NIGERIAN JOURNAL OF PSYCHOLOGY

Volume 24, No.2, 2024 ISSN: 0331-0574 (Print), 2635-3806 (Online)

Published by the Nigerian Psychological Association

NPA JOURNALS - www.npa-journals.org/njp

PREVALENCE AND PATTERN OF ABUSIVE SELF-MEDICATION IN OWERRE COMMUNITIES, IMO STATE, NIGERIA

***Ann U. Madukwe**
Juliana C. Njoku
Juliet Ifeoma Nwufo
Victoria C. Chukwudi
Vitus C. Onyeze
Joy O. Echeme

ARTICLE INFO

Article's History
Received: 30/09/2024

Revised: 24/10/2024

Accepted: 05/11/2024

Authors' Affiliation
[1]Department of Psychology,
Imo State University, Owerri, Imo State.

[2]Department of Social Sciences,
School of General Studies,
Federal Polytechnic Nekede, Owerri, Imo State.

[3]Department of Psychology,
University of Nigeria, Nsukka, Enugu State.

[4]Department of Nursing Science,
Faculty of Health Sciences,
Gregory University, Uturu, Abia State.

[5]Department of Statistics,
Faculty of Physical Sciences,
Imo State University, Owerri, Imo State.

[6]Psychiatric Unit,
Department of Internal Medicine,
Federal University Teaching Hospital,
Owerri, Imo State.

*Corresponding author:
annemichael2002@yahoo.com,
anna.madukwe@imsu.edu.ng,
+2348069426008

ABSTRACT

In this study self-medication or the use of non-professionally prescribed drugs was assessed among Six hundred and two (602) respondents, comprising 383 males and 219 females sampled from Owerri zone using cluster sampling technique. The respondents aged 18 years and above. Medications considered in this study were sleeping pills, sedatives, stimulants, painkillers, antimalaria, antibiotics, blood tonics and anti-microbes purchased or consumed in the last three months. It was a cross-sectional survey design carried out using a Prescription Drug Use Inventory. Participants were asked to rate how often they used each category of medication ranging from never to 40 times. Five hypotheses were tested. Percentages and Chi-square were used for data analyses. Many of the respondents 52.30% were between 18 and 25 years old. The prevalence of self-medication was 84.3% and showed that painkillers, anti-malarias and antibiotics were the three most used class of drugs. Age and residential area were significant factors in the prevalence of self-medication while gender was not significant. This study provides evidence in support of the provision of a prescription drugs production, distribution, sale and handling control policy in Imo State.

Keywords: ***Abusive Self-medication, Anti-microbes, Drug Control Policy, Malaria, Owerri, Prescription drugs.***

INTRODUCTION

Self-medication involves self-diagnosis and treatment, getting medicines without proper prescription, using previous prescriptions to get drugs without proper medical advice, sharing medicines with others or using leftover medicines stored at home or elsewhere. Teixeira *et al*. (2020) adds that due to the lack of prescription, advice or monitoring by a qualified health professional, the practice of self-medication could have serious adverse health consequences including death.

Self-medication has been recognized and reported as a community health problem that affects many people globally (Albashtawy *et al*., 2014; Alo, Oguejiofor & Alo, 2015; Britto *et al*., 2017; Latifi *et al*., 2017; Liu *et al*., 2024; Nemat *et al*., 2023; Young, Glover, & Havens, 2012). Self-medication which encourages an individual to look after minor ailments with simple and effective remedies is a common practice worldwide. However, excessive use of a particular drug contributes to the development of drug resistance in the body with consequent physical and/or mental health complications. In a study by Kojom *et al*. (2018) self-medication was linked to the emergence of antimalarial drug -resistance, while Nemat et al. (2023) stated that it contributes to pathogen resistance to antibiotics.

Additionally, the risk of abusive self-medication is increased if the individual does not have knowledge and understanding of the disease being treated, makes incorrect self-diagnosis, uses unsuitable dose and route of administration, is unaware of potential risks and adverse reactions or drug interactions (Albashtawy, Batiha, Tawalbeh, Tubaishat, & Alazzam, 2014; Gellman and Turner, 2013).

A survey in Britain reported that 93% of patients experienced body pain within one month, and of these 75% self-prescribed an over-the-counter (OTC) analgesic (James & French, 2008); 72% of patients with a cold, cough, and headache in the United States would choose to self-medicate in the first instance (Ren, Kan & Duan, 2016). The prevalence of self-medication was 75% in Chile (Fuentes & Villa, 2008), 65% in Brazil (Bertoldi, Camargo, Silveira, Menezes, Assunção, Gonçalves, & Hallal, 2014), and 53% in Mexico (Balbuena, Aranda & Figueras, 2009). A study done in a hospital in Ibadan showed that 85% of patients admitted to self-medication (Omolase, Adeleke, Afolabi & Afolabi, 2007). Same study also revealed that drugs were used singly or in combination and that (15.3%) of respondents admitted using antimalaria-analgesic-antibiotic combination and (10%) admitted using antibiotic-analgesic combinations. Another study revealed a 375 (89.70%) frequency of self-medication in the General Outpatient Department of the Federal Teaching Hospital Abakaliki; the different forms of medicines used for self-medication included multivitamins (99.5%), antimalarials (79.15%), analgesics (66.33%), and antibiotics (46.98%) (Alo, Oguejiofor & Alo, 2015).

Despite the growing research interest in self-medication, little information is available about its major determinants especially in developing countries. Afolabi (2008) studied the major factors that influence the pattern of self-medication in a population of market women in Ifako-Ijaiye area of Lagos, Nigeria. The report showed that almost all the respondents (95-98%) surveyed admitted one form of self-medication or the other. For all age groups, respondents used medications combined with each other rather than in single doses. Ocan, Obuku, Bwanga, Akena, Richard, Ogwal-Okeng, and Obua, (2015), in their study on household antimicrobial self-medication, found a high prevalence of antimicrobial self-medication of 38.8%. in a study that examined gender differentials among adults who self-medicated using tobacco, alcohol and prescription drugs, Njoku, Tony-Okolo and Madukwe (2019) reported that males significantly abused tobacco and alcohol compared to females; the authors reported no gender differences in prescription drugs abuse while self-medicating.

A study by Yousef, Al-Bakri, Bustajani, and Wazaify (2008) reported self-medication to be influenced by the high cost of health care, while lack of enforcement of legislations restricting over-the-counter sale of antibiotics was sighted as a reason for continued use of antimicrobial self-medication. In a different study, Ghaderi, Hassanzadeh, Rahmani, Moradi, Esmailnasab, Roshani, and Azadina (2020) reported a high prevalence (73.70%) of self-medication in Kurdistan, Iran. They found that analgesics, antibiotics, non-steroid and inflammatory, cold and gastrointestinal medicines were the most commonly used medicines. According to them, availability of

medicines and easy access to medicine supplies in pharmacies are some reasons for self-medication.

Another cross-sectional study in Jos reported a prevalence of 75.4% (Auta, Omale, Folorunsho, David & Banwat, 2012) while another in Islamabad, Pakistan reported a lower frequency of 61.2% among urban and rural populations (Aqeel, Shabbir, Basharat, Bukhari, Mo & bin, 2014). Previous researches on self-medication have mainly focused on the relevance and reasons given for self-medicating in different states. Information on pattern and relevance of policy measures to self-medicate has been lacking. Many at times global, regional or national, the discourse on drug control policy focuses on illicit drugs. The human world and international agencies always focus on the production, trafficking or consumption of psychotropic drug which are mostly drugs of addiction as such policy efforts are made towards controlling or containing drug problem is usually concentrated on these types of drugs leaving the use and abuse of other types of drugs to the care of no one.

In agreement with Klantschnig (2015), drug control policies in Nigeria have not been driven by drug-related trends in Nigeria and the world in general. It is rather exclusive, repressive as well as coercive. These methods of drug control are evident in both federal and state government operatives. There has been drug-related seizure and arrests by National Drug law Enforcement Agency (NDLEA) in the past, with recent arrest and destruction of some over the counter drugs like Tramadol and cough syrup. This event occurred following the increasingly prevalent abusive use of these drugs by youths and other adults in Nigeria. In the light of this development, the government of Imo State recently constituted a taskforce on illicit drugs charged with the duty to demolish buildings in which illicit drugs (cannabis) are sold and bring the owner to face the wrath of the law ("Takers and sellers of illicit drugs", 2018). In the same light and in order to fight drug abuse, the Nigerian Senate initiated two bills; national drug control bill and national mental health bill as reported in Vanguard news of 2nd April 2018. (Umoru, 2018).

Meanwhile, no State owned, or State developed drug control policy was found during this study, instead Okeoma (2018) reported that the current speaker of Imo State House of Assembly said that a law to eradicate the smoking, sale and consumption of Marijuana and other hard drugs in Imo state will soon be in place. It is apparent from this newspaper reports that there is no existing drug control policy in Imo State that is concerned with prescription drugs. Onyejiuwa (2018) reported that 431 pharmaceutical shops were sealed in Imo State. The report noted that 45 pharmacies and 386 Proprietors of Patent Medicine Vendors (PPMVs) out of 522 visited in different parts of the State by the Pharmacists Council of Nigeria (PCN) were sealed for various reasons including improper handling of controlled drugs and dispensing ethical/ prescription drugs without the presence of a pharmacist.

On the other hand, the National Drug Policy first drafted and adopted as far back 1990 and reviewed in 2003 listed as part of its concerns; the involvement of unqualified persons in procurement, distribution and sale of drugs; and lack of political will to provide safe, efficacious and quality drugs to meet health needs of Nigerians. However, till date, there has been no mention of any active or proactive control of antimalaria, antibiotics, painkillers or sedatives in Nigeria. This is in spite of the fact that consumer markets are flooded with many varieties of these drugs, individuals are allowed to purchase them over the counter and without prescription while drug peddlers sale without any license. These trends are commonly observed in many communities of Imo State. Again, research has severally linked self-medication to problems like mental illness, drug resistance, overdose, and addiction. For example, Chukwuocha (2012) stated that self-medicating with antimalaria drugs have led to antimalaria drug resistance, incorrect drug dosage and compliance, widespread adulterated drugs due to lack of quality control and diagnoses usually based on symptoms instead of parasite. This study would investigate pattern and prevalence of abusive self-medication with the purpose of producing empirical evidence for the need to generate and effectively implement drug control policies that would be more empowering to the people than coercive.

Theoretical Framework

Most theories or models developed to explain alcohol or drug use focus on substance abuse, dependence or substance use disorder. Self-medication as a reason for substance abuse is a more recent perspective to the understanding of human substance use behavior. These theories usually draw inference from genetic, physiological or psychological factors that influence substance use and abuse behavior. Some of the theories include:

Positive Reinforcement Model: This model explains psychoactive substance use as resulting from the experience of pleasurable and positive feelings which users experience and hope to reenact by repeated use of such substances. This theory was used to explain the use of alcohol particularly. Gordis (2000), affirmed that humans usually engage in continual usage of those substances that they perceive as being pleasurable. Following the positive reinforcement argument therefore, an individual would continue to self-medicate with a substance if the consequence of its use is considered pleasurable by the user. However, this model does not convincely explain the prevalence of self-medication with pain relieving, anti-malaria or antibiotics drugs as these are not pleasure-giving substances.

Negative Reinforcement Model: This model posits that people resort to substance use and abuse as a way of coping with or reducing unpleasant feelings like frustration and anger. Supports for this model argue that when individuals encounter challenges of pressures, lacks or disappointments due to work, school or family involvement; many resorts to substance use or abuse to reduce the negative and unhelpful feelings or reactions such experiences may elicit otherwise. Hence, the short-lived effect of tension reduction or pleasure produced by the substances reinforce the need for repeated use especially as the negative feelings and the reality of a person's situation returns as the potency of the substance reduces. The argument of this model that users indulge in substance abuse as a way of reducing, eliminating or resolving negative feelings could explain self-medication especially when people self-medicate as a way of reducing pain or other symptoms of ill-health.

The positive and negative reinforcement models of substance use and abuse are based on the Operant conditioning theory of B. F. Skinner. Following the outcome of several experimental trials, Skinner concluded that the behavior that produces positive outcomes or eliminates negative or aversive conditions would most likely be repeated by the actor. Ill-health is considered an aversive condition which people make effort to reduce with or without adequate medical advice.

Cognitive Model: Like the above models, the cognitive model is also based on psychological theories. It draws from the social cognitive theory of Albert Bandura and explains substance use and abuse as a consequence of the user's expectation. The model asserts that individuals already develop certain expectations of the target drug before use and these expectations influence the user's reactions to the drug. In other words, people learn about drugs and their possible effects long before usage. Knowledge of which drugs to use and the purpose of usage, as well as distribution channels and cost are learnt from the environment through social organs like parents, peers, the media, and the internet. These sources of information are readily available, considered reliable and certainly cheaper compared to consulting a healthcare provider in Nigeria, they are also time saving. According to this model, as long as the expectations are met, the user would continue self-medicating with the choice drug (Udeagha & Uwaoma, 2014).

Self-Medication Model: Unlike the above models, the self-medication model was used to explain substance use disorder among individuals with serious mental illness (Khantzian, 2003). The self-medication hypothesis is described to have two main aspects: alleviation of psychological suffering and psychopharmacologic specificity for the individual. The model argues that "at the heart of addictive disorders is suffering, and not the seeking of pleasure, reward or self-destruction", that people seek out particular drugs that would help alleviate their suffering (Khantzian, 2003; Mueser, Drake & Wallach, 1998).

In their paper on the review of etiological theories of substance use disorder, Mueser, Drake and Wallach (1998), claimed that studies using self-report, epidemiology and specific substance approaches did not provide evidence that support the self-medication model. The studies failed to show that particular substances were used by patients to alleviate mental illness, that patients with particular diagnoses select specific substances and that specific substances are used in relation to specific symptoms. In contrast to the above stated opinion, observation among normally functioning individuals who suffer from other physiological conditions like chronic pain, malaria and or infections and who are not taking medications for pleasure; show that people do select psychopharmacologic specific medications for conditions, over a long period of time. For example, individuals with conditions like artrithis select and self-medicate on pain killers while those with general body weakness and fever select and self-medicate on anti-malaria medications, still others

with various infections select and self-medicate on anti-biotics.

In summary, the models reviewed were all focused on psychoactive drugs and people who are involved in substance abuse. The present study deviates from this norm in two ways (1) medications of concern here are prescription drugs that are mostly not pleasure-producing (2) the population of concern are individuals with no history of substance use disorder. However, the study considered pattern of self-medication ranging from no self-medication to abusive self-medication. As such, the self-medication model which explains that people get involved in repeated drug use for short or long term, as a way of ameliorating their suffering is considered the most appropriate in explaining self-medication practice among the normally functioning population.

Statement of the Problem

It has been observed and reported that self-medication is implicated in drug resistance, dependence, abuse and / or misuse, etc., which could lead to serious physical and mental health problems and probably death in the long run. In our society, most people, old and young often self-medicate for different reasons and without proper awareness of the implication of such behavior. It is also commonly observed that multiple risk factors (like cost of healthcare services, illiteracy, lack of healthcare facilities, unavailability of health care professionals, shame, proximity) exists which force individuals to indulge in self-medication. Past studies on self-medication in Nigeria studied antimalaria, analgesics, antibiotic and multivitamins. This study tried to cover the gap by extending the range of drug categories for self-medication to include stimulants, anti-microbes, sedatives, and sleeping pills. Again, none of the previous studies reviewed considered normal and abusive pattern of self-medication and none evaluated the prevalence of self-medication considering drug control policy. The present study to the best of our knowledge is the first study to investigate self-medication practice among Owerri adults, consider normal and abusive pattern of self-medication and situate the study within the context of possible drug control policy.

Purpose of the Study

Main objective is to examine the prevalence and pattern of abusive self-medication in Owerri communities. Specifically, the study aims to:

1. Ascertain the prevalence of self-medication among adults in Owerre communities
2. Investigated the pattern of self-medication among adults in Owerre communities
3. Examine gender as a factor in the prevalence and pattern of self-medication among adults in Owerre communities
4. Examine age as a factor in the prevalence and pattern of self-medication among adults in Owerre communities
5. Examine residential area as a factor in the prevalence and pattern of self-medication among adults in Owerre communities

Hypotheses

1. There will be no statistically significant prevalence of self-medication among adults in Owerre communities
2. There will be no statistically significant difference in the pattern of self-medication among adults in Owerre communities
3. There will be no statistically significant gender difference in the prevalence and pattern of self-medication among adults in Owerre communities
4. Age will make no statistically significant contribution to the prevalence and pattern of self-medication among adults in Owerre communities
5. Age will make no statistically significant contribution to the prevalence and pattern of self-medication among adults in Owerre communities

Method

Participants

Cluster sampling technique was used to select six hundred and two (602) adults (383 males and 219 females) sampled from Owerri North and Municipal Local Government Arears to participate in this study. The respondents' age ranged from 18 years and above. The old Owerre territory covers Owerri, the capital city of Imo State, Nigeria and three local government areas namely; Owerri north, Owerri west, and Owerri municipal. Simple random sampling method was used to select two out of the three LGAs in order to have a representative sample of Owerre.

Instruments

The study made use of the Prescription Drug Use Inventory structured and developed by the researchers to measure frequency and class of drugs used in self-medication or consumption of drugs not prescribed by a trained health professional in

the last 3 months. It consists of 8 items with 7point likert format. The inventory assessed the consumption of the following drug categories; Sleeping pills, Sedatives, Stimulants, Painkillers, Anti-malaria, Antibiotics, Blood tonics and Anti-microbes. A pilot study was conducted with 100 adults selected from Owerri west. The questionnaire had a cronbach alpha reliability of .88 and norm of 5.98. Content and face validity were assumed following the review of past literatures, all used similar questionnaires, but classes of drugs measured were lesser in past studies. Demographic variables including gender, age and residential area were assessed to provide information regarding their association with self-medication practice among respondents. Gender was measured as a nominal variable while the rest were categorized.

Procedure

Ethical approval for this study was gotten from the Institutional Review Board of Federal Polytechnic Nekede, Owerri. Cluster sampling was used to select participants from Owerri North and Owerri Municipal. Three hundred and forty questionnaires were shared in each local government using a face-to-face approach. Participants were drawn from four tertiary institutions Federal Polytechnic Nekede, Owerri (Fedpolynek), Imo State University, Owerri (IMSU), Alvan Ikeokwu Federal College Education (AIFCE), and Federal University of Technology, Owerri (FUTO), main markets and village markets including Naze Alaba, Egbu village market, Ekeonunwa, Relief markets and local government headquarters of the two local government areas. Participants were debriefed on what the study was all about. Oral consent was gotten through verbal agreement to fill the questionnaires. Confidentiality was ascertained by omitting personal identifying details like name, home address and participants were assured that the data collected will be stored in password protected computers and used for research purposes only. Each participant was given 20 minutes to fill and return the questionnaire. Participants were thanked for participating and they were given a 10 minutes brief psycho-education on the dangers of self-medication and the need to visit healthcare centers for proper diagnoses and prescription before any treatment. Data collected were organized and presented for data analyses.

Design and Statistics

This is a descriptive study with a cross-sectional survey design. The design was chosen because respondents were selected from a large population and across different localities, age, gender, employment status and educational attainment. Descriptive statistics including frequency and percentage were used to analyse data while Chi Square and Spearman RHO correlation were used to test the hypotheses.

Result

Table I: Distribution of Socio-demographic Characteristics of Respondents in this Study

Variable	**Respondents N= 602**	
	n	**%**
Gender		
Male	383	63.60
Female	219	36.40
Age		
18 – 25	315	52.30
26 – 30	177	29.40
31 – 40	83	13.80

41+	27	4.50
Residential Area		
Rural	102	16.90
Semi- Rural	134	22.30
Urban	366	60.80

Socio-demographic characteristics of respondents shown in Table I above indicates that majority of respondents were males (63.60%), aged between 18 – 25 years (52.30%), and lived in urban areas (60.80%).

Table II: Descending order of the Prevalence of Self-Medication as Practiced by Respondents in Owerri

Drug Category	**N**	**%**	**Rank**
Painkillers	431	71.59	1
Anti-Malaria	416	69.10	2
Anti-Biotics	415	68.94	3
Blood Tonics	359	59.63	4
Anti-Microbes	211	35.05	5
Sleep-Medication	162	26.91	6
Stimulants	149	24.75	7
Sedatives	124	20.60	8

**Total prevalence rate was 84.3% of the 602 respondents.

Prevalence of self-medication across different classes of drugs is shown in Table II above. The table showed that painkillers, antimalaria and antibiotics were the most used self-medicating drugs at 71.59%, 61.10%, and 68.94 respectively.

Table III: Distribution of Self-medication Practice by Pattern of Usage

Sources	**Frequency**	**Percent (%)**
No Self-medication	95	15.80
Self-medication	299	49.70
Abusive Self-medication	208	34.60
Total	602	100

Table IV above shows that a large quantity of the surveyed population is involved in abusive self-medication (34.60%), most self-medicate (49.70%) while a few do not self-medicate at all (15.80%) at the time of this study. Further analysis to test the significance of the prevalence and pattern of self-medication did not include the non-self-medicating group.

Table V: Chi-square frequency table showing the Prevalence of Self –Medication across gender, Age, and Residential Area.

Note: Ns = not significant, * = p <.05, ** = p < .001

Variable	Medication Category (N = 507)							
	Sleep Med.	Sedatives	stimulants	Painkillers	Anti-Malaria	Antibiotics	Blood Tonics	Anti-microbes
Gender								
Male	102	79	95	271	261	258	215	130
Female	60 Ns	45Ns	54Ns	160Ns	155Ns	157Ns	144Ns	80Ns
Age								
18 – 25	67	48	55	217	203	205	176	87
26 – 30	46	34	47	133	129	134	117	61
31 – 40	35	33	39	58	61	55	46	49
41+	14**	9*	8**	23*	23*	21Ns	20Ns	15**
Residential Area								
Rural	30	22	31	66	68	65	55	56
Semi- Rural	44	37	38	104	101	104	99	44
Urban	88 Ns	65 Ns	80 Ns	261*	247 Ns	246Ns	205*	110**

Table V above shows the prevalence of self-medication across all class of drugs based on their association with respondents' socio-demographic characteristics. No statistically significant association was found between gender and the prevalence of self-medication across all class of drugs: Sleep medication ($X^2(1, N=507) = 6.03$, p>.05), Sedatives ($X^2(1, N=507) = 5.04$, p>.05), Stimulants ($X^2(1, N=507) = 3.83$, p>.05), Painkillers ($X^2(1, N=507) = 4.26$, p>.05), Antimalaria ($X^2(1, N=507) = 9.08$, p>.05), Antibiotics ($X^2(1, N=507) = 13.63$, p>.05), Blood tonics ($X^2(1, N=507) = 9.85$, p>.05), Antimicrobes ($X^2(1, N=507) = 5.45$, p>.05).

Statistically significant association was found across respondents of different age in the rate at which they administered self-medication using Stimulants ($X^2(1, N=507) = 54.41$, p< .001), Sleep medication ($X^2(1, N=507) = 53.65$, p<.05), Sedatives ($X^2(1, N=507) =41.03$, p<.05), Antimalaria ($X^2(1, N=507) = 36.47$, p<.05), painkillers ($X^2(1, N=507) = 54.44$, p <.001) and Antimicrobes ($X^2(1, N=507) = 60.88$, p<.05) but no significant association was found between age and the prevalence of self-medication across the remaining drug categories; Antibiotics ($X^2(1, N=507) = 25.72$, p>.05), Blood tonics ($X^2(1, N=507) = 31.99$, p>.05).
The final chi square result showed a significant association between residential area and respondents' use of Painkillers ($X^2(1, N=507) = 37.42$, p <.05), Blood tonics ($X^2(1, N=507) = 33.55$, p<.05) and Antimicrobes ($X^2(1, N=507) = 47.12$, p <.001) but no significant association with the remaining classes of drugs; Sleep medication ($X^2(1, N=507) = 11.17$, p>.05), Sedatives ($X^2(1, N=507) = 13.86$, p>.05), Antimalaria ($X^2(1, N=507) = 23.19$, p>.05), Stimulants ($X^2(1, N=507) = 14.60$, p>.05) and Antibiotics ($X^2(1, N=507) = 25.98$, p>.05).

Table VI: Chi-square frequency table showing the distribution of Pattern of Self –Medication across gender, Age and Residential Area

Variable	Self-medication Pattern (N = 507)	
	Self-Medication	Abusive Self-medication
Gender		
Male	199	121
Female	100	87
X^2 (1, N=507) = 3.70, p >.05		
Age		
18 – 25	162	94
26 – 30	93	58
31 – 40	34	41
41+	10	15
X^2 (1, N=507) = 11.88, p<.01**		
Residential Area		
Rural	49	42
Semi- Rural	64	55
Urban	186	111
X^2 (1, N=507) = 3.95, p >.05		

Note: ** = p< .01

The Chi-square result shown in Table VI above indicates no significant (X^2 (1, N=507) = 3.70, p >.05) association between gender and pattern of self-medication among respondents.
A statistically significant (X^2 (1, N=507) = 11.88, p<.01) association was found between age and pattern of self-medication. In general, this finding showed that lesser number of respondents were involved in abusive self-medication. Specifically, the result showed that abusive self-medication was highest among respondents of 31-40 years. Finally, the finding on the association between residential area and pattern of self-medication was not statistically significant (X^2 (1, N=507) = 3.95, p>.05). However, abusive self-medication was reported more among the rural and semi-rural dwellers.

Discussion

In the present study, the prevalence rate of self-medication was high (84.3%). This finding is higher than the rate of self-medication reported in Britain (James & French, 2008), United State (Ren, Kan & Duan, 2016), Tehran (Latifi, *et al*., 2017) and Brazil (Bertoldi, *et al*., 2014). However, it is in line with earlier findings on the rate of self-medication in different parts of Nigeria. Omolase, *et al*., (2007) reported a prevalence rate of 85% in Lagos and Alo, *et al*. (2015), 89.70% in Abakiliki. However, both studies were carried out using a hospital population. The result also showed that most people self-medicated with pain killers, anti-malaria, antibiotics and blood tonics in that order. This finding also agrees with earlier studies in which respondents admitted to combined use of anti-malaria, analgesics and antibiotics or antibiotics and analgesics only (Omolase, *et al.,* 2008). This finding is slightly different from that of Alo, *et al.* (2015), who reported high prevalence of self-medication with multivitamins, anti-malaria, analgesics and antibiotics in that order in Abakiliki.

The present finding is partly because people tend to worry most about bodily pains than other symptoms of illness in Owerri. This could be due to the activity level of the people of Owerri who mostly public servants, traders, students, apprentices and farmers are. It is most likely that the use of pain killers has been adopted as number one coping strategy for bodily sensations due to daily stressors. This is very possible when creating leisure time for relaxation is no longer seen as appropriate because every minute of the day is conceived as important for business. Again, anti-malaria as the second most used drug is understandable since Owerri is in the tropical region of Nigeria where anopheles mosquitoes; the carrier of plasmodium- the malaria parasite is common. The use of anti-malaria could also be directly learnt from medical practitioners who commonly prescribe anti-malaria first each time an individual visits the hospital before going

through normal laboratory examination. It is a common practice for a medical doctor or pharmacist to prescribe anti-malaria for a patient even when the patient acknowledges that he/she just finished taking anti-malaria drugs. So, it is like a rule in Owerri that your treatment starts with anti-malaria drugs, any other consideration for alternate treatment would only be if the malaria drugs fail to bring about cure. Also, the proliferation of different anti-malaria drugs in the open market, some at very cheap rates, with new adverts that continuously link symptoms like headache and fever only to malaria, make people confident to take these drugs once these symptoms manifest. The saying that "this is what the doctor in the hospital would have prescribed" encourages this self-medication practice.

There was no significant gender association found across all classes of drugs. This means that there is gender equality in the degree of self-medication in Owerri; males and females are self-medicating equally. How would this affect engendered body reactions? However, this question calls for a look at difference in dosage, if any, across gender. Nevertheless, significant difference was found in the prevalent use of stimulants and pain killers across respondents of different age, with the use increasing as the age increases. This finding is an addition to existing knowledge in this area, as no previous study considered self-medication across age. This finding that older respondents self-medicate more with stimulants and pain killers than younger ones point to possible age-related ailments, higher stress level which increases with age. The prevalent use of stimulants and pain killers by the elderly has serious psychological implication as these classes of drugs are known to have effects on the nervous system especially the brain. They can in many cases produce other bodily sensations (e.g. relaxation, strength, energy, alertness, etc.,) which often induce dependence and consequent addiction.

Findings on education attainment indicated a significant association in the prevalent use of sleeping pills, pain killers, anti-malaria, blood tonics and antimicrobial medications. The study showed that self-medication increased as educational level increased. This finding agrees with previous study (Sallam, *et al*., 2009) which reported high level of self-medication practice among university students. This finding indicates that respondents with poor or no education attainment being less equipped / knowledgeable about orthodox medicine are less inclined to purchase and consume them, they most likely do not have enough money to purchase these drugs and as such, might rely more on traditional treatments for their cure. On the other hand, graduate have the capacity to read drug labels and understand them, can relate their effects to the symptoms they want to treat, have the money to buy them, as a result, they are more equipped to seek out, buy and consume self-prescribed medications. However, these unprofessional self-acclaimed doctors increase chances for drug misuse, abuse, adverse effects, development of resistance to drugs and most dangerously drug dependence. It was found that there is a significant association between employment status and pain killers and anti-malaria use. Previous studies did not consider employment status as a factor in self-medication.

This study found significant association between residential area and pain killers and antimicrobes. Previous studies (Alo, *et al*., 2015; Aqeel, *et al*., 2014) reported higher level of self-medication in urban areas than rural areas.

The findings of this study showed that participants' involvement in abusive medication was slightly lower than sensible self-medication practice. None of these previous studies reviewed considered abusive self-medication. It was further found that there was no significant gender difference in pattern of self-medication. This means that male and female respondents were equally involved in the different patterns of self-medication. Age was significantly associated with pattern of self-medication; with individuals of 31-40years being more involved in abusive self-medication. The high degree of abusive self-medication among this age could be related to their activity level which may predispose them to high level of stress, coupled with their need to achieve more with each passing day.

Theoretically, individuals within this age bracket (31-40) are at the early adult stage of human development. Erik Ericson, Warner Schaie, and Gisella Labouvie-vief each independently theorized that, at this stage, people try to use the knowledge that they have gathered in life to solve real life problems, they develop intimate relations (e.g. marriage) and are focused on becoming employed, growing their businesses or enhancing their career. To attain these dreams, these people (who are majorly the working class in Owerri) encounter many challenges and in responding to these challenges may develop illnesses that would warrant medication. However, the high degree of

self-medication abuse by this group is an alarming situation since abusive use of any medication can lead to harm of various nature, thereby putting these men and women of productive age in danger.

Educational attainment also had a significant association with self-medication pattern. The result showed that aside respondents with tertiary educational attainment, other respondents were mostly involved in abusive self-medication. This finding points to the fact that responsible or safe self-medication practice is associated with knowledge of drug effects, side effects and other likely consequences. This emphasizes the importance of educating people on how these drugs work, the need to refrain from repetitive use and the importance of consulting appropriate health care professional at the point of purchase or prescription in other cases.

Employment status was also significantly associated with self-medicating pattern with the employed being the most involved in abusive self-medication. The reason behind this is unclear, tough in order to meet up with the daily demands of an employer; employee may choose self-medicating over relaxation as a way of coping with work pressure.

Residential area was not significantly associated with self-medication pattern and none of the residential areas indicated high involvement in abusive self-medication. This could mean that abusive self-medication is not dependent on the environment; this finding has implication for the abuse of other kinds of drugs (narcotics, psychotropics and illegal drugs).

Implication for Drug Control Policies

1. Prevalent and abusive use of pain killers and stimulants presupposes dependence in the long run, since these drugs are central nervous system acting agents. There is need therefore for drug control agencies in Owerri like NAFDAC, NDLEA, Pharmacists' Association, NMA, as well as the government to withdraw these drugs from the open market and remove them from the list of over the counter (OTC) drugs. This would help to reduce accessibility and availability of the drugs to the public but at the same time making them for proper medical use through the appropriate channels.
2. The implication of the possible combination of pain killers, anti-malaria and antibiotics by self-medicating drug users has serious implication for drug efficacy and resistance especially in the case of antibiotics. It also predisposes these users to possible adverse effect and unplanned death when these drugs are wrongly combined.
3. The high rate of self-medicating with pain killers, anti-malaria and antibiotics has serious implication for healthcare providers in Owerri. It is important to access patients' use of these medications during initial medical examination to ascertain frequency, duration and possible abusive use and how these may relate to the client's presenting condition. This finding also calls for proper medical examination prior to treatment, to discourage the fallacy that painkillers, anti-malaria and antibiotics are the 'cure all' in our society.
4. A major implication of this study is the clarity that health challenges are more prevalent for the older population in Owerri.

Conclusion

This study set out to investigate the prevalence and pattern of abusive self-medication in Owerri communities. It found a high prevalence of self-medication; that painkillers, antimalaria and antibiotics were the most used and that abusive self-medication increased with age. The study concludes that there is a great need to develop new drug control policies that would target the regulation of production, distribution and cost of painkiller, anti-malaria, and antibiotic drugs in Owerri.

Recommendations

1. There is need to engage relevant policy actors in Imo State as an entity in discussions and advocacy workshops geared towards developing and enacting a drug control policy that would limit the influx as well as regulate distribution of painkillers and stimulants (into Owerri and other communities in major cities of Imo State).
2. Advocacy/enlightenment programmes geared towards teaching drug users the possible harms of self-medication especially combined-drug self-medication, adverse drug effects, development of drug resistance, possible inefficacy of drugs when there is actual need for them and possible tissue death due to wrong medication.

3. Advocacy for proper initial medical examination of patients at the hospital before administering anti-malaria by medical practitioners.
4. New health policies and schemes that would lessen the burden of healthcare cost for people above 30 years should be developed and enacted in the state. This would discourage self-medication in this age group.
5. Existing health policies and schemes in the state must be adjusted to benefit the older population more than it is allowed at present.

References

Albashtawy, M., Batiha, A., Tawalbeh, L., Tubaishat, A., & Alazzam, M. (2014). Self-medication among school students. *The Journal of School Nursing*, 1-7.

Alo, C., Oguejiofor, N.C., & Alo, N.C. (2015). Self-medication and its Pattern among Patients Attending the General Outpatient Clinic of a Tertiary Institution in Abakaliki, Ebonyi State, Nigeria. *Journal of Community Medicine and Public Health Care, 2, 008.*

Aqeel, T., Shabbir, A., Basharat, H., Bukhari, M., & Mobin, S. (2014). Prevalence of Self-Medication among Urban and Rural Population of Islamabad, Pakistan. *Tropical Journal of Pharmaceutical Research,* 13, 627-633.

Auta, A., Omale, S., Folorunsho, T.J., David, S., & Banwat, S.B (2012). Medicine Vendors: Self-medication Practices and Medicine Knowledge. *North American Journal of Medical Sciences, 4, 24-28.*

Balbuena, F., Aranda, A., & Figueras, A. (2009). Self-medication in older urban mexicans: An observational, descriptive, cross-sectional study. *Drugs Aging, 26, 51–60.*

Bertoldi, A.D., Camargo, A.L., Silveira, M.P., Menezes, A.M., Assunção, M.C., Gonçalves, H., & Hallal, P.C. (2014). Self-medication among adolescents aged 18 Years: The 1993 Pelotas (Brazil) birth cohort study. *Journal of Adolescents Health, 55, 175–181.*

Britto, R., Rajaram, S., Elango, S., Charles, S. D., Priya, S. M., Sivaranjan, R., & Srikanth, S. (2017). Prevalence and pattern of self-medication among undergraduate medical students. *International Journal of Innovative Research in Medical Science*, 2 (6), 862-868.

Chukwuocha, U. M. (2012). Malaria control in Nigeria. *Primary Health Care*, 2, 118-122.

Fuentes, A.K. & Villa, Z. L. (2008). Analysis and quantification of self- medication patterns of customers in community pharmacies in southern Chile. *Pharm World Science, 30, 863–868.*

Gellman, M.D., & Turner, J.R. (2013). *Self-medication.* In Encyclopedia of Behavioral Medicine. Springer: New York, USA.

Ghaderi, E., Hassanzadeh, K., Rahmani, K., Moradi, G., Esmailnasab, N., Roshani, D., & Azadina, A. (2020). Prevalence of self-medication and its associated factors: A case study of Kurdistan Province. *International Journal of human Rights in Healthcare*. Doi: 10.1108/IJHRH-09-2019-0075

Gordis, E. (2000). Why do some people drink too much? The roles of genetic and psychosocial influences. *Alcohol, Research and Health*, 21 (1), 17-26.

James, D., & French, H (2008). The development of the self-medicating scale (SMS): A scale to measure people's beliefs about self-medication. *Pharm World Science*, 30, 794–800.

Khantzian, E. J. (2003). The self-medication hypothesis revisited: Dually diagnosed patient. *Primary Psychiatry*, 10 (9), 47-48, 53-54.

Klantschnig, G. (2015). The politics of drug control in Nigeria: Exclusion, repression and obstacles to policy change. *International Journal of Drug Policy*, 30, 132-139.

Kojom, L. P. F., Ntoumba, A. A. Nyabeyeu, N. H., Wepnje, G. B., Tonga, C., et al. (2018). Prevalence, patterns and predictors of self-medication with anti-malarial drugs among Cameroonian mothers during a recent illness episode. *Journal of medical and Biomedical Sciences*, 7(1), 29-39. http://dx.doi.org/10.4314/jmbs.v7i1.4

Latifi, A., Ramezankhani, A., Rezaei, Z., Ashtarian, H., Salmani, B., Yousefi, M., & Khezeli, M. (2015). Prevalence and associated factors of self-medication among the college students in Tehran. *Journal of Applied Pharmaceutical Science*, 7(7), 128-132.

Liu, E., Ge, P., Li, X., Hong, W. Huang, M., *et al*. (2024). Status of self-medication and the relevant factors regarding drug efficacy and safety as important considerations among adolescents aged 12-18 in China: a cross-sectional study. *Scientific Reports*, 14 (9982), 1-17. https://doi.org/10.1038/s41598-024-59204-2

Mueser, K. T., Drake, R. E., & Wallach, M. A. (1998). Dual diagnosis: A review of etiological theories. *Addictive Behaviors*, 23 (6), 717-734

Nemat, A., Rezayee, K. J., Essar, M. Y., Mowlabaccus, W. B., Ahmad, S., *et al*. (2023).

A report of Kabul internet users on self-medication with over-the-counter medicines. *Scientific Reports*, 13 (8500), 1-7. https://doi.org/10.1038/s41598-023-35757-6

Njoku, J. C., Tony-Okolo, C. N., & Madukwe, A.U. (2019). Gender differentials in tobacco, alcohol and prescription drugs abuse among self-medicating adults in Owerri, Imo State. *Interdisciplinary Journal of Gender and Women Development Studies*, 2 (4), 190-205.

Ocan, M., Obuku, E. A., Freddie Bwanga, F., Akena, D., Richard, S., Ogwal-Okeng, J. & Obua, C. (2015). Household antimicrobial self-medication: a systematic review and meta-analysis of the burden, risk *factors* and outcomes in developing countries. *BMC Public Health,* 15, 742-753.

Okeoma, C. (2018, January 22). *Imo assembly moves against marijuana peddlers, smokers*. PUNCH. Retrieved from https://punchng.com/imo-assembly-moves-a...

Omolase, C.O., Adeleke, O.E., Afolabi, A.O. &Afolabi, O.T. (2007). Self-medication amongst general outpatients in a Nigerian community hospital. *Annals of Ibadan Postgraduate Medicine, 5, 64-67.*

Onyejiuwa, G. (2018, July 21). *The pharmacist council of Nigeria (PCN) has sealed the premises of 431 pharmaceutical outlets in various part of the state for various offences*. The Sun Newspaper. Retrieved from https://sunnewsonline.com./431-ph.

Ren, J., Kan, H., & Duan, G. (2016). Present situation, problems, countermeasures and suggestions of self-medication. *China Pharmacy, 27, 4888–4890.*

Takers and sellers of illicit drugs, (2018, January 28). *Takers and sellers of illicit drugs in trouble in Imo State government move to demolish buildings*. Innonews Online. Retrieved from https://innonews.com.ng/2018/01/ takers-and-…

Teixeira, K. H., Barbosa, A. L., Santana, A. L., Silva, D. I., Santos, R. V., et al. (2020). Self-medication:A study on motivational factors and consequences of this practice. Research, Society and Development, 9 (8), 1-17. DOI: http://dx.doi.org/10.33448/rsd-v9i8.5608

Udeagha, C. F., & Uwaoma, N. C. (2014). Theories and assessment of Substance use, abuse and addiction. In N. C., Uwaoma, C. F. Udeagha and A. U. Madukwe (eds.). *Issues in substance use, abuse and addiction in Nigeria.* Owerri: Gabtony Prints Ltd.

Umoru, H. (2018, April 02). *Senate initiates 2 bills to fight drug abuse*. Vanguard News Nigeria. Retrieved from https://www.vanguardngr.com/20...

Young, A. M., Glover, N. & Havens, J. R. (2012). Nonmedical use of prescription medications among adolescents in the United States: A systematic review. *Journal of Adolescent Health*, 51, 6-17.

Yousef, A.M., Al-Bakri, A.G., Bustajani, Y., & Wazaify, M. (2008). Self-medication patterns in Amman, Jordan. *Pharm World Science*, 30 (1), 24–30.