

**Research Article**

# A Survey of the Usage and Users of Codeine Containing Cough Syrups in Maiduguri Nigeria

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**Abstract:** The Directorate of Narcotic and Controlled substances of the National Agency for Food and Drug Administration and control (NAFDAC) disclosed that a large number of Nigerians are abusing the prescription of codeine. The following work studied this illicit drug utilization in Maiduguri metropolitan Area of Borno State of Nigeria, with the aim of understanding the socio-political factors surrounding the menace in the Society. A questionnaire based survey was conducted within the study area. Volunteers numbering 210 were recruited from consented premises of pharmacies and drug shops within the Local Government Area. The questionnaire basically addressed demography of users of Codeine Containing Cough Syrups (CCCS) and socio-political factors surrounding the usage. Data obtained were analyzed using simple descriptive and inferential statistics. Of the 210 users of CCCS 95.2% were males and mainly (71.0%) in their twenties. Majority of the respondents are either students (39.0%) or self employed (23.3%). The predominant educational qualifications are secondary school certificate (51.9%) and diploma certificate (11.9%). Most (92.4%) of the respondents perceived that they administer CCCS for medical purposes mainly to increase wellness. Associated feelings include; 'feeling high' (37.1%), 'sleepiness and forgetting worries' (6.7%) and calmness in the form of 'decrease fighting urge' (4.3%) and 'decrease hyperactivity' (2.9%). About 64.3% of the respondents admitted that they cannot go through a day without taking CCCS. The most popular feelings whenever CCCS is not taken includes: 'sickness' (17.6%), 'not happy' (14.8%), 'sleepy or weakness' (15.9%). Students and youths withing the age bracket of 20 to 30 years constituted a sizable majority of CCCS users. The law surrounding the use of CCCS seems to have little impact on the usage seemingly due to poor enforcement, assuch agencies responsible for enforcing these laws could be invigorated. A well-established surveillance system and target intervention programs are needed given the potential long-term negative outcomes of use of CCCS and other addictive PoM.

**Keywords:** Codeine, Cough Syrups, Maiduguri, Drug Abuse, NAFDAC

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## 1. Introduction

Codeine is an effective cough suppressant found in many cough syrups and cold remedies at 15-60 mg/5 ml of the syrup. It is often administered 4 times daily, totaling 60-240 mg for adults. It depresses the central pathways of the cough reflex in the brain [1]. As an over-the-counter (OTC) medicine codeine containing cough syrups (CCCS) was readily available at affordable prices in pharmaceutical premises, patent and

proprietor vendors' shops and dispensaries in Nigeria. CCCS gives euphoria and general feeling of happiness, which with continual abuse leads to tolerance, psychological dependence, physical dependence and attendant withdrawal symptoms [2].

The abuse of CCCS is now the latest drug abuse trend among youths in Nigeria [3]. The way CCCS is abused by Nigerian youths has become a source of deep concern to the national House of Representatives in Nigeria, where a motion to that effect was deliberated upon. One of the demands of the

motion is for the House to direct Nigeria Drug Law Enforcement Agency (NDLEA), National Agency for Food and Drug Administration and Control (NAFDAC), the Nigerian Customs, Pharmaceutical Society of Nigeria (PSN) to investigate the incessant abuse of CCCS and report back to the House [4].

Abusing codeine before the age of 15 is 69.1% in Hong Kong [5]. In Bangladesh, cough preparations containing codeine were banned in Drug Control Ordinance of 1982. In France approximately 95.0% of the consumption of Codeine cough medication is attributed to non-medical use [6].

According to reports from the 2010 National Survey on Drug Use and Health (NSDUH), an estimated 2.4 million Americans used prescription drugs (PDs) nonmedically for the first time within the past year, which averages to approximately 6,600 initiates per day. More than one-half were females and about a third were aged 12 to 17. Although prescription drug abuse affects many Americans, certain populations, such as youth, older adults, and women, were reported to be at risk [7].

PDs misuse can have serious medical consequences. Increases in PD misuse over the last 15 years are reflected in increased emergency room visits, overdose deaths associated with PDs and treatment admissions for PD use disorders, the most severe form of which is addiction. Among those who reported past-year nonmedical use of a prescription drug, nearly 12 % met criteria for PD use disorder. Unintentional overdose deaths involving opioid pain relievers have more than quadrupled since 1999 and have out-numbered those involving heroin and cocaine since 2002 [8 – 12]

In 2010, NAFDAC started a campaign towards curtailing the rising level of abuse of codeine that ultimately resulted in the enactment of a policy by the Legislative arm of the Nigerian Government. The policy essentially reclassified CCCS from OTC list to the Prescription Only Medicine (PoM) list. To date, there are still cries from stake holders that the usage of CCCS is ravaging the Society. There are still questions whether the policy change has impacted need change or not. These necessitated the need to have a good understanding of the users and usage of this class of medication with the aim of proffering a more realistic and goal targeted interventions [13].

The aim of the survey is to characterise the usage and users of CCCS in Maiduguri Metropolitan area of Borno State, Nigeria.

## 2. Methods

### 2.1. Study Area

Maiduguri, is the capital and the largest city of Borno State in North-Eastern Nigeria. The city sits along the seasonal Ngadda River which disappears into the *Firki* swamps in the areas around Lake Chad. Maiduguri was founded in 1907 as a military outpost by the British and has since grown rapidly with a population about 1,907,600 by 2007. Its residents are mostly Muslim including Kanuri, Hausa, Shuwa, Bura,

Marghi, and Fulani ethnic groups [14]. There is also a considerable Christian population and people from Southern states such as the Igbo, Ijaw, and Yoruba. The city is considered to be the heart of the Boko Haram insurgency [15].

### 2.2. Enrolment of Study Centres

A survey was conducted in the metropolitan area where patent medicine shops and pharmaceutical chemists were identified as data collection centres. Demonstration of willingness to partner in the study shown by pharmacy directors and patent drug shop owners, was the sole criterion of selecting study centres.

### 2.3. Study Design

An observational descriptive design was adopted in the study.

### 2.4. Data Collection

Structured, mixed and non-disguised questionnaires were administered to the enrolled users of CCCS. The first part of the questionnaire addresses the demography and characteristics of respondents while the second part addresses the manners and perceptions surrounding the abuse and misuse of CCCS.

### 2.5. Study Population

A total 210 volunteers were recruited from the premises of 19 medicine stores (pharmacies and patent medicine shops) distributed across the study area.

### 2.6. Inclusion Criteria

Respondents for this study were recruited on satisfying the following conditions and also on demonstration of informed consent.

- Frank willingness to purchase any particular brand of CCCS without prescription.
- Request for more than one bottle with or without prescription.

### 2.7. Data Collection

Structured questionnaire and interview were administered to 210 volunteers (respondents).

### 2.8. Limitations of the Study

- Lack of willingness to participate in the survey by users of CCCS for fear of legal litigation.
- Inability to implement a scientifically acceptable method of sampling in choosing study centers for fear of legal litigation by owners of medicine stores. Selection was limited to consented shops.

### 2.9. Data Presentation/Analysis

Data were grouped and presented in the form of frequency tables and was further analysed by use of Statistical Package

for Social Sciences (SPSS) version 16.0<sup>®</sup>. Chi-square analysis was used to test for statistical significance between categorical variables. A p-value of  $\leq 0.05$  was considered statistically significant. Descriptive analysis was used to discuss the outcome of the survey.

### 2.10. Challenges Faced

Enrolment of study centres (pharmacies and drug shops) and volunteers was greeted with extreme difficulty for fear of legal and social implication.

## 3. Results

Of the 210 users of CCCS 95.2% were males and mainly (71.0%) in their twenties. Majority of the respondents are either students (39.0%) or self employed (23.3%). The predominant educational qualifications are secondary school certificate (51.9%) and diploma certificate (11.9%) (table 1).

Most (92.4%) of the respondents perceived that they administer CCCS for medical purposes mainly to increase wellness (table 1).

Associated feelings include; ‘feeling high’ (37.1%), ‘sleepiness and forgetting worries’ (6.7%) and calmness in the form of ‘decrease fighting urge’ (4.3%) and ‘decrease hyperactivity’ (2.9%).

About 64.3% of the respondents admitted that they cannot go through a day without taking CCCS. The most popular feelings whenever CCCS is not taken includes: ‘sickness’ (17.6%), ‘not happy’ (14.8%), ‘sleepy or weakness’ (15.9%) (table 2).

**Table 1.** Demography of Users of CCCS in Maiduguri Metropolis.

Demography	Variables	Frequency (Percentage)
Sex	Male	200 (95.2)
	Female	10 (4.8)
	Total	210 (100)
Age group	7 – 12	0 (0.0)
	13 – 19	16 (7.6)
	20 – 30	149 (71.0)
	31 – 49	26 (12.4)
	> 50	4 (1.9)
	No response	15 (7.1)
	Total	210 (100)
Educational background	Non-Formal Education	28 (13.3)
	Primary (PSC)	4 (1.9)
	Secondary SC	109 (51.9)
	Diploma	25 (11.9)
	Degree	21 (10.0)
	Post Degree	0 (0.0)
	None	11 (5.2)
	No response	12 (5.7)
	Total	210 (100)
Occupation	Civil servant	9 (4.3)
	Student	82 (39.0)
	House wife	0 (0.0)
	Self-employed/Business	49 (23.3)
	Driving	19 (9.0)
	Drug vendors	5 (2.4)
	Labourers	12 (5.7)
	Total	210 (100)

Demography	Variables	Frequency (Percentage)
	Applicant	7 (3.3)
	Unemployed	0 (0.0)
	No response	13 (6.2)
	Total	210 (100)

**Table 2.** Perception and Characteristics of CCCS Usage Among Respondents.

Perceived indication	Medical	194 (92.4)
Associated Feelings	Non-medical	8 (3.8)
	No response	8 (3.8)
	Total	210 (100%)
	Feel high	78 (37.1)
	For Comfort	17 (8.1)
	Strong/active	0 (0.0)
	Sleep/forgetting worries	14 (6.7)
	To concentrate	0 (0.0)
	Feel tipsy	6 (2.9)
	Allow to respect others	0 (0.0)
	Gain respect from others	0 (0.0)
	Decreasing hyperactivity	6 (2.9)
	Decrease Fighting urge	9 (4.3)
	No response	80 (38.1)
	Total	210 (100%)
Ability to go Through	Not able	114 (64.8)
	No response	24 (11.4)
	Total	210 (100)
Feeling if CCCS is not taken	Normal	74 (42.0)
	Sick	31 (17.6)
	Not happy	26 (14.8)
	Sleepy/Week	28 (15.9)
	Aggressive	3 (1.7)
	No response	14 (8.0)
	Total	176 (100)
Estimate of Bottles	2	19 (9.0)
	3	28 (13.3)
	4	13 (6.2)
	5	14 (6.7)
	6	7 (3.3)
	7	0 (0.0)
	8	1 (0.5)
	9	0 (0.0)
	10	4 (1.9)
	No response	60 (28.6)
	Total	210 (100%)
Any encounter with Law Enforcement	Yes	15 (7.1)
	No	145 (69.0)
	No response	50 (23.8)
	Total	200 (100)

## 4. Discussions

Of the 210 users of CCCS that volunteered, 95.2% were male and were mainly of 20 to 30 year age category. There is a statistically significant relationship between age group and ability to go through a day without CCCS.

The 20 to 30 years age category represents a bracket that are at higher risk of initiating substance abuse. A slightly lower age 12 years was identified as the lower limit of age of those at

higher risk of substance abuse in United States of America by the National Institute of Drug Abuse. The report went on to say about 2 out of 5 youths aged 12 to 17 years perceived great risk from weekly substance use compared with about 1 in 5 young adults aged 18 to 25 years category [16].

There is also a significant relationship ( $p < 0.05$ ) between educational background and perceived indication for CCCS. Most of the respondents mainly attained secondary school leaving certificates, struggling to obtain a higher certificate or self-employed managing a small scale cottage businesses like sells of phone air-time recharge cards, auto-mobile fuel, etc. These suggests that stresses borne out of challenges of educational pursuits or daily hussles of petty businesses may contributes to the high culture of CCCS abuse seen in these categories of respondents. According to the Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health, approximately 23.5 million persons aged 12 or older require treatment for an illicit drug or alcohol problem in 2009 [17].

The majority of the users claimed that they use CCCS for medical reason in the sense of increased wellness. This suggests a preponderance amongst the users of CCCS, of a distorted perception good health. Specifically, 'feeling high' was described as a kind of good health benefit of CCCS usage. Most users seem to have attained a level of dependance on CCCS as 64.8% admitted to not being able to withstand a day without taking CCCS. The ultimate repercussion of this, is that all kind of legal or illegal actions could be taken to ensure accessibility.

It was reported that the non-medical consumption of cough syrups in Northern Nigeria has become a subject of public concern of recent, largely due to its potential danger to the society. He revealed that about 11% of the youth in Nigeria are reliant on one form of drug or the other and this poses a serious threat to sustainable youth development in the Northern Region [18]. It was further found out that there was generally high prevalence of psychiatric disorders among nonmedical opioid users, particularly women [19].

Consumption pattern amongst the volunteers ranges from 1 to 6 bottles per day, and this is mainly determined by resources at hand. There is high likelihood encountering problems of affordability among the respondents as majority are either jobless or running petty businesses. An average price of a bottle of CCCS is in excess of 1,000.00 Nigerian Naira.

Most of the volunteers claimed not to have had any encounter with the Nigerian Drug Law Enforcement Agencies (NDLEA) or any security agency. This supports an earlier observation that the NDLEA need to be invigorated both in size and strength to enable it cope with the enforcement of drug related laws.

## 5. Conclusion

Students and youths withing the age bracket of 20 to 30 years constitutes a sizable majority of CCCS users. The law surrounding the use of CCCS seems to have little impact on the usage seemingly due to poor enforcement, assuch agencies

responsible for enforcing these laws could be invigorated. A well-established surveillance system and target intervention programs are needed given the potential long-term negative outcomes of use of CCCS and other addictive PoM.

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