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Prevalence of Self-Medication and the Influence of Environmental Factors and Healthcare Accessibility Barriers Among Young People Aged 15–24 Years in Ilorin Metropolis, Kwara State, Nigeria

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ABSTRACT

Self-medication, the use of medicines without consulting a qualified health professional, is a major public health concern in Nigeria, and young people are particularly vulnerable. Community-based evidence from Ilorin Metropolis, Kwara State, is scarce. This study estimated the extent of self-medication and examined the environmental factors and healthcare accessibility barriers associated with it among young people aged 15–24 years in Ilorin Metropolis. A descriptive cross-sectional survey was conducted among 384 young people in six wards of Ilorin East, Ilorin West and Ilorin South Local Government Areas (LGAs), selected by multistage sampling in which the final stage (households) was convenience-based. Data were collected with a validated, structured, researcher-designed questionnaire (test–retest r = 0.84) and analysed in SPSS version 27 using frequencies, percentages, means, chi-square tests and binary logistic regression at the 0.05 significance level. Of 400 questionnaires administered, 384 were valid (response rate 96.0%). Across seven practice items, 57.6% of pooled responses indicated engagement in self-medication (a pooled response proportion, not a prevalence; grand mean = 2.65), and 227 of 384 respondents (59.1%) were classed as self-medicators. Analgesic use without medical advice (77.6% always or often) and purchase of medicines without a prescription (71.6%) were the most common practices. Self-medication was more frequent among respondents with high than low environmental-factor exposure (67.0% vs 49.1%; $\chi^2(1) = 11.77$, $p < .001$); the environmental model was significant overall (Nagelkerke $R^2 = .110$), but no single environmental item was independently associated. Self-medication was also more frequent among respondents who perceived high barriers to healthcare access (69.3% vs 47.5%; $\chi^2(1) = 17.87$, $p < .001$), with lack of health insurance (mean = 2.89) and cost of consultation (mean = 2.76) the most prominent financial barriers. Self-medication is common among young people in the sampled wards of Ilorin Metropolis and is associated with a permissive drug-retail environment and perceived financial barriers to formal care. Because the final sampling stage was non-probabilistic and the design is cross-sectional, the results show associations, not causes. Enforcement of prescription-only rules by the Pharmacists Council of Nigeria, NAFDAC and the Kwara State Ministry of Health, and affordable health insurance and primary care for young people, merit consideration.

KEYWORDS: self-medication; young people; prevalence; environmental factors; healthcare accessibility; Ilorin; Nigeria

How to Cite

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1. Introduction

According to the World Health Organization (WHO, 1998), self-medication is the use of medicines for self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed medicine for chronic or recurrent conditions. It includes taking over-the-counter medicines, unused or shared prescription medicines, prescription-only medicines without a prescription and herbal medicines (Baracaldo-Santamaría et al., 2022). Responsible self-medication can relieve minor illness quickly, but irresponsible use can lead to misdiagnosis, drug interactions, adverse drug reactions, masking of serious illness and antimicrobial resistance (WHO, 2000).

Reported prevalence is high in Nigeria: 85% among outpatients of a hospital in south-western Nigeria (Omolase et al., 2007), 81.8% among undergraduates of a private university (Esan et al., 2018) and 82.2% for antibiotic self-medication in a rural population (Abdulraheem et al., 2016), and 41% of Nigerian adults surveyed during the COVID-19 pandemic reported self-medication for COVID-19 (Wegbom et al., 2021). In the rural study, medicines came mainly from chemist shops, drug stores and pharmacies, and affordability and accessibility were commonly reported reasons (Abdulraheem et al., 2016).

The 15- to 24-year-old age group is important to study because it is a stage of growing independence in health decisions, and many young people lack income and health insurance. Community-based evidence on young people is limited: in a suburban community in Ekiti State, 31.7% of 602 young people aged 16–24 years self-medicated, and the practice was associated with being a student (Anthony et al., 2024), whereas most other Nigerian studies are institution-based or hospital-based (Akande-Sholabi et al., 2021; Esan et al., 2018; Omolase et al., 2007; Osemene & Lamikanra, 2012). To the best of our knowledge, no community-based evidence on self-medication among youths in Ilorin Metropolis has been published.

The objectives of this study were therefore to estimate the extent of self-medication practices among youths aged 15–24 years in Ilorin Metropolis, to examine the environmental factors associated with self-medication, and to examine the association between healthcare accessibility barriers and self-medication in the study area. The study was based on the Health Belief Model, which focuses on the barriers and cues to action that influence health behaviour (Champion & Skinner, 2008).

2. Materials and Methods

2.1 Study design and study area

The study design was descriptive and cross-sectional, which estimates frequencies and examines associations at one point in time (Setia, 2016). The study was carried out in Ilorin, the capital city of Kwara State, in Ilorin East, Ilorin West and Ilorin South Local Government Areas (LGAs). There are tertiary, secondary and primary health facilities, and numerous private clinics, community pharmacies and patent medicine vendor outlets in the metropolis. The target population was young people aged 15–24 years living in the metropolis, estimated at 399,084 (Kwara State Bureau of Statistics, 2025).

2.2 Sampling and data collection

A minimum sample size of 384 was calculated for a population greater than 10,000 at a 95% confidence level and a 5% margin of error (Research Advisors, 2006), and 400 questionnaires were distributed to allow for spoiled or incomplete returns. A multistage procedure combining probability and non-probability selection was used. First, the metropolis was stratified by LGA. Second, two wards were randomly selected (balloted) in each of the three LGAs, giving six wards: Ogidi and Adewole (Ilorin West), Gambari 1 and Gambari 2 (Ilorin East), and Balogun Fulani 1 and Akanbi 2 (Ilorin South). Third, households in the selected wards were sampled by convenience, and all eligible young people present at the time of the visit in each sampled household were included. The final stage was therefore non-probabilistic, so the sample is not representative of all young people in Ilorin Metropolis; this may introduce selection bias, and the findings apply to the sampled wards.

A structured, researcher-designed closed-ended questionnaire was used. Section A collected sociodemographic data. Self-medication practices were assessed on a four-point frequency scale (Always = 4, Often = 3, Rarely = 2, Never = 1) in Section B (seven items). The five items in Section E (environmental factors) and the five in Section F (healthcare accessibility) were rated on a four-point agreement scale (Strongly Agree = 4, Agree = 3, Disagree = 2, Strongly Disagree = 1). The instrument was face and content validated by three experts in the Department of Community Medicine and Public Health, Al-Hikmah University. Test–retest reliability was assessed with 20 respondents outside the study area in Moro LGA,

two weeks apart, and the Pearson product–moment correlation was 0.84. Questionnaires were handed out by the researcher and four trained research assistants and retrieved immediately after completion.

2.3 Data analysis

The Statistical Package for the Social Sciences (SPSS) version 27 was used for coding and analysis. Sociodemographic data and responses were summarised as frequencies, percentages, means and standard deviations, and item means were compared with a criterion mean of 2.50, the midpoint of the four-point scale. For the practice items, "Always" and "Often" were grouped as "engaged" and "Rarely" and "Never" as "not engaged". The proportion of engaged responses across all seven items (2,688 responses from 384 respondents) is reported as a pooled response proportion, a measure of how often the practices were endorsed; it is not a prevalence, because responses from the same respondent are not independent, and no significance test is applied to it. Respondent-level prevalence is reported separately as the proportion of respondents classed as self-medicators, with a 95% Wilson confidence interval and a chi-square goodness-of-fit test against 50%. Respondents were classed as self-medicators if the mean Section B is 2.50 or above. For the chi-square tests in Tables 4 and 7, the five environmental items were combined into one composite score and the five healthcare-access items into another, and respondents were classed as having high or low environmental exposure and high or low access barriers by a mean of below or above 2.50 benchmark. Chi-square tests of independence (with Yates' continuity correction) tested the association between each exposure group and self-medication status. A binary logistic regression with the five environmental items entered together as 1–4 scores (each odds ratio is per one-point increase in agreement) was fitted for the environmental domain only; no regression model was fitted for the healthcare-access domain (see Limitations). The level of statistical significance was < .05.

3. Results

Of the 400 questionnaires administered, 384 were correctly completed and returned (response rate 96.0%), and all 384 were analysed.

3.1 Characteristics of respondents

Slightly more respondents were aged 20–24 years (55.5%) than 15–19 years (44.5%), and the sex distribution was balanced (50.5% female). Most respondents were ongoing tertiary students (40.6%) or had secondary education (36.7%), and 63.3% were students. More than half (59.6%) reported a monthly income or allowance below ₦50,000 (Table 1).

Table 1. Sociodemographic characteristics of respondents (N = 384)

Variable	Category	n (%)
Age group		
	15–19 years	171 (44.5)
	20–24 years	213 (55.5)
Sex		
	Male	190 (49.5)
	Female	194 (50.5)
LGA of residence		
	Ilorin East	107 (27.9)
	Ilorin West	154 (40.1)
	Ilorin South	123 (32.0)
Highest educational level		
	No formal education	11 (2.9)
	Primary	16 (4.2)
	Secondary	141 (36.7)
	Tertiary (ongoing)	156 (40.6)
	Tertiary (completed)	60 (15.6)
Current occupation		
	Full-time student	200 (52.1)
	Part-time student	43 (11.2)
	Employed	55 (14.3)
	Self-employed	50 (13.0)

	Unemployed	36 (9.4)
Monthly income or allowance (₦)		
	Below 20,000	131 (34.1)
	20,001–50,000	98 (25.5)
	50,001–100,000	63 (16.4)
	Above 100,000	35 (9.1)
	No regular income	57 (14.8)

3.2 Prevalence of self-medication practices

The grand mean for the seven practice items was 2.65, above the criterion mean of 2.50. Use of analgesics without medical advice (77.6% Always/Often; mean = 3.23), purchase of medicines without a prescription (71.6%; mean = 3.01) and taking medicines without first seeing a doctor or pharmacist (69.0%; mean = 2.98) were the most common practices. Non-prescribed antibiotic use (34.6%) and antimalarial drug treatment without laboratory confirmation (39.3%) were less frequent but were still reported by roughly one in three respondents (Table 2). Pooled across all items, 1,548 of 2,688 responses (57.6%) indicated engagement in the practices. This pooled response proportion shows how often the practices were endorsed and is not the prevalence of self-medication, because the 2,688 responses come from 384 respondents. At respondent level, 227 of 384 (59.1%; 95% CI 54.1–63.9%) were classed as self-medicators (rule in Section 2.3), which exceeds 50%, $\chi^2(1) = 12.76$, $p < .001$. Because households were selected by convenience, these estimates describe the sampled wards and are not population estimates for Ilorin Metropolis.

Table 2. Self-medication practice items among respondents (N = 384)

Practice item	Always/Often n (%)	Rarely/Never n (%)	Mean
Takes medications without first seeing a doctor or pharmacist	265 (69.0)	119 (31.0)	2.98
Uses leftover medications from a previous prescription	194 (50.5)	190 (49.5)	2.40
Purchases medications from a pharmacy or patent medicine vendor without a prescription	275 (71.6)	109 (28.4)	3.01
Treats fever or malaria-like symptoms with antimalarial drugs without laboratory confirmation	151 (39.3)	233 (60.7)	2.16
Takes antibiotics without a prescription	133 (34.6)	251 (65.4)	2.07
Uses analgesics without medical advice	298 (77.6)	86 (22.4)	3.23
Self-medicates because the illness is perceived as minor	232 (60.4)	152 (39.6)	2.74
Pooled response proportion (2,688 responses)	**1,548 (57.6)**	**1,140 (42.4)**	**2.65**

Note. Criterion mean = 2.50 on a four-point scale. The pooled row is the proportion of engaged responses across the seven items (2,688 responses from 384 respondents), a pooled response proportion and not a prevalence; no significance test is applied to it.

3.3 Environmental factors and self-medication

The grand mean for the environmental items was 2.61, above the criterion mean. Living close to a pharmacy or patent medicine vendor recorded the highest mean (2.95), followed by sale of prescription-only drugs by local vendors without a prescription (2.77) and poor enforcement of drug-sale regulations (2.58). Access to health information on social media or the internet (2.33) and high density of drug outlets (2.40) fell below the criterion mean (Table 3).

Table 3. Respondents' agreement with environmental factor statements (N = 384)

Statement	SA n (%)	A n (%)	D n (%)	SD n (%)	Mean
A pharmacy or patent medicine vendor is very close to where I live, making drug purchase easy	159 (41.4)	102 (26.6)	69 (18.0)	54 (14.1)	2.95
Drug vendors in my area sell prescription-only drugs without a prescription	141 (36.7)	93 (24.2)	72 (18.8)	78 (20.3)	2.77
Poor enforcement of drug sale regulations in	109 (28.4)	98 (25.5)	84 (21.9)	93 (24.2)	2.58

my community makes self-medication easy					
I frequently access health and medication information from social media or the internet	88 (22.9)	79 (20.6)	90 (23.4)	127 (33.1)	2.33
The high density of drug retail outlets in my neighbourhood encourages self-medication	93 (24.2)	78 (20.3)	102 (26.6)	111 (28.9)	2.40
Grand mean					**2.61**

Note. SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree. Criterion mean = 2.50.

Respondents with high environmental-factor exposure (classification in Section 2.3) were more likely to self-medicate than those with low exposure (67.0% vs 49.1%; $\chi^2(1) = 11.77$, $p < .001$; Table 4). The logistic regression model was significant overall ($\chi^2(5) = 32.61$, $p < .001$; Nagelkerke $R^2 = .110$), but none of the five items was an independent predictor at $p < .05$ (Table 5). Density of drug retail outlets (OR = 1.22, p = .091) and sale of prescription-only drugs without a prescription (OR = 1.21, p = .094) had the largest odds ratios. The weak individual effects despite a significant overall model may reflect shared variance among closely related items, which was not tested.

Table 4. Environmental-factor exposure and self-medication status (N = 384)

Exposure group	Self-medicates n (%)	Does not n (%)	Test result
High exposure (n = 215)	144 (67.0)	71 (33.0)	$\chi^2(1) = 11.77$
Low exposure (n = 169)	83 (49.1)	86 (50.9)	$p < .001$
Total (N = 384)	227 (59.1)	157 (40.9)	

Note. Continuity-corrected chi-square test of independence; high and low exposure as defined in Section 2.3.

Table 5. Binary logistic regression of environmental factors on self-medication (N = 384)

Predictor	B	S.E.	Wald	p	OR	95% CI
Proximity to drug outlets	0.183	0.122	2.23	.135	1.20	0.95–1.53
Sale of prescription-only drugs	0.193	0.115	2.80	.094	1.21	0.97–1.52
Poor regulatory enforcement	0.115	0.116	0.99	.321	1.12	0.89–1.41
Social media health information	0.024	0.117	0.04	.835	1.02	0.81–1.29
Density of drug retail outlets	0.199	0.118	2.86	.091	1.22	0.97–1.54
Constant	−1.508	0.361	17.41	< .001	0.22	

Note. Dependent variable: self-medication status (1 = self-medicates, 0 = does not). Predictors are the five 1–4 agreement items. Model $\chi^2(5) = 32.61$, $p < .001$; Nagelkerke $R^2 = .110$. OR = odds ratio (Exp B) per one-point increase in agreement; CI = confidence interval, calculated from B and S.E.

3.4 Healthcare accessibility and self-medication

The grand mean for the healthcare accessibility items was 2.76, the highest among the three Likert-scale domains. Respondents most strongly agreed that they would consult a doctor more often if services were more accessible and affordable (2.92), followed by lack of health insurance making care unaffordable (2.89) and the cost of consultation (2.76). Long waiting times (2.69) and distance to the nearest facility with a qualified doctor (2.53) ranked lower, although all items exceeded the criterion mean (Table 6).

Table 6. Respondents' agreement with healthcare accessibility statements (N = 384)

Statement	SA n (%)	A n (%)	D n (%)	SD n (%)	Mean
The cost of consulting a doctor or visiting a health facility is too expensive for me	129 (33.6)	96 (25.0)	97 (25.3)	62 (16.1)	2.76
I do not have health insurance, which makes formal healthcare unaffordable	156 (40.6)	85 (22.1)	86 (22.4)	57 (14.8)	2.89
The nearest health facility with a qualified doctor is too far from where I live	105 (27.3)	87 (22.7)	100 (26.0)	92 (24.0)	2.53
Long waiting times at health facilities discourage me from seeking formal medical care	130 (33.9)	87 (22.7)	84 (21.9)	83 (21.6)	2.69
I would consult a doctor more often if	155 (40.4)	98	78	53	2.92

healthcare services were more accessible and affordable		(25.5)	(20.3)	(13.8)	
Grand mean					**2.76**

Note. SA = Strongly Agree; A = Agree; D = Disagree; SD = Strongly Disagree. Criterion mean = 2.50.

Self-medication was significantly more frequent among respondents who perceived high barriers to healthcare access than among those who perceived low barriers (69.3% vs 47.5%; $\chi^2(1) = 17.87$, $p < .001$; Table 7), showing an association between perceived access barriers and self-medication.

Table 7. Perceived healthcare access barriers and self-medication status (N = 384)

Perceived access barriers	Self-medicates n (%)	Does not n (%)	Test result
High (n = 205)	142 (69.3)	63 (30.7)	$\chi^2(1) = 17.87$
Low (n = 179)	85 (47.5)	94 (52.5)	$p < .001$
Total (N = 384)	227 (59.1)	157 (40.9)	

Note. Continuity-corrected chi-square test of independence; high and low barriers as defined in Section 2.3. No regression model was fitted for this domain.

4. Discussion

The results of this community-based study show that self-medication is common among young people in the sampled wards of Ilorin Metropolis: 59.1% of respondents were classed as self-medicators. This is lower than the 81.8% reported among undergraduates of a private Nigerian university (Esan et al., 2018) and the 85% among hospital outpatients (Omolase et al., 2007), and higher than the 31.7% reported for young people aged 16–24 years in a suburban community in Ekiti State (Anthony et al., 2024). Direct comparison is limited because the studies differ in population, sampling, recall period and definition of self-medication, and the figure here comes from a convenience-based household sample. The pooled response proportion (57.6%) is not comparable with prevalence figures. Analgesics were the most common class of medicine, as in Esan et al. (2018). About one-third of respondents reported non-prescribed antibiotics and a similar number antimalarial drugs for fever without laboratory confirmation; self-medication with antibiotics is a determinant of antimicrobial overuse and drug resistance (Abdulraheem et al., 2016).

Self-medication was more common among respondents with high exposure to environmental factors, and the overall regression model was significant, which suggests an association with the local pharmaceutical retail environment. Nearby drug outlets, sale of prescription-only drugs without a prescription and weak enforcement were the most agreed items. This is consistent with evidence that medicines used for self-medication in Nigeria come mainly from drug stores, chemist shops and pharmacies (Abdulraheem et al., 2016) and that pharmacy proximity was cited as a reason for self-medication during the COVID-19 pandemic (Wegbom et al., 2021). No item was independently associated, which may be because the five items describe similar aspects of one construct (permissiveness and density of the local drug market), although this was not tested; the result should be read as an association with the environment in general. The low mean for frequent use of social media or the internet for health information (2.33) suggests that physical outlets matter more than digital sources in this sample, but that item measures use of such information and not exposure to unregulated digital advice.

Perceived barriers to healthcare access had the highest grand mean (2.76), and self-medication was more frequent among respondents who perceived high barriers. Financial barriers (lack of health insurance, 2.89; cost of consultation, 2.76) were rated higher than distance (2.53). Cost and accessibility were also reported as reasons for self-medication in a rural Nigerian population (Abdulraheem et al., 2016), poverty is a major barrier to health care in developing countries (Peters et al., 2008), and this fits the sample, in which 59.6% had a monthly income or allowance below ₦50,000. In terms of the Health Belief Model (Champion & Skinner, 2008), the perceived cost and inconvenience of formal consultation are barriers that make self-medication the more accessible option. The lower rating for distance may reflect a dense urban setting where cost and waiting time matter more, but this was not tested. That respondents would consult a doctor more often if services were more accessible and affordable (2.92) suggests that, for many, self-medication reflects constrained choice, although this item shows stated intention and not cause.

The implications for policy and practice

The results are consistent with both supply and demand factors being associated with self-medication. On the supply side, easy access to medicines at outlets such as patent medicine vendors and community pharmacies suggests that the Pharmacists Council of Nigeria, the National Agency for Food and Drug Administration and Control (NAFDAC) and the Kwara State Ministry of Health could consider reviewing enforcement of prescription-only rules. On the demand side, affordable primary care and health insurance coverage might reduce self-medication among low-income youth, and public education on the risks of non-prescribed antibiotics and antimalarial drugs is warranted. These suggestions follow from associations in a convenience-based sample and need further testing.

5. Conclusion

Self-medication is common among young people aged 15–24 years in the sampled wards of Ilorin Metropolis, with analgesics and medicines bought without a prescription the most common practices. It was associated with a permissive drug-retail environment, including nearby drug outlets and sale of prescription-only medicines without a prescription, and with perceived barriers to healthcare access, including the cost of consultation and lack of health insurance. These cross-sectional results show associations and not causes, and, because households were selected by convenience, they describe the sampled wards and should not be generalised to all young people in Ilorin Metropolis.

6. Recommendations

1. The Kwara State Ministry of Health, the Pharmacists Council of Nigeria and the National Agency for Food and Drug Administration and Control (NAFDAC) should consider stepping up monitoring and enforcement of prescription-only drug sale rules among community pharmacies and patent medicine vendors in Ilorin Metropolis.
2. Local Government Health Authorities should examine the licensing and spatial distribution of drug retail outlets in residential neighbourhoods, in view of the association found between the drug-retail environment and self-medication.
3. The Kwara State Government and the National Health Insurance Authority should consider expanding affordable primary healthcare and health insurance for youths, including students and those without fixed income, since cost barriers were associated with self-medication.
4. The Kwara State Ministry of Health should run risk-communication campaigns on non-prescribed antibiotic and antimalarial drug use among young people.
5. Primary healthcare facilities and school health programmes should consider including screening and counselling on self-medication in services for adolescents and young people. Larger probability-based studies are needed to confirm these associations before wider policy changes.

7. Limitations of the Study

The cross-sectional design collects data at one point in time and cannot support causal inference. The final sampling stage used convenience selection of households, so the sample is not probabilistic and not representative of all young people in Ilorin Metropolis; this may introduce selection bias, and the findings apply to the sampled wards. Data were self-reported and may be affected by recall and social-desirability bias. The study was in an urban metropolis, which limits generalisation to rural communities. The instrument measured the frequency of practices and not episodes in a specified recall period; the pooled response proportion is not a prevalence, and the respondent-level estimate depends on the classification rule used. Environmental and access exposures were measured by perceived agreement and not by objective measures such as the number of outlets or distance. The logistic regression was fitted for the environmental domain only, and the access domain was analysed with a chi-square test only. Future studies should use probability sampling at all stages, objective environmental measures, multivariable models covering all predictor domains, and rural comparisons.

Declarations

Ethical approval: Ethical approval was obtained from the Al-Hikmah University Research Ethics Committee and the Kwara State Ministry of Health Research Ethics Committee before data collection [ERC/MOH/2026/06/796].

Consent to participate: Informed consent was obtained from all participants before questionnaire administration; the study objectives, procedures, risks and benefits, voluntary participation and the right to withdraw were explained verbally. Questionnaires were anonymous and coded numerically.

Consent for publication: Not applicable. No identifiable individual data are included.

Availability of data and materials: The data supporting the findings are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Authors' contributions: Adenike Afusat Bello, Abdulganiyu Abdulwasiu Olayiwola and Bello, Amina T.L conceptualised the study, collected and analysed the data and drafted the manuscript. Abdulhafeez Oladimeji Buhari supervised the study and reviewed and revised the manuscript.

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