

## Original Research Article

# Perception of community pharmacists on abuse of psychotropic medications among the consumers

Kolawole O Alabi<sup>1\*</sup>, Falade Joshua<sup>2</sup>, Akinsola I Akinwumi<sup>1</sup>, David U Adje<sup>3</sup>,  
Olufunsho Awodele<sup>4</sup>

<sup>1</sup>Department of Family Medicine, College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria,

<sup>2</sup>Department of Psychiatry, College of Medicine and Health Sciences, Afe Babalola University, Ado-Ekiti, Nigeria, <sup>3</sup>Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, Delta State University, Abraka, Nigeria, <sup>4</sup>Department of Pharmacology, Toxicology and Therapeutics, Faculty of Basic Medical Sciences, College of Medicine, University of Lagos, Nigeria

\*For correspondence: **Email:** kolawolea@abuad.edu.ng **Tel:** +2348034285127

Sent for review: 05 November 2021

Revised accepted: 10 December 2022

### Abstract

**Purpose:** Abuse of medications implies that the user is using them for reasons other than those indicated in the prescribing literature. Psychotropic medications are those capable of affecting the mind, emotions, and behavior of humans. This study sought to determine the perception of community pharmacists about the pattern of psychotropic medication abuse among their customers.

**Methods:** A descriptive, cross-sectional study carried out among community pharmacists in Surulere axis of Lagos State, Nigeria, by census sampling method using a structured questionnaire.

**Results:** Majority of the respondents (74.7%) were male and within ten years of practice experience (85.1%). About four-fifth (84.4%) of the respondents perceived that psychotropic medications were being abused by customers purchasing such medications from them. Caffeine-based analgesics ranked highest (85.1%) among the drugs perceived to be abused while dextromethorphan-containing cough syrup, sedative antihistamine, codeine-based analgesics, tramadol, oral decongestant, and benzodiazepines were perceived to be equally abused (84.4%). Male customers were perceived to abuse psychotropic medications more than their female counterparts and abuse of tramadol and codeine-based analgesics were specifically noted to be higher in customers younger than 26 years of age.

**Conclusion:** Consumer psychotropic medication abuse at community pharmacies was perceived to be significant in Lagos community pharmacies.

**Keywords:** Substance abuse, psychotropic medications, community pharmacies, Lagos

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

Tropical Journal of Pharmaceutical Research is indexed by Science Citation Index (SciSearch), Scopus, Web of Science, Chemical Abstracts, Embase, Index Copernicus, EBSCO, African Index Medicus, JournalSeek, Journal Citation Reports/Science Edition, Directory of Open Access Journals (DOAJ), African Journal Online, Bioline International, Open-J-Gate and Pharmacy Abstracts

## INTRODUCTION

Psychotropic medication is a broad term referring to medications that affect mental function,

behavior, and experience [1]. The term 'abuse' is used to describe the use of drugs for nonmedical purposes, i.e., to experience their mind-altering (psychogenic) effects, while 'misuse' is applied to

the use of a drug for legitimate medical purposes, but for wrong indication or in an incorrect manner such as for longer duration than prescribed or in a higher dose [2, 3].

The mechanisms by which individuals can obtain medicines include traditional prescribing by doctors, as well as the ability to purchase medicines directly, especially to self-manage minor ailments [4], the former being referred to as prescription medicine and the latter over-the-counter (OTC) medicine. Both prescription and over-the-counter medicines are mainly obtained in community pharmacy settings and are liable to abuse [5, 6]. Unlike the abuse of illicit drugs which has received much attention and research, the abuse of psychotropic medications which can easily be obtained in community pharmacies has been less documented.

Attempts to describe the global scale of medication abuse at the community pharmacy level have been difficult due to heterogeneity of methods, medicinal products examined, data sources and participant groups. While some studies were based on pharmacists' perceptions of abuse (often in United Kingdom studies) and data from drug treatment and poisons centres (e.g. in the United States), others were based on perceptions of members of the public and self-reported abuse from specific groups [4]. In the United States, the National Survey on Drug Use and Health (NSDUH) estimated that over 16.7 million people aged 12 years and older abused prescription drugs in 2012 [7]. The earliest identified United Kingdom study on medication abuse at community pharmacy level involved a postal survey of pharmacists in a county in England in 1996. In this study, Paxton and Chapple reported that 69% of the pharmacists admitted that some form of over-the counter medication abuse was happening in their pharmacies [8].

Over the counter medications that have been implicated with potentials for abuse in community pharmacies include caffeine, chlorpheniramine, dextromethorphan, diphenhydramine, pseudoephedrine, dimenhydrinate, coricidine, ephedrine, methylephedrine, ephedra, and cyclizine [7,9]. Commonly used prescription drugs with potential for abuse include benzodiazepines, methamphetamine, amphetamine, codeine, barbiturates, flunitrazepam, fentanyl, morphine, methylphenidate and carisoprodol [9]. Problems and harms reportedly associated with the abuse of these products include direct harms related to the pharmacological or psychological effects of the drug of abuse, progression to abuse of other

substances, huge economic loss and detrimental effects on personal and social life [4].

In Nigeria, the national drug policy expresses the way drugs are to be selected, procured, distributed, produced, used, regulated, and controlled in order to solve the priority health care problem and prevent abuse. Based on this policy, drugs are classified as prescription only medicines, controlled drugs and over-the-counter [10]. However, people can still purchase almost any drug, with the exception of controlled drugs, from a pharmacy without having to present a prescription. This situation, which is due to weak legislation and enforcement, sets the stage for abuse of prescription drugs. According to the outcome of a recent survey in Nigeria, factors promoting psychotropic medication abuse in pharmaceutical outlets were identified to include peer pressure, cultism, open drug markets, inadequate regulatory control, inadequate logistics and prevalence of illegal medicine outlets and presence of drug hawkers [11].

In West African sub-region generally, and Nigeria in particular, there is paucity of published studies on the magnitude and pattern of psychotropic medication abuse among customers patronizing pharmaceutical shops, hence this study. The study therefore aimed to determine the perceived magnitude of consumer psychotropic medication abuse at community pharmacies, products and people involved, and possible strategies of curbing the abuse. The outcome of the study is expected to inform and spark the interest of the community pharmacists, the relevant regulatory professional bodies, the policy makers and researchers on the magnitude of this problem and possibly induce further actions.

## METHODS

### Study Area

The study was carried out in Surulere local government area of Lagos state. Lagos state is the commercial hub of Nigeria and is located in Southwest Nigeria on a total landed area of 3,345 sq. km (1,292 sq. mi) on four principal islands and adjacent parts of the Nigerian mainland. This represents 0.4% of Nigeria's territorial landmass. Surulere is located in the middle belt region of Lagos mainland, having a landed area of 23.0-kilometer square, with a population density of 21,912 persons per square kilometre [12].

Surulere is populated by different types of people-young families, grandparents, politicians, musicians, students, highly educated, not-so-

educated, and people from other parts of the country, notably Northern and Southern parts of Nigeria [13]. Surulere houses the reputable Lagos University Teaching Hospital (LUTH) and many other notable public and private health institutions and the landscape is dotted with many thriving community pharmacies.

### Study Design

The study was a descriptive cross-sectional survey of community pharmacists which was conducted between October and December, 2018. All the community pharmacists in the area were sampled. All consenting pharmacists were included in the study. A census sampling method was used which yielded 154 completely filled and returned questionnaires. According to the local Pharmaceutical Society of Nigeria source, seventy out of the respondents were registered with the body.

### Instrument

A self-administered, structured questionnaire which was completed anonymously, was used to obtain information from the respondents. The questionnaire was adapted from Albsoul-Younes *et al.* [3], with some modifications to suite the study peculiarities. Such modification included the inclusion of prescription medication liable to abuse as the previous study focused on over-the-counter medications. Hughes *et al.*, originally designed and used the questionnaire (which was completed by community pharmacists) to investigate the abuse/misuse of over-the-counter products in Northern Ireland in 1999 [14]. After pilot testing, minor amendments were made to help the respondents understand the concept and expectation of the survey. A questionnaire was dropped with each respondent and picked up at a later date agreed to by the researcher and the respondent.

The questionnaire was subdivided into six sections. First, the respondents were asked to state their sex and years of practice as community pharmacists. Second, the pharmacists were asked to respond with 'yes' or 'no' whether or not they perceived that psychotropic medications were being abused by customers patronizing their shops. Medications abuse would be suspected if clients appeared to be purchasing excessive quantities of a products at once, if clients asked for a product too frequently, if clients looked or behaved suspicious when asking for a product or when other pharmacists or shop assistants had raised a concern about abuse tendency of products [15, 16]. Third, the respondents were given a list of

seven psychotropic medications reportedly being commonly abused in community pharmacies (derived from literature search and similar studies) [3-6, 9] to identify the ones perceived to be abused in their respective pharmacies and to state the characteristics of typical abusers (age group and gender) for each of the products. The age was categorized to 25 years and below, 26-50 years, above 50 years, and mixed age group [3]. Fourth, the pharmacists were asked to state the perceived reasons why their customers abuse these medications. Fifth, they were given a list of six methods community pharmacists have reportedly been employing to reduce sales of psychotropic medications liable to abuse (derived from literature search and similar studies) [3, 4, 6] and to state whether they use any of the methods. Finally, the respondents were asked to identify suggested ways to curb psychotropic medication abuse in their pharmacies.

### Data Analysis

The completed questionnaires were sorted out and coded serially. The information and data entered were summarized and represented in tables, frequencies and percentages. Data analysis was done using IBM SPSS Statistics for Windows, Version 23 (IBM Corp., Armonk, NY, USA), and Chi-Square and Fishers Exact Test were used to determine associations between categorical variables. P-value of less than 0.05 was taken as statistically significant relationship.

## RESULTS

The superintendent pharmacist of each of the facilities sampled completed a questionnaire, with a total of one hundred and fifty-four (154) respondents. 115 (74.7%) respondents were males and 131 (85.1%) were within ten years of practice experience (Table 1). Furthermore, 130 (84.4%) community pharmacists perceived abuse of psychotropic medication by customers patronizing their pharmacies.

Caffeine-based analgesics (85.1%), dextromethorphan-containing cough syrup (84.4%), sedative anti-histamines (84.4%), codeine-based analgesics (84.4%), tramadol (84.4%), oral decongestants (84.4%), and benzodiazepines (84.4%) were perceived to be abused by customers. (Table 2).

Tramadol and codeine-based analgesics were perceived to be abused more by people of younger age group (less than 26 years) while other products were perceived to be abused by customers of mixed age group (Table 3). These

perceptions, in terms of products concerned and the suspected age-groups, were all statistically significant. Also, across all the products, male customers were perceived to abuse psychotropic medications more than their female counterparts (Table 3).

**Table 1:** Characteristics of the respondents and perception of abuse

Variable	Frequency	Percentage
<b>Sex</b>		
Male	115	74.7
Female	39	25.3
Total	154	100.0
<b>Years of practice</b>		
Less than 5	72	46.8
5-10	59	38.3
More than 10	23	14.9
Total	154	100.0
<b>Perception of psychotropic medication abuse</b>		
Yes	130	84.4
No	24	15.6
Total	154	100.0

**Table 2:** Products perceived to be abused by consumers in their respective pharmacies

Products perceived to be abused	n (%)
Caffeine-based analgesics	131 (85.1)
Dextromethorphan-containing cough syrup	130 (84.4)
Sedative anti-histamine	130 (84.4)
Codeine-based analgesics	130 (84.4)
Tramadol	130 (84.4)
Oral decongestant	130 (84.4)
Benzodiazepine	130 (84.4)

The high-ranking reasons adduced to psychotropic medication abuse were depression/emotional problems (23.1%), illiteracy/ignorance (12.9%), pain (12%), stress (11.1%), peer influence (11.1%), joblessness (7.4%), curiosity (5.5%), self-medication (4.6%) and to feel high (4.3%) (Table 4).

Table 5 depicts the prevention and control of psychotropic medication abuse. Most respondents would alert customers to abuse potential of drugs (93.5%) while majority of the respondents believed that additional training for pharmacists to manage medication abusers was the best strategy to ameliorate the problem of

psychotropic medication abuse in community pharmacies.

## DISCUSSION

To the best of our knowledge, this study is the first to investigate/assess the perception of community pharmacists on the abuse of psychotropic medications by customers patronizing community pharmacists in Nigeria.

About four-fifth (84.4%) of the pharmacists perceived that psychotropic medications were being abused by customers purchasing such medications from them. Caffeine-based analgesics ranked highest among the drugs perceived to be abused while dextromethorphan-containing cough syrup, sedative antihistamine, codeine-based analgesics, tramadol, oral decongestant, and benzodiazepines were perceived to be abused as well. Male customers were perceived to abuse psychotropic medications more, and abuse of tramadol and codeine-based analgesics were specifically noted to be higher in customers younger than 26 years of age.

In a similar study, Albsoul-Younes *et al.*, reported that 94.1% of Jordanian pharmacists suspected some abuse or misuse of OTC products in their premises [3]. A similar but lower percentage was found in a postal survey of pharmacists in a county in England where 69% of pharmacists considered there to be some form of OTC medicine misuse in their pharmacies [9]. Also, Matheson *et al.*, reported that 67.8% and 68.5% of the pharmacists in Scotland who were interviewed by postal surveys in 1995 and 2000 respectively, believed that OTC product misuse was occurring in their pharmacies [17]. The lower prevalence in the UK studies might be due to difference in methodologies; the UK studies focusing on abuse of OTC medications generally rather than psychotropic medications specifically. The products found to be prone to abuse in this study were similar to those reported in similar studies [3, 5, 9]. The recent ban on codeine-containing cough syrup in Nigeria and replacement with dextromethorphan-containing cough syrup [18] may have explained why 'codeine addicts' might have turned to codeine-based analgesics and dextromethorphan-containing cough syrup, especially to experiment with the mind-altering effect of the latter.

This study found a male preponderance as the typical abusers suspected across all the products

**Table 3:** Association between pharmacists' perception of drugs liable to abuse with demographic factors of suspected abusers using Chi square and Fishers Exact Test

Medication		Pharmacists perception		df	P-value
		Perceived to be abused n (%)	Not perceived to be abused n (%)		
Dextromethorphan-containing cough syrup	<b>Age group</b>				
	≤ 25 years	18 (72.0%)	7 (28.0%)	3	< 0.001
	26-50 years	44 (84.6%)	8 (15.4%)		
	> 50 years	5 (41.7%)	7 (58.3%)		
	Mixed	63(96.9%)	2 (3.1%)		
	<b>Gender</b>			1	0.039
Male	118(86.8%)	18 (13.2%)			
Sedative anti-histamine	Female	12 (66.7%)	6 (33.3%)		
	<b>Age group</b>				
	≤ 25 years	12 (63.2%)	7 (36.8%)	3	< 0.001
	26-50 years	37 (88.1%)	5 (11.9%)		
	> 50 years	19 (67.9%)	9 (32.1%)		
	Mixed	62 (95.4%)	3 (4.6%)		
<b>Gender</b>			1	1.000	
Male	104(84.6%)	19 (15.4%)			
Codeine-based analgesics	Female	26 (83.9%)	5 (16.1)		
	<b>Age group</b>				
	≤ 25 years	61 (89.7%)	7 (10.3%)	3	< 0.001
	26-50 years	24 (82.8%)	5 (17.2%)		
	> 50 years	4 (30.8%)	9 (69.2%)		
	Mixed	41 (93.2%)	3 (6.8%)		
<b>Gender</b>			1	0.162	
Male	117(86.0%)	19 (14.0%)			
Tramadol	Female	13 (72.2%)	5 (27.8%)		
	<b>Age group</b>				
	≤ 25 years	68 (91.9%)	6 (8.1%)	3	< 0.001
	26-50 years	21 (77.8%)	6 (22.2%)		
	> 50 years	4 (30.8%)	9 (69.2%)		
	Mixed	37 (92.5%)	3 (7.5%)		
<b>Gender</b>			1	0.181	
Male	116 (85.9%)	19 (14.1%)			
Oral decongestants	Female	14 (73.7%)	5 (26.3%)		
	<b>Age group</b>				
	≤ 25 years	21 (75.0%)	7 (25.0%)	3	< 0.001
	26-50 years	32 (86.5%)	5 (13.5%)		
	> 50 years	9 (50.0%)	9 (50.0%)		
	Mixed	68 (95.8%)	3 (4.2%)		
<b>Gender</b>			1	0.207	
Male	113(86.3%)	18 (13.7%)			
	Female	17 (73.95)	6 (26.1%)		

**Table 3:** Association between pharmacists' perception of drugs liable to abuse with demographic factors of suspected abusers using Chi square and Fishers Exact Test (**continued**)

Medication		Pharmacists perception		df	P-value
		Perceived to be abused n (%)	Not perceived to be abused n (%)		
Caffeine-based analgesics	<b>Age group</b>				
	≤ 25 years	14 (70.0%)	6 (30.0%)	3	< 0.001
	26-50 years	41 (89.1%)	5 (10.9%)		
	> 50 years	6 (40.0%)	9 (60.0%)		
	Mixed	70 (95.9%)	3 (4.1%)		
	<b>Gender</b>				
	Male	112(13.2%)	17 (13.2%)	1	0.216
	Female	19 (76.0%)	6 (24.0%)		
Benzodiazepines	<b>Age group</b>				
	≤ 25 years	15 (75.0%)	5 (25.0%)	3	0.001
	26-50 years	43 (84.3%)	8 (15.7%)		
	> 50 years	12 (60.0%)	8 (40.0%)		
	Mixed	60 (95.2%)	3 (4.8%)		
	<b>Gender</b>				
	Male	120(87.0%)	18 (13.0%)	1	0.021
	Female	10 (62.5%)	6 (37.5%)		

**Table 4:** Reasons adduced to psychotropic medication abuse

Reasons	Proportion of respondents (%)
Depression/emotional problems	23.1
Illiteracy/ignorance	12.9
Bodily pain	12.0
Stress	11.1
Peer influence	11.1
Joblessness	7.4
Curiosity	5.5
To feel high	4.3
Anxiety	2.2
Post-traumatic stress disorder	2.2
Physical dependence	1.5
Lack of parental guidance	1.5
Sexual enhancement	1.5
Boredom	1.2
Failure to seek professional help	0.9
Enhancement of physical activities	0.9
Poor sleep	0.7

liable to abuse. This finding was consistent with that of Adamson *et al.*, in Nigeria where abuse of psychotropic medications (methamphetamine and tranquilizers) were higher among males [19].

Similarly, in a Jordanian study, majority of the community pharmacists' customers who were suspected of medication abuse were males (60.6%) [3]. However, similar European studies reported mixed gender distribution [4] and this difference may be explained by cultural differences.

Mixed adult age groups were suspected to be involved in psychotropic medication abuse across various products with the exception of tramadol and codeine-based analgesics whose abuse was perceived to be higher among customers less than 26 years old. This younger age group represents adolescents and young adults who are either in secondary schools, higher institutions of learning or early school leavers who may be experimenting with the mind-altering effects of these drugs. This age group also encompasses young men of low socio-economic status who might be involved in different kinds of manual labour to make ends meet. For the manual labourers, the use of these products as analgesics might be the entry point after which their mind-altering effects are discovered with higher doses which then helps to perpetuate their use in an abusive manner. Efforts and programs by the governments and Non-Governmental Organizations to stem the tide of psychotropic medication abuse, especially at the community pharmacy level, should

**Table 5:** Prevention and control of medication abuse

<b>Methods of limiting access</b>	<b>Percentage of respondents using the methods</b>
Alerting customers to abuse potential of drugs	93.5
Suggesting customers contact their doctors and supplying limited amount	92.2
Removing medications from sight	89.0
Sales on prescription only	82.5
Claiming products are out of stock	79.9
Refusing sales	72.7
<b>Strategy of ameliorating medication abuse</b>	<b>Percentage of respondents who believed such strategy could be effective</b>
Additional training for pharmacists to manage medication abusers	96.8
Enforcing regulatory control	96.8
Instituting audit trail for drugs manufactured locally or imported into the country	96.8
Increasing public awareness of dangers of psychotropic medication abuse	95.5
Documenting and reporting psychotropic medication abuse by pharmacists	95.5
Raising awareness of local medication abuse trends	93.5
Allowing pharmacists to provide treatment withdrawal programs	92.9

therefore focus more on this age group. A comparable trend was also reported in the United States. According to data from the 2017 National Survey on Drug Use and Health, 18.1 million (6.6% of US population) people aged 12 years or older were reported to have used prescription psychotherapeutic drugs for non-medical reasons during the previous year. These included opioid pain relievers, tranquilizers, and stimulants. Out of these, 2.8 million used codeine and 1.5 million used tramadol [20].

The topmost reason for abusing psychotropic medications was perceived to be depression or emotional problems. This was followed by illiteracy and bodily pain. This is an indirect indication of poor mental health status of many people in the community and underscores the need for a proper framework for enhancing the mental health of the populace. This finding agrees with that of a study conducted in the United States, where anxiety was found to be common among people abusing tranquillizers [21]. Also, the finding of bodily pain as reason for abusing medications agrees with that of another study which reported that people whose bodily pain are not treated appropriately are likely to self-medicate [9].

While examining the various ways the pharmacists have been adopting in their premises to limit access to medications liable to

abuse, refusing sales was the most unpopular method stated. This may be explained from economic point of view as refusing sales translates to reduced income for the pharmacies practicing such. However, a popular strategy reported was to supply a limited amount of medication and suggesting to customers to see their doctors. Whether such a person ends up seeing a doctor or not is a different matter entirely. This method may prove to be of limited value as the customer may seek a supply from other pharmacies. This problem could be minimized if pharmacists network more frequently with one another whereby a suspected abuser would be reported to other pharmacies of the locality. A better and a more comprehensive system may be to connect all pharmacies electronically on national level to report about drugs of potential abuse [22] but there is still a long way to go for Nigeria to be able to achieve this due to the logistics involved. That notwithstanding, with better collaboration among local community pharmacists and strong will to stamp out psychotropic medication abuse, 'pharmacy-hopping' should no longer be effective for such abusers.

The most important strategy which the respondents believed would reduce psychotropic medication abuse in community pharmacies was an additional training for pharmacists to manage medication abusers. This can be incorporated into the continuing professional development

program for practicing community pharmacist by the relevant authorities. This strategy and others were similar to those proposed by community pharmacies in Northern Ireland and Jordan as measures that may stem medication abuse at the community pharmacy level [3, 14].

### Limitation of the study

This study was carried out among community pharmacists rather than the affected group directly (psychotropic medication abusers), which constituted a hard-to-reach group. The pharmacists' response may have been affected by recall bias.

## CONCLUSION

The perception of psychotropic medication abuse from community pharmacies in an urban Lagos setting was high. The products perceived to be abused included dextromethorphan-containing cough syrup, sedative antihistamine, codeine-based analgesics, tramadol, oral decongestant, caffeine-based analgesics and benzodiazepines. Male costumers were perceived to abuse psychotropic medication more than their female counterpart and tramadol and codeine-based analgesics were perceived to be abused more by customers below 26 years of age. Most respondents hinted that additional training for community pharmacies in handling suspected abusers would help in solving this problem.

The results of this study indicates that attention needs to be paid to the issue of psychotropic medication abuse at the community pharmacy level which has received less attention from research groups and the governments. Also, relevant government agencies and professional bodies need to exercise tighter control over the manufacture, importation, distribution, regulation and sales of psychotropic medications in Nigeria. Furthermore, larger studies that will encompass urban, semi-urban and rural settings are recommended to look at how demography can influence psychotropic medication abuse at community pharmacies in Nigeria.

## DECLARATIONS

### Acknowledgements

The authors will like to appreciate Mr Dare Emdin for his assistance with data collection.

### Funding

None provided.

### Ethical approval

Approval for the study was granted by the Health Research Ethics Committee of Lagos University Teaching Hospital (Assigned number: ADM/DCST/HREC/APP/3422) and an informed consent was also obtained from individual participants.

### Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

### Conflict of Interest

No conflict of interest associated with this work.

### Contribution of Authors

We declare that this work was performed by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by the authors. Alabi KO and Awodele O conceived and designed the study, Alabi KO analysed the data, Falade J, Awodele O, and Alabi KO wrote the manuscript, Akinwumi A and Adje D revised the manuscript critically for important intellectual contents, and all authors read and approved the manuscript for publication.

### Open Access

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited.

## REFERENCES

1. NSW Department of Health. *Psychotropic medication use in nursing homes: Report of the NSW Ministerial Taskforce*. Sydney, New South Wales, Australia: Author; 1997
2. DuPont RL. Prescription stimulant abuse. *Psychiatr Ann* 2005; 35: 93-97.
3. Albsoul-Younes A, Wazaify M, Yousef AM, Tahaine L. Abuse and Misuse of Prescription and Nonprescription Drugs Sold in Community Pharmacies in Jordan. *Subst Use Misuse* 2021; 45: 1319-1329.
4. Cooper R. Over the counter medicine abuse - a review of the literature. *J Subst Use* 2013; 18(2): 82-107.



5. Shi CW, Bayard MA. Abuse of Over-the-Counter Medications Among Teenagers and Young Adults. *Am Fam Physician* 2011; 87(7): 745-750.
6. McHugh RK, Nielsen S, Weiss RD. Prescription Drug Abuse: From Epidemiology to Public Policy *J Subst Abuse Treat* 2015; 48(1): 1-7.
7. Substance Abuse and Mental Health Services Administration. Results from the 2012 National Survey on Drug Use and Health: Detailed tables [cited 2019 Jan 15]. Available from: <http://www.samhsa.gov/data/NSDUH/2012SummNatFindDetTables/DetTabs/NSDUHDetTabsTOC2012.htm/>.
8. Paxton R, Chapple P. Misuse of over-the-counter medicines: A survey in one English county. *Pharm J* 1996; 256(6881): 313-315.
9. Lessenger JE, Feinberg SD. Abuse of Prescription and Over-the-Counter Medications. *J Am Board Fam Med* 2008; 21:4 5-54.
10. Federal Ministry of Health (2017). Nigerian Essential Medicines List.
11. Mohammed E. 'Contemporary issues in healthcare delivery (drug abuse and misuse, antimicrobial resistance, fake and falsified drugs and drug distribution)'. paper presented at International Day against Drug Abuse and Illicit Trafficking commemoration in Lagos, 26th July. 2018 National Population Census 2006 .National Population commission, Lagos.
12. 5 Reasons Surulere is the best place to live in Lagos' [cited 2019 Jan 15]. Available from: <https://www.vanguardngr.com/2016/09/5-reasons-surulere-best-place-live-lagos/>
13. Hughes GF, McElnay JC, Hughes CM, McKenna P. Abuse/misuse of non-prescription drugs. *Pharm. World Sci* 1999; 21(6): 251-255.
14. Fleming GF, McElnay JC, Hughes CM. Development of a community pharmacy-based model to identify and treat OTC drug abuse/misuse: a pilot study. *Pharm World Sci* 2004; 26(5): 282-288.
15. MacFadyen L, Eadie D, McGowan T. Community pharmacists' experience of over-the-counter medicine misuse in Scotland. *J R Soc Promot Health* 2001; 121(3): 185-192.\
16. Matheson C, C.M. Bond, J. Pitcairn, Misuse of over-the-counter medicines from community pharmacies: A population survey of Scottish pharmacies. *Pharm J* 2002; 269(7206): 66-68.
17. Why Federal Government banned importation of codeine-based syrup' [cited 2018 Dec 15]. Available from: <https://punchng.com/fg-bans-importation-of-codeine-based-syrup/>.
18. Adamson TA, Ogunlesi AO, Lufemi Morakinyo O, Onifade PO, Erinosh O, Adewuyi AA, Fasiku DA, Adebowale TO, Ogunwale A, Somoye EB. Descriptive national survey of substance use in Nigeria. *J Addict Res Ther* 2015; 6(3): 234.
19. National Survey on Drug Use and Health, USA, 2017.
20. Chen KW, Berger CC, Forde DP, D'Adamo C, Weintraub E, Gandhi D. Benzodiazepine use and misuse among patients in a methadone program. *BMC psychiatry* 2011; 11(1): 1-7.
21. Manchikanti L, Whitfield E, Pallone F. Evolution of the National All Schedules Prescription Electronic Reporting Act (NASPER): a public law for balancing treatment of pain and drug abuse and diversion. *Pain Phys* 2005; 8: 335-347..