, married and student ( $P < 0.05$ ) unlike the participants age ( $P > 0.05$ ) (Table 2).

**Table 2 :** Cross-tabulation of codeine use and socio-demographics of the participants (N = 172).

Demographics	Total	Use of Codeine products		P-value
		Yes (%)	No (%)	
<b>Sex</b>				
Male	110	68(61.8)	42(38.2)	
Female	62	30(48.4)	32(51.6)	0.001
<b>Age</b>				
18-22	35	25(71.4)	10(28.6)	
23-27	53	35(66.0)	18(34.0)	
28-32	41	20(48.8)	21(51.2)	
33-37	23	10(43.5)	13(56.5)	
38-42	20	8(40.0)	12(60.0)	0.827
<b>Educational background</b>				
Primary school	8	2(25.0)	6(75.0)	
Secondary school	72	28(38.9)	44(61.1)	
Post-secondary school	78	62(79.5)	16(20.5)	
None	8	6(75.0)	2(25.0)	0.019
<b>Marital status</b>				
Single	126	78(61.9)	48(38.9)	
Married	26	16(61.5)	10(38.5)	
Separated	4	0(0.0)	4(100.0)	
Divorced	12	4(33.3)	8(66.7)	
Widowed	2	0(0.0)	2(100.0)	0.001
<b>Employment status</b>				
Student	42	38(90.5)	4(9.5)	
Unemployed	62	30(48.4)	32(51.6)	
Employed	48	20(41.7)	28(58.3)	
Self-employed	16	8(50.0)	8(50.0)	
Others	2	2(100.0)	0(0.0)	0.007

Following the screening of participants, 52.4% of them reported the use of alcohol and other substances of abuse, 38.2% have had health-related problems due alcohol or drug use, and 38.7% had spent a lot of time thinking about or trying to get alcohol or other drugs; whereas 20.7% had sought help for alcohol or drug use problem (Table 3).

**Table 3 :** Frequency distribution of the responses of participants who were screened for use of alcohol and other substances of abuse.

Questions	Number of respondents (N)	Yes (%)	No (%)
a) Have you used alcohol or other drugs (such as Indian hemp, heroin or other opioids, inhalants or hallucinogens)?	84	44 (52.4)	40 (47.6)
b) Have you felt that you use too much alcohol or other drugs?	82	33 (40.2)	49 (59.8)

c) Have you tried to cut down or quit drinking alcohol or other drugs?	83	32 (38.6)	51 (61.4)
d) Have you gone to anyone for help because of your drinking or drug use?	82	17 (20.7)	65 (79.3)
e) Have you had any health problem e.g. blackouts, memory loss, had convulsions or injured yourself after drinking or using drugs; felt sick, shaky, or depressed when you stopped?	76	29 (38.2)	47 (61.8)
f) Has drinking alcohol or other drug use caused problems between you and your family or friends?	76	30 (39.5)	46 (60.5)
g) Has your drinking or other drug use caused problems at school or at work?	77	13 (16.9)	64 (83.1)
h) Have you been arrested or had other legal problems? (Such as driving while intoxicated, theft, or drug possession).	75	15 (20.0)	60 (80.0)
i) Have you lost your temper or gotten into arguments or fights while drinking alcohol or use drugs?	76	30 (39.5)	46 (60.5)
j) Are you needing to drink alcohol or use drugs, more and more to get the effect you want?	75	34 (45.3)	41 (54.7)
k) Do you spend a lot of time thinking about or trying to get alcohol or other drugs?	75	29 (38.7)	46 (61.3)
l) When drinking alcohol or using drugs, are you more likely to do something you wouldn't normally do, such as break rules, break the law, sell things that are important to you, or have unprotected sex with someone?	75	27 (36.0)	48 (64.0)
m) Do you feel bad or guilty about your drinking alcohol or drug use?	75	29 (38.7)	46 (61.3)
n) Have you ever had a drinking or other drug problem?	76	22 (28.9)	54 (71.1)
o) Have any of your family members ever had a drinking or drug problem?	75	16 (21.3)	59 (78.7)
p) Do you feel that you have a drinking or drug problem now?	74	22 (29.7)	52 (70.3)

On a scale of 0 to 50, the mean score (SD) for substance consumption by participants was 22.7 ( $\pm$  3.4) whereas the score for tolerance and withdrawal was 20.9 ( $\pm$  2.5) (Table 4).

**Table 4 :** Mean scores across the domains measured by the Simple Screening Instrument for Substance Abuse.

Domains	Number of question items*	Mean score ( $\pm$ Standard Deviation)
Substance consumption	3	22.7 ( $\pm$ 3.4)
Preoccupation and loss of control	5	19.3 ( $\pm$ 0.8)
Adverse consequences	7	16.3 ( $\pm$ 4.9)
Problem recognition	7	15.6 ( $\pm$ 3.8)
Tolerance and withdrawal	2	20.9 ( $\pm$ 2.5)

**Note:** Mean values are presented on scale of 0–50

\*Some question items are repeated across the different domains

The use of alcohol or other substance of abuse following screening with SSI-SA was not significantly associated with participants gender, age, and educational background ( $P > 0.05$ ) unlike marital and employment status ( $P < 0.05$ ). Of the participants, 65.1% were single, and 61.4% were either student or unemployed. Use of alcohol or other substance of abuse was reported in 53.7% of the male participants compared to 50.0% among female participants (Table 5).

**Table 5 :** Cross-tabulation of use of Alcohol or other substance and socio-demographic characteristics of the participants.

Demographics	Number of respondents (N)	Alcohol and other substances		P – value
		Yes (%)	No (%)	
<b>Sex</b>				
Male	54	29(53.7)	25(46.3)	
Female	30	15(50.0)	15(50.0)	0.745
<b>Age</b>				
18-22	18	12(66.7)	6(33.3)	
23-27	26	17(65.4)	9(34.6)	
28-32	20	10(50.0)	10(50.0)	
33-37	11	3(27.3)	8(72.7)	
38-42	9	2(22.2)	7(77.8)	0.053
<b>Educational background</b>				
Primary school	4	2(50.0)	2(50.0)	
Secondary school	35	13(37.1)	22(62.9)	
Post-secondary school	39	26(66.7)	13(33.3)	
None	4	2(50.0)	2(50.0)	0.091
<b>Marital status</b>				
Single	63	41(65.1)	22(34.9)	
Married	12	3(25.0)	9(75.0)	
Separated	2	0(0.0)	2(100.0)	
Divorced	6	0(0.0)	6(100.0)	
Widowed	1	0(0.0)	1(100.0)	0.001
<b>Employment status</b>				
Student	21	16(76.2)	5(23.8)	
Unemployed	30	20(66.7)	10(33.3)	
Employed	23	5(21.7)	18(78.3)	
Self-employed	8	1(12.5)	7(87.5)	
Others	1	1(100.0)	0(0.0)	0

## DISCUSSION

The study findings showed that about half of the participants misused codeine products. In addition, the misuse of codeine product was significantly associated with male gender, post-secondary education, being single, married and student, unlike age. They found that most had completed a mean of 10 years of formal education and most had experienced treatment before. It therefore follows that the misuse of codeine and codeine products is prevalent among youths as the age bracket from previous studies showed, except that in the case of Keffi, most of the users have not experienced any form of treatment before [7,8]. Another studies yet stated that the prevalence of opioid misuse was highest in women, particularly if widowed, less educated, with lower income, in poor health and with reduced social supports. Previous studies showed that increased use and abuse of codeine has been documented particularly among young, white, middle class, college educated women.

The use of alcohol or other substance of abuse excluding codeine products was also significantly associated with being single, students and unemployed status unlike gender, age and educational background. This was contrary to the significant association that was reported for the misuse of codeine products with gender and educational background. One study suggests that girls were scrutinized for “drinking like men,” whereas magazines that target the male population sent underlying

messages to boys and or men that the consuming alcohol was “masculine”

The study also reported that more than half of the youths involved in codeine abuse were also involved in the abuse of alcohol and other substances. Three out of four of these participants involved in alcohol use had already started developing health related problems of which only few had sought help [9,10]. In the study on the patterns of co-morbidity between alcohol use and other substance use in the Australian population asserted that alcohol use was related strongly to the use of other substances including opioids. This implies that there is a relationship between the drive for these substances which should be a subject for further studies.

Almost all participants who were classified as codeine-dependent felt their codeine use was not a problem for them. Tolerance and dependence can occur especially with prolonged high dosage. However, in patients who have become accustomed to chronic pain, analgesia occurs without the euphoric effects. This suggests that there is an unmet treatment need and urgent need for public awareness campaign on substance abuse dependence. It is not clear if the health providers or suppliers of OTC codeine products are knowledgeable in assessing codeine dependence for prompt identification or are aware of appropriate referral pathways. Further work is required to examine this.

It is a common knowledge that non-medical uses of any drug must have negative effects. The various consequences of drug addiction or drug abuse are so devastating and very shameful to the extent that both the nation and international organizations all over the world are also worried about the spread of this scourge among the youths. They are as follows; mental disorder, social violence, gang formation, cultism, armed robbery, fraudsters, social miscreants, lawlessness among youths, lack of respect for elder, rape, loss of senses, instant death and wasting of precious and innocent lives and many more [11,12].

From the interviews conducted with the codeine-dependent participants, it was realized that more than half of them started taking codeine through peer pressure. They were introduced to codeine products by friends just to satisfy their moods and also for its euphoric effects. Less than half said they started as a result of initial prescription from healthcare professionals and from there, they continued in it until they became addicted.

The studies revealed that most of the drug addicts started taking these substances from their youths. As they grew older, they sort new thrills and gradually went into hard drug abuse. A nationwide survey of high school students reported that 65% used drugs to have good time with their friends while 54% wanted to experiment to see what it was like, 20%-40% used it to alter their moods, to feel good, to relax, to relieve tension and to overcome boredom and problems.

From the interviews conducted, it was also discovered that about 75% of the participants were already experiencing drug related health problems but only about 20% had ever sought treatment. Almost all said they actually did not know that they had challenges that warranted hospital attention.

One of the participants said, he was already having some experiences like depression, anger, emptiness, loss of appetite, dizziness and that he has lost interest in everything but had never sought medical attention [13].

The interviews with the healthcare professionals confirmed most of the things the participants said but in addition, they said the rate of drug abuse is really on the increase and that something has to be done urgently. Most of the cases that come to them are really very bad and awareness needs to be created a great deal for those of these addicts that have serious health issues and cannot help themselves. They confirmed

that a lot of these cases that come to them actually started on legitimate notes but later escalated into something else as they patients later become addicted. Some of the healthcare professionals pointed out the fact that these addicts sometimes do not have disordered personality. They dress well and actually even speak well. This can actually be confusing when they approach them for counseling.

Educating the general public about the risks of dependence and also frontline health professionals with information about effective, evidence based treatment for codeine dependence is very important. Being able to better inform codeine dependent people about their treatment options and of other people’s positive experiences with treatment may help to reduce the time it takes for people to seek help particularly as many codeine users reported negative perceptions of the currently available treatments.

Education for the general population that opioid dependence affects a wide range of people may help to reduce stigma and facilitate help-seeking. It’s possible that negative perceptions of pharmacists could serve as a considerable barrier to seeking help or receiving advice around inappropriate codeine use. Non-judgmental care when providing treatment for drug dependence is widely accepted as a key principle in professional practice. This non-judgmental approach to potential dependence is also important for pharmacists when addressing risks of medication use. Treatment approaches used are always pharmacotherapy (methadone or buprenorphine and/or naloxone) with good treatment outcomes being reported [14].

## CONCLUSION

Codeine abuse amongst the youths in Keffi community was associated with the male gender, post-secondary education, being single, married and students. Alcohol use amongst the youths in Keffi was associated with being single, students and unemployment status. The risk factors for codeine abuse was discovered to be the male gender and literacy, while that of alcohol abuse was found to being single and unemployment status. The adverse consequences of the abuse of codeine, alcohol and other substances was found to be blackouts, memory loss, convulsions, injury after drinking or using drugs, sickly feelings, depression and involvement in unsafe sex practices. The characteristics of over the counter codeine dependence were as follows; constipation, dizziness, drowsiness, dry mouth, euphoria, sleeplessness, itching, rash, urinary retention. The study exposed that codeine dependent individuals could be treated/rehabilitated and the treatment outcome is good. For those about embarking on codeine/alcohol abuse interventions, education of the general public on the effects of codeine dependence and its consequences will go a long way to help in preventing further misuse and harms among the populace of Keffi community.

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The Authors declare that they have no competing interests.

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