Prevalence, determinants, and information sources of self-medication among non-health workers in two tertiary institutions in Southwest Nigeria: A cross-sectional study

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Abstract

Self-medication practices pose a significant public health challenge. Understanding the factors that drive this behaviour, particularly among non-health workers' is crucial for interventions. This study aimed to determine the prevalence of self-medication and identify the drivers and sources of information among non-health workers in two tertiary institutions.

A cross-sectional survey was conducted among consenting workers, using self-administered questionnaires to collect data on self-medication, types of medications, reasons, and sources of information. We summarised data using descriptive and inferential statistics with SPSS version 21. The level of statistical significance was set at <0.05.

Of the 148 respondents, 62.8% engaged in self-medication. They used mainly analgesics (76.4%), antimalarials (72.3%), and antibiotics (58%) to self-medicate. More than half (70.9%) used herbal remedies they got from herb sellers. Common health conditions were body pain (65.5%), headache (62.8%), and malaria (59.5%). The primary reasons for self-medication were the perception of minor illness (71.6%), self-decision (49%), previous medication use (27%), and long waiting time in health facilities (26%). Most respondents (81%) reported getting information from pharmacists, relatives, and friends (70.9%). Factors associated with self-medicating with herbal remedies include having relatives as healthcare professionals (P=0.014) and ethnicity (P=0.001). Respondents having Diabetes or Hypertension are less likely to self-medicate.

The prevalence of self-medication is high. The workers self-medicated majorly with prescription-only medicines (POMs), over-the-counter medicines (OTCs), and herbal remedies. The combination of these medicines could have implications for adverse effects. Family/friends serving as sources of information underscores the need for interventions to curb self-medication.

Keywords: Self-medication, Prevalence, Factors, Herbal Remedies, Information sources, Nigeria

Introduction

Self-medication is a common practice among individuals of different age categories and settings (Afolabi, 2008; Selvaraj, Ganesh & Ramalingam, 2014; Syed *et al*., 2014; Anthony *et al*., 2024). Self-medication has significant implications for global health and calls for a better understanding of the drivers of this behaviour. According to the World Health Organization (WHO), self-medication is using medications to treat self-diagnosed illnesses or symptoms without medical supervision and the occasional or regular use of prescribed medicines

for long-term or recurring symptoms (WHO, 2000). It may involve herbal remedies use, over-the-counter, and prescription medicines (Bekele & Gonfa, 2021). It is a form of self-care with double-edged consequences and has been acknowledged and implemented by many countries after the WHO initiative "Health for All by the Year 2000" in 1978. When done effectively, self-medication has potential benefits like addressing minor illnesses and reducing medical expenses associated with clinical visits and related transportation costs (Eticha & Mesfin, 2014; Rathod *et al*., 2023). However, inappropriate self-medication practices can lead to negative consequences such as increased health risks, higher financial burden, delays in accessing necessary treatment, antimicrobial resistance, adverse drug reactions (ADRs), and polypharmacy (Rathod *et al*., 2023).

Studies have identified numerous personal, environmental, and healthcare system factors contributing to self-medication practices, such as patient dissatisfaction with healthcare providers, high cost of medicines, educational status, socioeconomic status, age, and gender (Limaye *et al*., 2017; Castro-Catano *et al*., 2022). Patients may also feel uncomfortable discussing their health issues with healthcare professionals due to concerns about the confidentiality of their medical problems, lack of time for appointments, illiteracy, and being too busy to visit healthcare facilities (Selvaraj, Ganesh & Ramalingam, 2014). In Nigeria, the availability and unregulated sale of medications in unlicensed places such as roadside shops, markets, buses, and other public spaces have increased access to drugs, further encouraging self-medication (Oyediran *et al*., 2019). Consequently, medications that should require a prescription before purchase, such as antibiotics, analgesics, hormone medications, and antihypertensives, are finding their way into the hands of consumers without a prescription.

Studies conducted in different countries have shown that self-medication is prevalent, with prevalence rates varying by location. For instance, an European study found a prevalence rate of 68%, while in some African countries, it ranges from 40.7% to 81.8% (Gutema *et al*., 2011; Jamhour *et al*., 2017; Horumpende *et al*., 2018). In Southeast Nigeria, the prevalence of self-medication was 52.1% (Babatunde *et al*., 2016), and another study in Pakistan showed a prevalence rate of 80% (Anthony *et al*., 2024). The most common ailments that lead to self-medication are pain, headache, fever, cold, and cough (Ruiz, 2010; Reetesh, Papiya & Sonam, 2011; Araia, Gebregziabher & Mesfun, 2019). Commonly self-prescribed medications include analgesics, antibiotics, cough and cold medicines, antimalarials, antacids, anthelmintics, antihistamines, antipyretics, eye drops, and supplementary drugs (Alghanim, 2011; Babatunde *et al*., 2016; Rathod *et al*., 2023). There are many studies conducted in different countries and populations, but only a few have reported the extent of self-medication practices among non-health workers who have little or no knowledge of the consequences of inappropriate medicine use. Assessing self-medication and identifying factors that encourage self-medication are crucial for implementing strategies to discourage the irrational use of medicines and reduce antimicrobial resistance. Therefore, this study aims to identify sources of information regarding self-medication, determine its prevalence, and identify the reasons for self-medication among non-health workers.

Materials and methods

Study setting

The study was conducted at the administrative units of the College of Medicine (CMUL), and Lagos University Teaching Hospital (LUTH) located in Lagos. The Lagos University Teaching Hospital (LUTH) offers care to patients on referrals from other hospitals. The Administrative section of the College of Medicine (CMUL) renders administrative functions to its staff and is affiliated with the hospital. Lagos

State is the most populous city in Nigeria, located in the south-western geopolitical zone. It is a metropolitan area.

Study design

A cross-sectional descriptive questionnaire-based survey of 148 consenting administrative workers.

Study population

The study was carried out among non-health workers who were at least 18 years and above and working in the administrative units of two institutions. The study included all the staff working in the administration's office, human resource management office, purchasing unit, chief medical director's office, corporate service, security, secretary, senior personnel, & junior personnel unit.

Sample size and sampling technique

The sample size (n) for this study was determined using the single population proportion formula ($n = z^2p(1-p)/d^2$) (Charan & Biswas, 2013) with the following assumptions z is the critical value of normal distribution = 1.96 for 95% confidence interval, p is the prevalence of self-medication (51.8 % (0.518) from a previous study conducted in Nigeria (Babatunde *et al*., 2016) and q is the estimated proportion of subjects without the attribute, which is (1 – p =0.482), d is the margin of error of 5% (0.05). On substituting the figures,

$$n = 1.96^2 \times 0.518 \times \frac{0.482}{0.0025}$$

we got a sample size of 383.6 approximately 384

Correcting for a finite population,

$$New\ SS = Population \times \frac{SS}{SS - 1 + Population}$$

with the population of administrative staff in both institutions as 224,

$$New\ SS = 224 \times \frac{384}{384 - 1 + 224}$$

$= New\ SS = 141.7 \approx 142$

Using a simple proportion method, we calculated the sample size for each institution.

Ratio of population of 1st Institution to 2nd Institution is: 80:144 = 5:9, total = 5+9= 14,

For the first Institution (5/14) x 142 = 51

For the second Institution (9/14) x 142 = 91.28 ≈ 91

The questionnaires were administered to all eligible administrative staff on duty during the study period and who gave verbal consent using convenient sampling. The information regarding the aim of the study was provided to the staff. The questionnaires were collected back immediately after filling on same day

Study instrument and data collection

The researcher collected data using a structured 35-item, self-administered questionnaire that was adapted from literature (Anthony *et al*., 2024; Al-*Qerem et al*., 2023; Alduraibi *et al*., 2022).; Alghanim et al., 2011; Afolabi et al., 2008). The questionnaire was subjected to face and content validity by experts in the field and was pretested among 20 staff working in an administrative unit of another institution to make necessary adjustments. The questionnaire had three sections. Section A consisted of socio-demographic variables such as age, gender, ethnicity, marital status, educational status, income, having a relative in medical school. The second section included nine questions on the level of knowledge on self-medication practices in three domains of the self-medication practices, associated risk factors, and safety concerns. A score of 1 was allotted for each correct answer and zero for incorrect answers. Scores ranging from 1 to 3 were classified as poor, while 4 to 6 was rated as fair knowledge and 7 to 9 as good knowledge. Sec-

tion C assessed self-medication practices/behaviours. The last section of the questionnaire collected information on the type of ailments that warranted the use of the medications, names of the medicines, source of information on the medicines, and reasons for self-medication.

Ethical consideration

The Ethical Approval for the study was obtained from the Health Research and Ethics Committee of the Lagos University Teaching Hospital (Approval number: ADM/DCST/HREC/APP/418). All respondents gave verbal informed consent to be part of the study. The voluntary nature of the study was explained, and respondents were assured of the confidentiality and anonymity of the collected data.

Data analysis

The data obtained were analysed using the Statistical Package for Social Sciences (SPSS) Version 21.0. Descriptive and inferential statistics were used to summarize the data. Categorical data were summarised using frequencies, and percentages, while continuous variables were summarised with Mean ± Standard Deviation (SD). Chi-square was used to determine the associations between categorical variables. A p-value < 0.05 was considered statistically significant.

Results

Of the 168 questionnaires distributed to the administrative staff of the two institutions, 148 questionnaires were retrieved with complete information, giving a response rate of 88 % and were used for the analysis. The result shows slightly more female (50.7%) than male (49.3%) respondents. Half of the respondents were between 31 and 40 years old (45.9%), compared to those 51 to 60 years old (10.8 %). The mean age of the respondents is 38.8 ± 8.26 years. The respondents were mostly married (79.1%), compared to being single. (18.9%), with a few divorced (0.7%) or widowed (1.4%). There were more Christian respondents (72.3%) than other religions, and the respondents were of the Yoruba tribe (73%). Comparing the educational status of the respondents, the majority of them attained tertiary education (79.7 %), while two-fifth of the participants had primary education (2.7 %). Below half of them (40.5 %) reported having a child/family member in medical school, and more than half of the respondents (54.1%) had either a child or family member practicing as a health care professional.

Table I: Socio Demographic Characteristics of the Respondents

Characteristics	Frequencies	Percentages (%)
Gender		
Male	73	49.3
Female	75	50.7
Age		
21-30 years	21	14.2
31-40years	68	45.9
41-50years	42	28.4
51-60years	16	10.8
61-70years	1	0.7
Mean Age ± SD = 38.8 ± 8.26 years		

Marital status		
Single	28	18.9
Married	117	79.1
Divorced	1	0.7
Widowed	2	1.4
Religion		
Christian	107	72.3
Muslim	38	25.7
Traditional religion	3	2.0
Ethnicity		
Yoruba	108	73.0
Igbo	25	16.9
Hausa	0	0.0
Others	15	10.1
Highest Educational level		
Primary	4	2.7
Secondary	15	10.1
Tertiary	118	79.7
Technical	9	6.1
None	2	1.4
Monthly Income (N)		
Below 50,000	36	24.3
50,000-100,000	60	40.5
100,000-150,00	37	25.0
Above 150,000	15	10.1
Family Member/Child in Medical School		
Yes	60	40.5
No	88	59.5
Family Member/Child as Medical Practitioner		
Yes	80	54.1
No	68	45.9

N = Naira

The respondent's knowledge of medication is shown in Table 2a below. The finding revealed that most respondents (95.3%) agreed that self-medication is the use of a drug not prescribed by an authorized healthcare professional, and about 89.2 % reporting on self-medication being the use of homemade (herbal medicines) to treat the ailment. Over two-third of the respondents believe that self-medication leads to incorrect diagnosis, while 55 % of them believed that self-medication is safe. About 38 % of the respondents were not sure if self-medication leads to drug resistance.

Table 2a: Respondents knowledge about self-medication

Knowledge Items	**Frequencies/ %**	**Frequencies/% **	**Frequencies/ %**
	Yes	**No**	**Not sure**

Self-medication is the use of drug not prescribed by an authorized healthcare professional	141 (95.3)	5 (3.4)	2 (1.4)
Self-medication is the use of drug to treat self-diagnosed condition	132 (89.2)	12 (8.1)	4 (2.7)
Self-medication is the use of home-made herbal medicines to treat ailment	107 (72.3)	37 (25.0)	4 (2.7)
Self-medication is quite safe	23 (15.5)	82 (55.4)	43 (29.1)
Self-medication is associated with some risks	116 (78.4)	15 (10.1)	17 (11.5)
Self-medication leads to prolonged use of medicines	80 (54.1)	28 (18.9)	40 (27.0)
Self-medication leads to excessive medicine doses	89 (60.1)	20 (13.5)	39 (26.4)
Self-medication leads to drug resistance	67 (45.3)	24 (16.2)	57 (38.6)
Self-medication leads to incorrect diagnosis	104 (70.3)	13 (8.8)	31 (20.9)

As shown in Table 2b, the overall knowledge of the respondents on self-medication and its associated risk factors was good (43.2%).

Table 2b: The Overall Knowledge of Self-Medication

Knowledge scores	**Frequencies**	**Percentages/%**
Poor	23	15.5
Fair	61	41.2
Good	64	43.2
Total	148	100.0
Mean Score =5.84±2.009		

The study revealed that more than half of the respondents had used medications without a prescription in the last month before the study start date, giving a prevalence rate of 62.3%. Most respondents (83.8%) acknowledged that they self-medicated sometimes and not always (Table 3). Regarding the first thing the respondents do when they fall ill, almost half of the respondents reported that they first visited the hospital, and about half of them reported self-medicating first (41.2 %) before informing friends and family.

Table 3: Respondents Self-Medication Behaviours

Self-Medication Behaviours	**Frequencies**	**Percentages (%)**
Have you used any medication without prescription in the last one month?		
Yes	93	62.8
No	50	33.8
Not sure	5	3.4

How often do you take medication without prescription?		
Always	7	4.7
Sometimes	124	83.8
Never	17	11.5
What is the first step you take when ill?		
Visit the Hospital	63	42.6
Inform friends /family	17	11.5
Treat yourself /self-medicate	61	41.2
Others	7	4.7

According to the result findings, the most common health condition that move respondents to self-medicate is body pain (65.5%), followed by Headache (62.8%), Malaria (59.5%) and Menstrual Pain (23 %) as shown in Table 4 below

Table 4: Health conditions necessitating self- medication by the respondents

Health conditions	Frequencies	Percentages (%)
Body pain	97	65.5
Sore throat	41	27.7
Infection	13	8.8
Menstrual pain	34	23.0
Cough	74	50.0
Diarrhoea	32	21.6
Malaria	88	59.5
Headache	93	62.8
Insomnia	20	13.5
Common cold	64	43.2

Table 5 shows that the respondents' source of information about the drugs used for self-medication is Pharmacists (81.1%), followed by self-decision (49.3%). About 21.0 % of the respondents reported getting information about the medication they used in self-medicating from friends and relatives, 1.5 % got their information from colleagues, and they rarely used the internet and drug leaflets.

Table 5: Sources of Information about Medicines for Self-Medication

Sources of Information	Frequencies (n)	Percentages (%)
Pharmacists	120	81.1
Nurses	10	6.8
Doctors	14	9.5
Drug Leaflets	10	6.8
Internet	6	4.1
Relatives/Friends	31	20.9

Colleagues	17	1.5

The study identified various reasons why respondents self-medicate. The most common reason is the perception that the illness is minor (71.6%), followed by self-decision (49.3%), previous use of the medications (27.0%) and long waiting time in healthcare facilities (26.4 %)

Table 6: Reasons for self-medicating by Respondents

Reasons	**Frequencies**	**Percentages (%)**
The illness is minor	106	71.6
Self-Decision	73	49.3
Previous medication use	40	27.0
Long waiting time in health care facility	39	26.4
Inability to pay medical expenses	24	16.2
Emergency use	21	14.2
Lack of time to attend health care facility	10	6.8
Fear of admission	5	3.4
Others	4	2.7

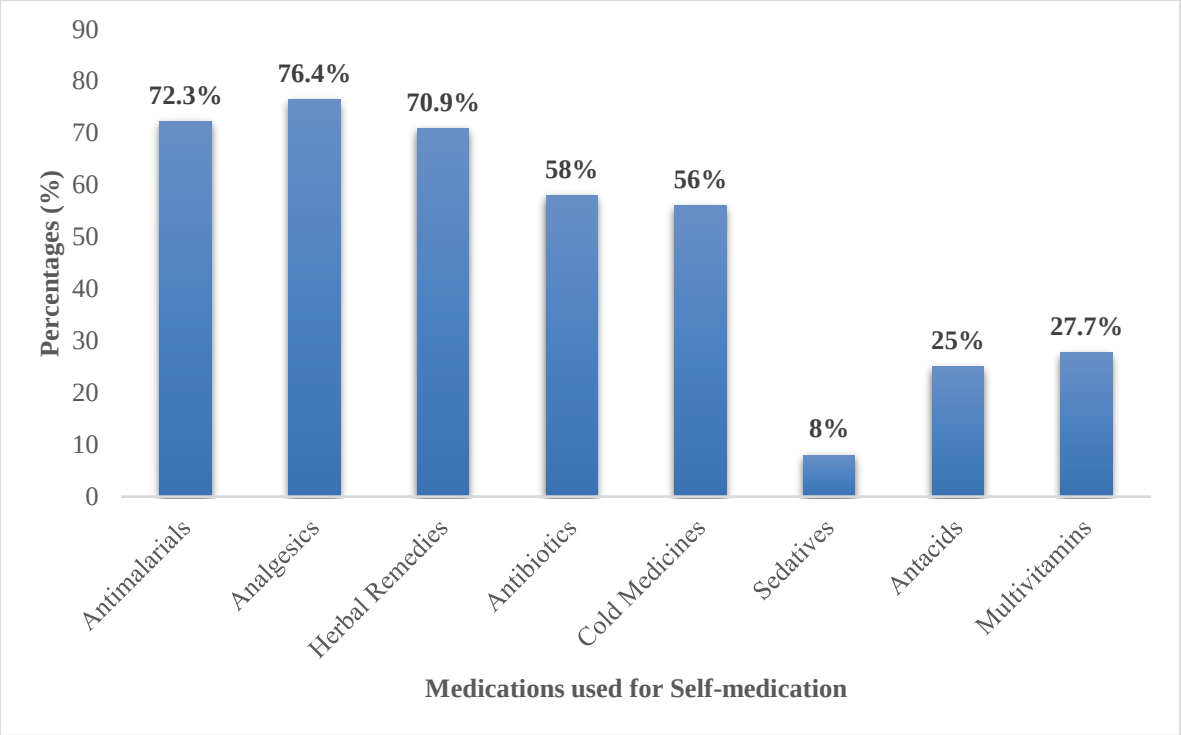

Figure 1: Medications commonly used for self-medication

The study reveals the most common medicine used by the respondents to self-medicate is painkillers (analgesics) (76.4%), followed by antimalarials 72.3%, and herbal remedies 70.9%. More than half of the respondents (58.0 %; 56 0%) used antibiotics without prescription to self-medicate; took cold medicines on their own without consulting a clinician respectively as shown in Figure 1

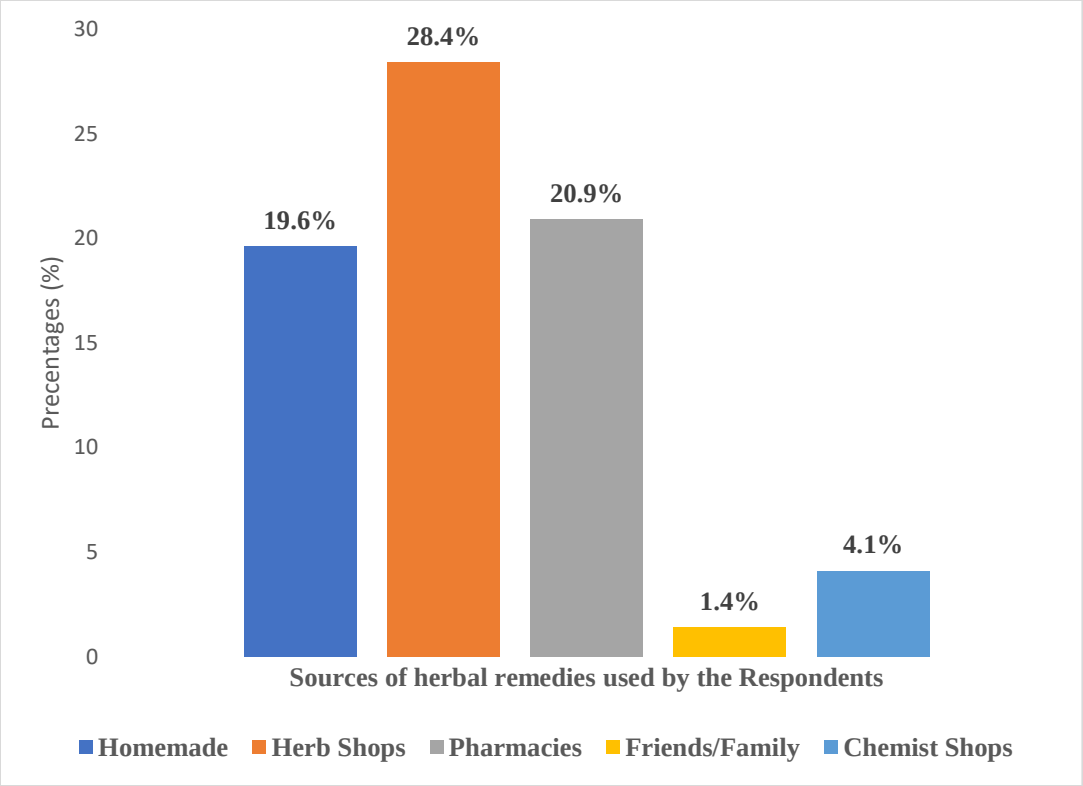

Figure 2: Sources of Herbal Remedies used by the Respondents

In Figure 2, the most common source of herbal remedies used by the respondents are the herb sellers (28.4%), then community pharmacies 20.9%, and home-made preparations 19.6%.

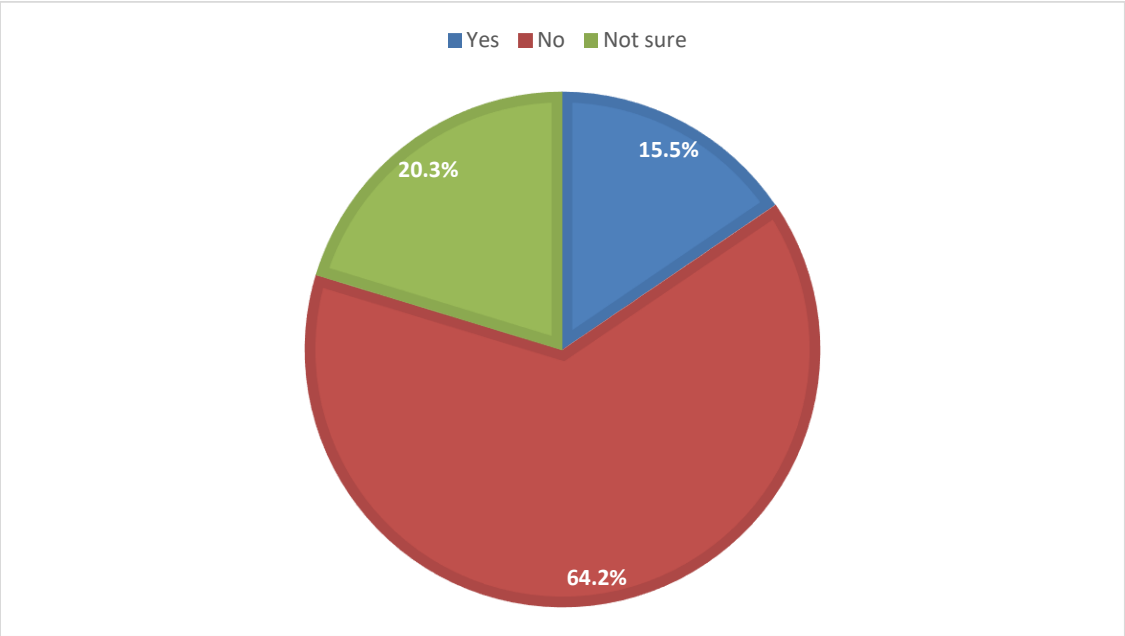

Figure 3: Distribution of Respondents that took the herbal remedies alongside other Medications

More than half of the respondents 64.2%, claimed not to take herbal remedies alongside other conventional medicines, while 20.3 % are not sure of whether they took the herbal remedies together with their medicines (Figure 3)

From the result presented in Table 7, there is a statistically significant association between having a health care practitioner (HCP) as relatives and self-medicating. Individuals having no relatives as HCPs are more likely to self-medicate always, compared to those with relatives as HCPs.

Table 7: Association between Socio-demographic characteristics of the respondents and self-medication behaviours

Socio-demographic Characteristics	Always	Sometimes	Never	Total	p-value
Highest Education					
Primary	0(0.0)	3 (75.0)	1 (25.0)	4 (100.0)	
Secondary	1 (6.7)	11 (73.3)	3 (20.3)	15 (100.0)	
Tertiary	4 (3.4)	103 (87.3)	11 (9.3)	118 (100.0)	0.138
Technical	2(22.2)	6 (66.7)	1 (11.1)	9 (100.0)	
None	0 (0.0)	1(50.0)	1 (50.0)	2 9100.0)	
Income (N)					
Below 50,000	2 (5.6)	28 (77.8)	6 (16.7)	36 (100.0)	
50,000-100,000	4 (6.7)	47 (73.8)	9 (15.0)	60 (100.0)	0.332
100,000-150,000	1 (2.7)	35 (94.6)	1 (2.7)	37 (100.0)	
Above 150,000	0 (0.0)	14 (93.3)	1 (6.7)	15 (100.0)	
Having relatives in Medical Schools					
Yes	0 (0.0)	53 (88.3)	7 (11.7)	60 (100.0)	0.081
No	7 (8.0)	71 (80.7)	10 (11.4)	88 (100.0)	
Having Relatives as: Healthcare Providers					
Yes	0 (0.0)	69 (86.3)	11 (13.8)	80 (100.0)	0.010*
No	7 (10.3)	55 (80.9)	6 (8.8)	68 (100.0)	
Diabetics					
Yes	2 (11.1)	14 (77.8)	2 (11.1)	18 (100)	
No	5 (3.8)	110 (84.6)	15 (11.5)	130 (100)	0.396
Hypertensives					
Yes	2 (4.7)	36 (83.7)	5 (11.6)	43 (100)	0.999
No	5 (4.8)	88 (83.8)	12 (11.4)	105 (100)	

** P-values< 0.05 are significant; N = Naira*

According to Table 8, there is a statistically significant association between ethnicity, having a relative in medical school, having a relative as health care providers, and herbal remedy use. Compared to other tribes, respondents from Yoruba ethnic group are more likely to use herbal remedies to self-medicate. Compared to respondents with no relative in medical school, those that have relatives in medical school are less likely to self-medicate. Likewise, compared with respondent with relatives in as HCPs, respondents

with no relative as HCP are more likely to use herbal remedies to self-medicate for illnesses.

Table 8: Association between Respondents' Socio-demographic Characteristics and Herbal Remedy use

Socio-demographics	Yes	No	Total	p-value
Highest Educational Level				
Primary	3 (75.0)	1 (25.0)	4 (100)	
Secondary	11 (73.3)	4 (26.7)	15 (00.0)	
Tertiary	83 (70.3)	35 (29.7)	118 (100.0)	0.948
Technical	7 (77.8)	2 (22.2)	9 (100.0)	
None	1 (50.0)	1 (50.0)	2 (100.0)	
Monthly Income (₦)				
Below 50,000	25 (69.2)	11 (30.6)	36 (100.0)	
50,000-100,000	44 (73.3)	16 (26.7)	60 (100.0)	
100,000-150,000	27 (73.0)	10 (27.0)	37 (100.0)	0.765
Above 150,000	9 (60.0)	6 (40.0)	15 (100.0)	
Ethnicity				
Yoruba	87 (80.6)	21 (19.4)	108 (100.0)	
Igbo	12 (48.0)	13 (52.0)	25 (100.0)	0.001*
Others	6 (40.0)	9 (60.0)	15 (100.0)	
Relatives in Medical School				
Yes	36 (60.0)	24 (40.0)	60 (100.0)	
No	69 (78.4)	19 (21.6)	88 (100.0)	0.015*
Relatives practising as HCP				
Yes	50 (62.5)	30 (37.5)	80 (54.1)	
No	55 (80.9)	13 (19.1)	68 (100.0)	0.014*

P -values< 0.05 are significant

Discussion

This study provided evidence regarding the prevalence, medications, sources of information, and knowledge of self-medication among non-health workers who have little or no knowledge of the consequences of medication use without prescription. The findings revealed a high prevalence of self-medication among the respondents, fair knowledge of self-medication, use of analgesics, antimalarials and herbal remedies which they obtained from different sources.

According to the study, the mean age of the workers is 38 ± 8.25 years which corroborates the evidence that individuals aged 35 to 44 years represent the second most numerous labour force population in Nigeria (Sasu, 2022).

This study found a high prevalence of self-medication among the workers (62.8 %). Most workers engaged in self-medication either "sometimes" or "always". This high prevalence of self-medication was comparable to a study conducted by Arute *et al*. in Ekiti that documented a prevalence rate of 80.8% (Arute *et al*., 2013). However, another study conducted among hospitalized patients in Lagos, Nigeria, reported a prevalence rate of 38 % (Fakeye, Adisa & Olatunji, 2010).

These differences in the prevalence rates across studies could be due to the socio-demographic and socio-economic profiles of respondents, environmental differences, varying determinants, and timing of the studies.

In this study, the non-health workers had a fair knowledge of self-medication, as most of them correctly defined self-medication as the use of medicine not prescribed by an authorized healthcare professional, the use of medications to treat the self-diagnosed condition, and the use of home-made herbals to treat ailments, respectively. They also had a fair knowledge of the risks associated with self-medication, such as prolonged drug use, excessive drug dosage, drug resistance, and incorrect diagnosis. The observed understanding of self-medication can be because most respondents are well-educated and work within a healthcare institution. However, there was no significant association between education and knowledge.

It is worth noting that there is a statistically significant association between having family members practicing as health care professionals (HCPs) and self-medication practices. Hence, compared to the workers with no relatives in medical school, those who have relatives in medical schools are less likely to self-medicate. Likewise, compared with workers having family members as HCPs, those with no family members as HCPs are more likely to use herbal remedies to self-medicate for different health conditions. These findings reveal that having relatives either in medical school or working as a healthcare professional serve as a preventive measure to discourage self-medication behaviours, particularly self-medicating with herbal remedies. This result can be due to the HCPs providing medical information and associated risks of self-medication to their relatives/family members to discourage self-medication. In contrast with these findings is a recent study conducted in India that reported that the frequency of self-medication practice was positively associated with being in the medical field (Al-Qerem e*t al*., 2023).

This study found that the workers engage in self-medication as a result of body pains, headaches, and malaria they are experiencing. The body pain and headaches could be work-related due to long office hours and the hustle and bustle of Lagos. Corroborating this finding is a study conducted among medical students in India that reported headaches as one of the most frequent (60%) indications for self-medication (Badiger *et al*., 2012). A study carried out among students in Ethiopia found that the main reason for using self-medication was the perception that the illness was minor (Zeru *et al*., 2020). In this study, about half of the workers self-treated malaria. This report is not surprising because of the endemic nature of malaria in Nigeria, and individuals are gradually developing medical skills in handling and managing malaria on their own instead of visiting healthcare facilities. Anti-malaria medications are also easily accessible in the country, particularly in community pharmacies, and contribute to self-medication. While community pharmacies are widely accepted sources of medications, the patent medicine store is the least patronized. Hence, efforts by the government to make policies that will control the distribution of medical commodities are crucial.

According to the study findings, the workers practiced self-medication for reasons such as the consideration of the illness as minor, previous exposure to the medications, long waiting times at the hospitals, and the inability to pay for medical expenses. A community survey conducted in India found that participants self-medicated because it saved time, and the condition was minor and did not warrant a physician's consultation (Rathod *et al*., 2023). While the cost of medications was not a substantial reason for self-medication by the study workers, a study carried out in Odoado, Ekiti state in Nigeria, documented a

lower cost of self-medication as the main reason for self-medication (Arute*et al*., 2013). Likewise, Al-Qerem *et al*. documented having previous knowledge about the diseases and their treatments (84.2 %) and knowledge of the medicine to be purchased (55.2 %) as the most common causes for Self-medication (Al-Qerem *et al*., 2023).

The findings of this study revealed that most workers obtained the information on medications for self-medication mainly from the pharmacists, nurses, and clinicians, and self-decision was a driver of self-medication. The decision or the initiative to self-medicate was due to previous exposure/use of the medication and the positive clinical outcomes associated with the medication use, urgent need to feel better, and distance to the clinic. In line with these findings is a study that reported that the source of information about the drugs for self-medication were local pharmacists (59.2%), family members (17.9%), friends (7.92%), advertisements (7; 2.9%), and the internet (5; 2.1%) (Rathod *et al*., 2023). Similarly, a study conducted in Syria reported that pharmacists were the source of knowledge about the medications used for self-medication, and the mildness of the complaint was the main reason for self-medicating (Rawan et al., 2022).

This study revealed that analgesics (76.4%), anti-malaria (72.3%) herbal remedies (70.9%), and antibiotics (58%) were the most commonly used classes of drugs to self-medicate by the respondents. Among the analgesics, paracetamol was the most frequently used and is in tandem with symptoms experienced like body pain and headache. Paracetamol, an over-the-counter (OTC) medication used for headache, fever, and pain, makes it readily available. A study by Araia and colleagues conducted among students in Eritrea documented analgesics, antipyretics, and antibacterials as the leading class of medicine used in self-medication (Araia, Gebregziabher & Mesfun, 2019). As reported in this study, anti-malaria medications are among the medications used by the respondents. They are over-the-counter in most retail pharmacies in Nigeria and are used to self-treat malaria. The use of antibiotics without a prescription has implications for the emergence of resistant organisms (AMR), which calls for antimicrobial stewardship programs in hospitals by healthcare providers (Zeb et al., 2022).

The high prevalence of herbal remedies documented in this study could be that the workers reside in Lagos where herbal use is common. In line with this result is a study that reported high use of herbal remedies (agbo) (Oreagba, Oshikoya & Amachree, 2011). This current study found an association between tribe and the use of herbal remedies. Consistent with these findings is another study that showed higher chances of self-medicating with herbal medicine than over-the-counter or prescription medicine due to the perceived efficacy of herbal medicines (Kadhim et al., 2023). Of all the herbal remedies used by the workers, *Agbo jedi-jedi* for hemorrhoids was the most commonly used. Also common among the study respondents are Agbo-iba, (herbal concoction used for malaria) and Yoyo bitters. In this study, the non-health workers obtain these herbal remedies from herb sellers commonly called "*Alagbo*". It is interesting to note that the respondents claimed not to take herbal remedies alongside other prescribed medication dosage forms, such as syrup, capsules, and tablets. This is quite impressive because this act has the potential to limit the occurrence of drug-drug interaction.

According to the findings, about half of the respondents got the information on the type of herbal remedies they used from friends and families, which could be attributed to the closely knitted families seen in most African Countries. Colleagues at work also served as a source of information regarding medications for self-medicating due to proximity.

The internet was the least source of information among the respondents; this may be due to their busy work and lack of time for surfing for information online.

This study has some limitations. The study is a cross-sectional survey and hence, there is no causal relationship between variables, and it is not generalizable to a larger population. Hence, more studies can be conducted in different parts of the country.

Conclusion

This study provided evidence of a high prevalence of self-medication practices among non-health workers. The respondents had fair knowledge of self-medication and self-medicated for various reasons. They had fair knowledge of self-medication, sourced for information from different channels, and self-medicated majorly with herbal remedies, over-the-counter medicines (OTCs), and prescription-only medicines (PoMs). The combined use of herbal remedies with prescription medications could have implications for adverse effects, while the self-use of antibiotics and antimalarials without prescription could result in antimicrobial resistance (AMR) and anti-malarial drug resistance respectively. Relatives serving as source of information for self-medications underscores the need for reinforcing behavioural changes through educational interventions for individuals. Not having any relatives with medical background as students or healthcare practitioner was a risk factor for the use of herbal remedies

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Conflict of interest

There is no conflict of interest

References

Afolabi AO (2008). Factors influencing the pattern of self-medication in an adult Nigerian population. Annals of African Med. 7(3) :120-7.

Alduraibi RK, Altowayan WM (2022). A cross-sectional survey: knowledge, attitudes, and practices of self-medication in medical and pharmacy students. BMC Health Serv Res. 22:352.

Alghanim SA (2011). Self-medication practices among patients in a public health care system. EMHJ. 17(5):410.

Al-Qerem W, Bargooth A, Jarab A, Akour A, Abu Heshmeh S (2023). Information sources, attitudes, and practices of Self-Medication by Jordanian patients: A cross-sectional study. Saudi Pharm J, 31(4):482-491. doi: 10.1016/j.jsps.2023.01.015.

Anthony M, Eze DU, Chigozie VU, Brian OO. (2024). Practice, Risk Perception, and Correlates of Self-Medication Among Pregnant Women in Awka. Med Discoveries, 3(2):1110.

Araia ZZ, Gebregziabher NK, Mesfun AB. (2019). Self-medication practice and associated factors among students of Asmara College of Health sciences, Eritrea: a cross sectional study. Journal of Pharmaceutical Policy and Practice, 12(3):1-2.

Arute JE, Adje UD, Akonoghrere R, Omuta MC. (2013). Self-medication practices in Odo-Ado community of Ado-Ekiti, Ekiti State, 3(4):53-57.

Babatunde OA, Fadare JO, Ojo OJ, Durowade KA, Atoyebi OA, Ajayi PO, Olaniyan T. (2016). Self-medication among health workers in a tertiary institution in South-West Nigeria. Pan Afr Med J, 24:312.

Badiger S, Kundapur R, Jain A, Kumar A, Pattanshetty S, Thakolkaran N, Bhat N, Ullal N. (2012). Self-medication patterns among medical students in South India. Australas Med J, 5(4):217-20. doi: 10.4066/AMJ.2012.1007. Epub 2012

Bekele GG, Gonfa DN (2021). Prevalence of Herbal Medicine Utilization and Associated Factors among Pregnant Women in Shashamane Town, Southern Ethiopia, 2020; Challenge to Health Care Service Delivery. J Women's Health Care, 10:551. doi:10.35248/2167-0420.21.10.551.

Castro-Catano ME, Pechene-Paz PA, Rocha-TenorioVE, Loaiza-Bultrago DF (2022). Self-medication among undergraduate nursing students. Enfermeria Global, 66: ISSN 1695-6141.

Charan J, Biswas T (2013). How to calculate sample size for different study designs in medical research? Indian J Psychol Med, 35:121–6.

Eticha T, Mesfin K (2014). Self-Medication Practices in Mekelle, Ethiopia. PLoS ONE, 9(5):e97464. Doi: 10.1371/journal.pone.0097464

Fakeye TO, Adisa R, Olatunji E (2010). Self-medication among hospitalized patients in selected secondary health facilities in South Western Nigeria. Pharm Pract (Granada), 8(4):233-7. doi: 10.4321/s1886-36552010000400005. Epub 2010 Mar 15. PMID: 25126146; PMCID: PMC4127061

Gutema GB, Gadisa DA, kidanemariam ZA, Berhe DF, Berhe AH, Hadera MG, Hailu GS, Abrha NG, Yarlagadda R, Dagne AW (2011). Self-medication practices among health services students: the case of Mekelle University. Journal of Applied Pharmaceutical Sciences, 1(10):183-189.

Horumpende PG, Sonda TB, van Zwetselaar M, Antony ML, Tenu FF, Mwanziva CE, Shao ER, Mshana SE, Mmbaga BT, Chilongola JO (2018). Prescription and non-prescription antibiotic dispensing practices in part I and part II pharmacies in Moshi Municipality, Kilimanjaro Region in Tanzania: A simulated clients' approach. PLoS One, 13(11): e0207465.

Jamhour A, El-Kheir A, Salameh P, Hanna PA, Mansour H (2017). Antibiotic knowledge and self-medication practices in a developing country: A cross-sectional study. American Journal of Infection Control, 45(4):384-388. ISSN 0196-6553, https://doi.org/10.1016/j.ajic.2016.11.026

Kadhim KF, Aldabis HA, AL-Kabi HH, Al-Maliki NT (2023). Self-medication with herbal remedies: Understanding the practices in Iraqi society. Biomedicine, 43:1484-1489. 10.51248/.v43i5.3218.

Limaye D, Limaye V, Krause G, Fortwengel G (2017). A systematic review of the literature on survey questionnaires to assess self-medication practices. Int J Community Med Public Health, 4:2620-31.

Oreagba IA, Oshikoya KA, Amachree M (2011). Herbal medicine use among urban residents in Lagos, Nigeria. BMC Complement Altern Med, 11:117. doi: 10.1186/1472-6882-11-117. PMID: 22117933; PMCID: PMC3252251.

Oyediran OO, Ayandiran EO, Olatubi MI, Olabode O (2019). Awareness of risks associated with Self-medication among Patients attending General Out-patient Department of a Tertiary Hospital in South Western Nigeria, International Journal of Africa Nursing Sciences, 10:110-115. ISSN 2214-1391

Rathod P, Sharma S, Ukey U, Sonpimpale B, Ughade S, Narlawar U, Gaikwad S, Nair P, Masram P, Pandey S (2023). Prevalence, pattern, and reasons for self-medication: a community-based cross-sectional study from Central India. Cureus, 15(1):e33917 DOI: 10.7759/cureus.33917.

Rawan NK, Abdelwahed, Jassem M, Alyousbashi A (2022). Self-Medication Practices, Prevalence, and Associated Factors among Syrian Adult Patients: A Cross-Sectional Study. Journal of Environmental and Public Health, 9274610. https://doi.org/10.1155/2022/9274610

Reetesh M, Papiya B, Sonam J. (2011). A study of self-medication among the people of Bhopal Region Madhya Pradesh India IRJP. 2(12):163-165.

Ruiz ME (2010). Risks of self-medication practices. Curr Drug Saf. 5(4):315-323.

Sasu DD. Labor force in Nigeria 2020, by age group Statista (2022).

Selvaraj K, Ganesh SK, Ramalingam A (2014). Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. Perspect Clin Res. 5:32-6.

Syed N, Naseer M, Memon MQ, Rani K. (2014). Prevalence of Self-medication and its practice among the medical and non-medical Students. JLUMHS. 13(2):79.

World Health Organization (2000). Guidelines for the regulatory assessment of medicinal products for use in self-medication WHO. (accessed 16th June, 2024) https://iris.who.int/handle/10665/66154

Zeb S, Mushtaq M, Ahmad M, Saleem W, Rabaan AA, Naqvi BSZ, Garout M, Aljeldah M, Al Shammari BR, Al Faraj NJ, Al-Zaki NA, Al Marshood MJ, Al Saffar TY, Alsultan KA, Al-Ahmed SH, Alestad JH, Naveed M, Ahmed N (2022). Self-Medication as an Important Risk Factor for Antibiotic Resistance: A Multi-Institutional Survey among Students. Antibiotics (Basel). 11(7): 842. doi: 10.3390/antibiotics11070842.

Zeru N, Fetene D, Geberu DM, Melesse AW, Atnafu A (2020). Self-Medication Practice and Associated Factors Among University of Gondar College of Medicine and Health Sciences Students: A Cross-Sectional Study. Patient Prefer Adherence.14:1779-1790. https://doi.org/10.2147/PPA.S274634