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The Hidden Burden of Self-Medication Among Geriatric Patients in Nigeria

Ekene Agatha Emeka[1,2], Nnorom Kenneth Dozie[2], Ekeuda Uchenna Nwankwo[3], Adaobi Maryann Ibekwe[4], Iffiyeosuo Dennis Ake[5], Chinekwu Sochukwu Anyaoku[2], Blessing Ifunanya Enyi[6], Uchenna Clara Chijioke-Ofoma[7], Chidinma Theresa Ezidiegwu[8], Chekwube Martin Obianyo[9], Onyeka Chukwudalu Ekwebene[10], Ben Afam Obidike[11], Chukwudi Anthony Ogabido[12,13], Chukwunwendu Aloysius Okeke[12,13], Johnbosco Emmanuel Mamah[14], Ngozichukwu Gertrude Uzoewulu[15], Chukwuemeka Chidindu Njoku[13], Stanley Chigaemezu Egbogu[13], Emeka Franklin Okechukwu[16], Arinze Anthony Onwuegbuna[17], George Uchenna Eleje[18*]

[1]Department of Family Medicine, Faculty of Medicine, Nnamdi Azikiwe University, Awka, Nigeria.

[2]Department of Family Medicine, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria.

[3]Rural Community Clinical School, School of Medicine, Deakin University, Victoria, Australia.

[4]Department of Nursing Science, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Nigeria

[5]Clinical Trial Division, Drug Evaluation and Research Directorate, NAFDAC office Complex, Lagos, Nigeria.

[6]Emergency Medicine, East Cheshire NHS Trust, Macclesfield, UK.

[7]North Dakota Department of Health and Human Services (Region VI), Jamestown ND, USA.

[8]Department of Internal Medicine, Aiken Regional Medical Center, Aiken, South Carolina, USA.

[9]Jiann-Ping Hsu College of Public Health, Georgia Southern University, USA.

[10]Department of Epidemiology and Biostatistics, East Tennessee State University, Johnson City, Tennessee, USA.

[11]Department of Anaesthesia, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria.

[12]Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University, Awka, Nigeria.

[13]Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University Teaching Hospital Nnewi, Nigeria.

[14]Department of Obstetrics and Gynaecology, Alex Ekwueme Federal University Teaching Hospital, Abakaliki, Nigeria.

[15]Department of Microbiology/Parasitology, Faculty of Basic Clinical Sciences, College of Health Sciences, Nnamdi Azikiwe University, Awka, Nigeria.

[16] Global Health, Quantum Insights LLC, Maryland, USA.

[17]Department of Ophthlamology, Faculty of Medicine, Nnamdi Azikiwe University, Awka, Nigeria.

[18]Effective Care Research Unit, Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University, Nnewi Campus, P.M.B.5025 Nnewi, Anambra State, Nigeria.

[*]**Corresponding author:** Prof.George Uchenna Eleje, Effective Care Research Unit, Department of Obstetrics and Gynaecology, Nnamdi Azikiwe University, Nnewi Campus, P.M.B.5025 Nnewi, Anambra State, Nigeria.

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Abstract

Background

Self-medication constitutes a major public health concern globally and is particularly prevalent in low- and middle-income countries, where access to healthcare services may be constrained. Among geriatric populations, inappropriate self-medication increases the risk of adverse drug reactions, drug–drug interactions, antimicrobial resistance, and poor health outcomes.

Objective

To assess the prevalence, patterns, and associated factors of self-medication among geriatric patients attending a primary health care (PHC) centre in Dunukofia Local Government Area, Anambra State, south-east, Nigeria.

Methods

An analytical cross-sectional study was conducted among geriatric patients using a systematic sampling technique. Data were collected with a structured questionnaire and analyzed using SPSS version 22. Descriptive statistics were used to summarize variables, while chi-square tests assessed associations between self-medication practice and selected socio-demographic characteristics.

Results

The prevalence of self-medication was high (56.3%; 95% CI: 42.3% to 73.4%), with a greater proportion of males (31.3%; 95% CI: 21.1% to 44.6%) habitually practicing self-medication compared to females (25.0%; 95% CI: 16.0% to 37.2%). Self-medication was more frequent among respondents aged 71-80 years (66.7%) and 60-70 years (20.8%) habitually self-medicate. However, no statistically significant associations were observed between self-medication practice and age ($\chi^2 = 4.84$, $p = 0.30$), marital status ($\chi^2 = 3.51$, $p = 0.74$), educational qualification ($\chi^2 = 3.24$, $p = 0.77$), or religious denomination ($\chi^2 = 11.88$, $p = 0.06$).

Conclusion

Self-medication is highly prevalent among geriatric patients in Nigeria with approximately half of this population practicing self-medication. Targeted health education and strengthened pharmaceutical regulation are required to mitigate the potential health risks associated with self-medication among older adults.

Keywords: Self-Medication, Geriatrics, Primary Health Care, Adverse Reaction, Old Age.

Introduction

Self-medication is defined as obtaining and consuming drugs without the guidance of a physician for diagnosis, treatment, or supervision [1,2]. This generally involves over the counter (OTC) medications but also includes prescription-only medicines (POM). It encompasses buying drugs by reutilizing a previous prescription, taking medicines on advice from relatives or others, or consuming leftover medicines already available at home [1]. Self-medication with OTC medications is a worldwide public health problem, particularly prevalent in low and middle-income countries. The patterns of self-medication vary among different populations and are influenced by various factors such as age, gender, income, self-care orientation, educational level, medical knowledge, satisfaction, and degree of illness [2,3].

Many people resort to self-medication instead of consulting professional healthcare workers due to long waiting periods in hospitals, minor ailments, cost-saving motives, lack of accessibility, shortage of doctors, or a belief that their ailment is beyond the knowledge of Western-trained doctors [4]. Today, self-medication is one of the greatest health, social, and economic issues facing various societies. The irrational and self-driven use of drugs can lead to significant side effects, including microbial resistance, non-response to treatment, and drug toxicity. Moreover, self-medication disrupts the drug market, increases costs, and raises per capita drug financing in society [5].

Factors affecting the prevalence of self-medication include costly physician fees, transportation issues, insurance problems, easy

access to drugs, a feeling of well-being, not taking the disease seriously, previous prescriptions, unawareness, and cultural and socio-economic issues. The most widely self-medicated substances are over-the-counter drugs and dietary supplements, used to treat common health issues at home. These do not require a doctor's prescription and, in some countries, are available in supermarkets and convenience stores [6]. Self-medication is often seen as gaining personal independence from established medicine and can be considered a human right, closely related to the right to refuse professional medical treatment. However, it can also cause unintentional self-harm [7].

Despite growing research interest in self-medication, little information is available about its major determinants, especially in low and middle-income countries. This research is justified by the need to understand the determinants of self-medication practices to promote judicious and safe drug use and limit emerging microbial resistance issues. This study aims to determine the major factors influencing the pattern of self-medication in a population of geriatric patients at a primary health care center in Dunukofia LGA, in south-east Nigeria. The specific objectives are to assess the knowledge and awareness of self-medication among geriatric patients, find out the prevalence of self-medication, assess the pattern of self-medication, and determine the sources of information on drugs used in self-medication.

Methods

Study Area

This study was conducted in a Primary health centre in Dunukofia. Dunukofia is a Local Government Area in Anambra State, South-East Nigeria.

The population is predominantly traders. There are general hospitals at Ifitedunu and Ukpo. Dunukofia is among the most accessible local governments in Anambra State, with federal and state roads crossing it at different points.

Study Design: It was an analytical cross-sectional study.

Study Population: Geriatric patients in primary health centre in Dunukofia LGA.

Inclusion Criteria: All geriatric patients in primary health centre in Dunukofia L.G.A, Anambra State, south-east Nigeria, who have presented for at least 6 months in the centre were considered for the study.

Exclusion Criteria: Geriatric patients in other health facilities in Dunukofia, who did not present to any of the primary health centre in Dunukofia L.G.A for at least 6 months and those who refused consent to be included in the study.

Sample Size Determination: This was calculated using Cochrane formula.

$N = \frac{z^2 pq}{D^2}$

N = is the minimum sample size

Z = standard normal deviation at 95 percent confidence interval= 1.96

P = is prevalence of problem

q= 1 – p

q = portion of geriatrics not self-medicating

q = 1-p = 1- 0.94 = 0.06

D = precision of 90%; the acceptable degree of accuracy desired (0.05 error)

$N = \frac{z^2 pq}{D^2} = \frac{1.96^2 \times 0.94 \times 0.06}{0.05^2} = 86.6 = 87$ persons

Minimum sample size = 87%

Anticipating non-response of 10%f

$N_s = \frac{n}{1-f} = \frac{87}{1-0.1} = \frac{87}{0.9} = 96$

Adjusted sample size = 96

Sampling Technique

Participants who met the inclusion criteria were recruited as they presented to the health centre. The sample interval is approximately two weeks, hence every geriatric patient who visits the clinic within the period was encouraged to enrol, if found eligible. Where a patient failed to meet the inclusion criteria, the next eligible patient will be enrolled. The process was continued until the sample size is attained.

Data Collection and Analysis

Data were collected using a structured interviewer administered questionnaire. The questionnaire was written in English. The literate ones were permitted to fill their questionnaires while the illiterate ones were assisted. Data was analysed using

SSPS version 22, Numerical variables were summarized using means and standard deviations while categorical variables were described by frequency distributions, proportions and percentages. The comparison of categorical variables and tests for association were done by means of chi-square test. Analysis of variance (ANOVA) and student's t-test were used for comparison of the means of continuous variables. *p*- value of < 0.05 was considered statistically significant.

Ethical Approval and Consent

Ethical approval for the study was obtained from the Ethics Committee of the NAUTH, with approval number of NAUTH/CS/66/VOL.14/VER 3/85/2021/110. Written informed consent was obtained from the participants before enrolling them into the study. Participation was voluntary and no incentive was given to the participants. All information gotten from the participants was treated as confidential and no harm was done to the participants.

The study was financed by the researcher.

Results

Ninety-six participants completed the survey. Table 1 Shows the distribution of the respondents with regards to the socio-demographic characteristics. More females (51.0%) participated in the study than males. The mean age for the study is 72.86 ± 7.02. Most of the respondents are married (70.8%) and 91.7% of the respondents have more than seven children. There were more semi-skilled (traders) workers of 54.7% among the respondents. 35.4% also have secondary as the highest educational qualification and majority are also of the Roman Catholic Church religious denomination (42.7%).

Table 1: Sociodemographic Distribution of Respondents.

		Frequency	Percentages (%)
Sex	Male	47	49.0
	Female	49	51.0
Age Range	60-70 years	43	44.8
	71-80 years	38	39.6
	81 and above	15	15.6
	Mean ± STD	72.86 ± 7.02	
Marital Status	Single	2	2.1
	Married	68	70.8
	Divorced	3	3.1
	Widowed	23	24.0
Number of Children	7 or less	88	91.7
	8 or more	8	8.3
Educational Qualification	No formal	13	13.5
	Primary	26	27.1
	Secondary	34	35.4
	Tertiary	23	24.0
Occupation	Skilled	25	26.3
	Semi-skilled	52	54.7
	Highly skilled	18	18.9
Religious Denomination	Anglican	32	33.3
	Catholic	41	42.7
	Pentecostal	20	20.8
	Islam	0	0.0
	Others	3	3.1

Table 2: Shows the knowledge and practice of self-medication among the participants**.** The respondents that participated in the study have high knowledge about the harm self-medication can cause (60.4%). Also 62.5% experiences side effect from the drug taken and 54.2% usually ask the local doctors while 35.4% goes to the pharmacists whenever they want to self-medicate. 56.3% also take drugs without doctor's prescription and 47.9% usually read the leaflets before taking any drugs.

Table 2: Knowledge and practice of self-medication among the participants

		Frequency	Percentage (%)
Taking Medication without Doctor Prescription	Yes	54	56.3
	No	34	35.4
	Sometimes	8	8.3
Self-Med Harm	Yes	58	60.4
	No	20	20.8
	Sometimes	18	18.8
Whom to Ask	Local doctors	52	54.2
	Pharmacist	34	35.4
	Don't know	5	5.2
	Others	5	5.2
Over the Internet	Yes	24	25.0
	No	56	58.3
	Sometimes	16	16.7
Side Effect	Sometimes	60	62.5
	Mostly	24	25.0
	Never	10	10.4
	Don't know	2	2.1
Combined Self-Medication and Doctor Prescription	Yes	32	33.3
	No	43	44.8
	Don't know	21	21.9
Reading Leaflets	Yes	46	47.9
	No	42	43.8
	Sometimes	8	8.3

Figure 1: Is a pie chart showing the distribution of practice of self-medications among participants. It is being practiced by the majority (56.0%) of the participants.

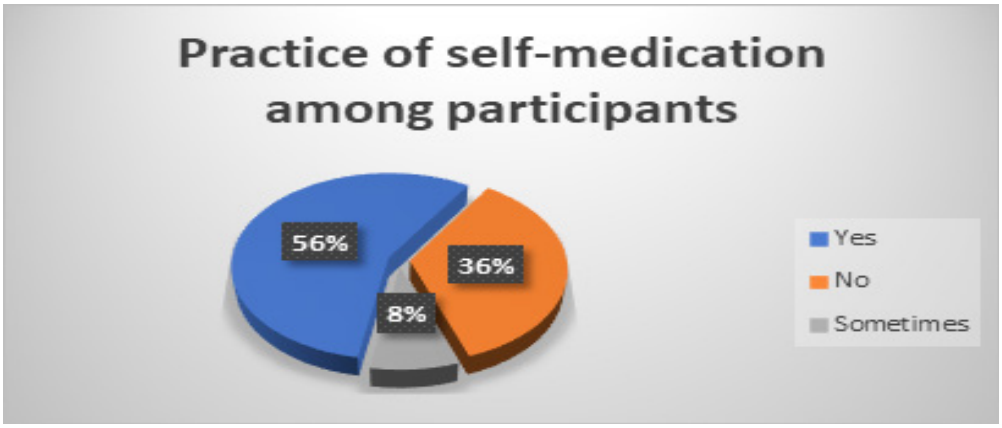

Figure 1: A Pie Chart Showing the Distribution of Practice of Self-Medications Among Participants.

Table 3: Shows the distribution of timing of self-medication among the participants. In the table, 44.8% of the respondents usually self-medicate to prevent disease. Majority of the respondent (70.8%) partook in self-medication whenever symptoms of sickness occurred. When treatment is not effective and drugs were prescribed, 16.7% and 49.0% indulged in self-medication respectively.

When Self-Medication is done	Frequency	Percentages (%)
Prevent Disease	43	44.8
Symptoms Occurred	68	70.8
Treatment not Effective	16	16.7
Prescription Drugs	47	49.0

Table 4: Shows the pattern of self-medication among respondents. Majority of the respondents carried out self-medication with OTC drugs (45.8%), Vitamins/minerals (24%), Herbal drugs (15.6%) and Homeopathic drugs (4.2%). Concerning reasons for self-medication: Cost (62.5%) was the main reason some respondents indulged in the practice, familiar course (55.2%) was another reason, not trust physicians (10.4%) and not bother physician (4.2%). The percentages of respondents that preferred self-medication and no self-medication were 6.3% and 74.0%, respectively and 19.8% of the population prefers to seldomly self-medicate. Of the participants, 12.5% engaged in self-medication for extended periods, while 85.4% neither used self-medication nor used it for prolonged durations.

Table 4: Pattern of Self-medication Among Respondents

		Frequency	Percentage (%)
Self-medication is carried-out with	Over the counter drugs	44	45.8
	Herbal drugs	15	15.6
	Homeopathic drugs	4	4.2
	Vitamins and minerals	23	24.0
Reason for Self-Medication	Not trust physician	10	10.4
	Not bother physician	4	4.2
	Not want to discuss topic	0	0.0
	Familiar course	53	55.2
	Cost	60	62.5
Prefer Self-Medication	Yes	6	6.3
	No	71	74.0
	Sometimes	19	19.8
Take for Long Period	Yes	12	12.5
	No	82	85.4
	Sometimes	2	2.1

Table 5: Shows the source of drug information and stimulus for self-medication. Respondents that took to the physicians for source of information were about 67.7% while those that took to the pharmacists were 46.9%. The major cause of stimulus for self-medication among respondents are experience (44.8%), lay advice (31.3%), physicians (25%), nothing (12.5%), pharmacy (10.4%). The summary of Table 4.6 shows the frequency and percentage of respondents and the source of drug information and stimulus for self-medication. Respondents that took to the physicians for source of information were about 67.7% while those that took to the pharmacists were 46.9%. The major cause of stimulus for self-medication among respondents are experience (44.8%), lay advice (31.3%), physicians (25%), nothing (12.5%), pharmacy (10.4%) and media (2.1%)

Table 5: Sources of drug information and stimulus for self-medication.

		Frequency	Percentage (%)
Information Source	Physician	65	67.7
	Pharmacy	45	46.9
	Traditional	3	3.1
	Homeopath	0	0.0
	Friends	15	15.6
	Relatives	10	10.4
	Books	4	4.2
	Media	9	9.4
Stimulus for Self-Medication	Experience	43	44.8
	Lay Advice	30	31.3
	Media	2	2.1
	Pharmacy	10	10.4
	Physician	24	25.0
	Nothing	12	12.5

Table 6: Shows the association between practice of self-medication and some socio-demographic characteristics. Self-medication was commonly practised across all socio-demographic groups, with higher proportions habitually observed among males (31.1%) than females (25.0%), although this difference was not statistically significant ($\chi^2 = 3.09$, $p = 0.21$). Across age groups, habitual self-medication was most frequent among respondents aged 71-80 years (25.0%) and 60-70 years (20.8%), but no significant association was found between age and self-medication practice ($\chi^2 = 4.84$, $p = 0.30$). Married participants constituted the largest proportion of those practising self-medication (38.5%), followed by widowed respondents (13.5%), while all divorced respondents reported self-medication. Overall, marital status was not significantly associated with self-medication practices ($\chi^2 = 3.51$, $p = 0.74$).

Table 6: Association Between Practice of Self-medication and Some Socio-demographic Characteristics.

			Yes	No	Sometimes	Total	X^2	p-value
Sex	**Male**	N	30	15	2	47	3.09	0.21
		%	31.3	15.6	2.1	49.0		
	Female	N	24	19	6	49		
		%	25.0	19.8	6.2	51.0		
Age range	**60-70 years**	N	20	20	3	43	4.84	0.30
		%	20.8	20.8	3.1	44.7		
	71-80 years	N	24	11	3	38		
		%	25.0	11.5	3.1	39.7		
	81 and above	N	10	3	2	15		
		%	10.4	3.1	2.1	15.6		
Marital status	**Single**	N	1	1	0	2	3.51	0.74
		%	1.0	1.0	0.0	2.1		
	Married	N	37	24	7	68		
		%	38.5	25.0	7.3	70.8		
	Divorced	N	3	0	0	3		
		%	3.1	0.0	0.0	3.1		
	Widowed	N	13	9	1	23		
		%	13.5	9.4	1.0	24.0		

Table 7: Shows the association between practice of self-medication and educational qualification. Overall, more than half of the participants reported practising self-medication (56.3%), while 35.4% did not and 8.3% did so occasionally. The highest prevalence of self-medication was observed among respondents with secondary education (69.2%), followed by those with primary (14.6%) and tertiary education (11.5%), whereas respondents with tertiary education had the lowest proportion (9.4%). Despite these variations, the association between educational qualification and self-medication practice was not statistically significant ($\chi^2 = 3.24$, $p = 0.77$).

Table 7: Association Between Practice of Self-medication and Educational Qualification.

			Yes	No	Sometimes	Total	X^2	p-value
Educational qualification	**No formal**	N	9	4	0	13	3.24	0.77
		%	9.4	4.2	0.0	13.6		
	Primary	N	14	10	2	26		
		%	14.6	10.4	2.1	27.1		
	Secondary	N	20	10	4	34		
		%	20.8	10.4	4.2	24.0		
	Tertiary	N	11	10	2	23		
		%	11.5	10.4	2.1	24.0		
	Total	N	54	34	8	96		
		%	56.3	35.4	8.3	100.0		

Table 8: Shows the association between practice of self-medication and religious denomination among the respondents. Self-medication was most prevalent among Anglicans and Catholics (24.0%) for both and respondents from other religious denominations (2.1%). In contrast, a higher proportion of Pentecostal respondents reported not practicing self-medication (10.4%), with only 6.3% indicating self-medication and 4.2% reporting occasional use. Although variations in self-medication practices were observed across religious groups, the association did not reach statistical significance ($\chi^2 = 11.88$, $p = 0.06$).

Table 8: Association Between Practice of Self-Medication and Religious Denomination.

			Yes	No		Total	X^2	p-value
Religious denomination	**Anglican**	N	23	9	0	32	11.88	0.06
		%	24.0	9.4	0.0	33.3		
	Catholic	N	23	14	4	41		
		%	24.0	14.6	4.2	42.7		
	Pentecostal	N	6	10	4	20		
		%	6.3	10.4	4.2	20.8		
	Others	N	2	1	0	3		
		%	2.1	1.0	0.0	3.1		
	Total	N	54	34	8	96		
		%	56.3	35.4	8.3	100.0		

Discussions

The ageing population in Nigeria is steadily increasing, accompanied by a rising burden of chronic diseases that often necessitate long-term medication use. In this context, self-medication among older adults poses significant clinical and public health challenges due to age-related physiological changes, polypharmacy, and increased vulnerability to adverse drug effects. Despite these risks, data on self-medication practices among geriatric populations in rural and semi-urban Nigerian settings remain limited. This study was therefore motivated by the need to generate local evidence that can inform targeted interventions aimed at promoting safe medication practices among elderly patients accessing primary healthcare services. The principal findings of the study were that there is a high prevalence of self-medication among geriatric patients attending a PHC centre in Dunukofia LGA in south-east Nigeria. Male respondents were more likely to practise self-medication than females, and higher prevalence was observed among the older age groups. Although variations were noted across educational levels and religious denominations, none of the socio-demographic factors examined showed a statistically significant association with self-medication practice. These findings suggest that self-medication among elderly patients in this setting is widespread and cuts across multiple socio-demographic categories.

The mean age of the respondents in this study was 72.86±7.02 years. This was corroborated by the findings of the questionnaires used for collection of data from the respondents who participated in this study where the ages of the participants ranged from 60 years to 90 years. Majority of the respondents in this study were females. This finding was in tandem with the findings of practice of self-medication as associated with socio-demographic characteristics in this study where majority of the participants were females. Only a few of the respondents (13.7%) in the study had no formal education. This could be explained by the high literacy rates of men (91.4%) and women (91.8%) in Anambra state as reported by the Nigeria Demographic and Health Survey (NDHS) 2013 [8]. A greater proportion of the respondents in this study were semi-skilled workers (mainly traders) and this is to be expected in view of the consideration that Anambra state is a highly commercialized state with two big main markets and several other markets located all over the state. The findings are also consistent with reports by NDHS 2013 which stated that majority of the residents of Anambra state is engaged in sales and services [9].

This study revealed a high level of knowledge and practice of self-medication among respondents in all the parameters assessed. This finding from the index study indicates that the practice of self-medication is strongly correlated with good knowledge about self-medication and a positive attitude against the practice. Despite the high level of education and the awareness of side effects, majority of them still practiced self-medication.

Majority of the respondents (67.7%) in this study utilized the physicians as sources of information as regards to knowledge on self-medication. This is in keeping with the study done by Covington where about half of the respondents in each age group mentioned two to four sources (10). The most common sources of information were Patient Information Leaflets (PILs) (74%), doctors (68%) and pharmacists (60%). The other sources of information included television (40%), newspapers and magazines (40%), drug advertisements (32%), nurses (28%), drug information leaflets (27%), relatives and friends (24%), medicine guides and books (22%) and the internet (20%) [11]. There was a significant difference between age groups in reporting the Internet as a source of medicine information (15-34-year-old respondents reported the greatest internet use).

This study also examined the influence of some other factors such as: the percentages of respondents that preferred self-medication and no self-medication were 6.3% and 74.0% and 19.8% of the respondents seldomly self-medicate [12]. Those that indulged in self-medication for long period of time were 12.5% while 85.4% neither indulge in self-medication nor take it for long time. This also corroborate with the study done by Buebang et al, which considers that the bizarre side effect from the use of antimalarial is inversely proportional to self-medication due to prolong use of antimalarial [13].

The prevalence of self-medication is high among elderly patients in Dunukofia L.G.A of Anambra State, south east Nigeria. Efforts must be made to educate not just the geriatric patients but the general populace on the disadvantages and complications of self-medication. There is also the need for legislation and enforcement of existing laws to discourage uncontrolled access to prescription only medications while over-the -counter (OTC) drugs should be used only when there is an absolute need [13-19].

From a clinical perspective, the high prevalence of self-medication among geriatric patients underlines the need for routine medication history-taking and counselling during primary healthcare visits. Healthcare providers should actively educate elderly patients on the risks of unsupervised drug use,

particularly in the presence of comorbidities and polypharmacy. From a research standpoint, the absence of significant associations with socio-demographic variables highlights the need for further studies exploring other determinants of self-medication, including health system factors, medication availability, cost barriers, and health literacy. Longitudinal and qualitative studies may provide deeper insights into motivations and behavioural drivers of self-medication among older adults.

A key strength of this study lies in its focus on a geriatric population attending a primary healthcare facility, providing context-specific data relevant for community-level interventions. The use of systematic sampling and standardised analytical methods enhances the internal validity of the findings. However, the cross-sectional design limits causal inference, and self-reported data may be subject to recall and social desirability biases. Additionally, the study was conducted in a single PHC centre, which may limit the generalisability of the findings to other settings.

Conclusion

Self-medication is highly prevalent among geriatric patients attending a primary health care centre in Dunukofia, Nigeria, with approximately half of this population practicing self-medication. The practice appears to be widespread across different socio-demographic groups, with no significant associations identified with age, marital status, educational level, or religious denomination. These findings highlight the urgent need for targeted health education, improved patient-provider communication, and strengthened regulatory measures to reduce the potential health risks of self-medication among elderly populations.

Conflict of Interest Statement

The authors report no conflicts of interest concerning this work.

Funding Statement

There was no special funding.

Ethical Statement

Ethical approval for the study was obtained from the Nnamdi Azikiwe University Teaching Hospital Health Research Ethics Committee (NAUTH/CS/66/VOL.14/VER 3/85/2021/110). Written informed consent was obtained from all participants before data collection. Participation was voluntary, and confidentiality was maintained throughout the study.

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Availability of Data and Materials

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

Author Contributions

EAE and NKD are the principal investigators and conceived the study. Data assessment was performed by GUE, EAE, EUM, AMI, IDA, CSA, BIE, UCC, CTE, CMO, and OCE. Calculations and data interpretation were performed by GUE, BAO, CAO, CAO, JEM and NGU. Statistical analysis was performed by GUE, EAE, EUM, AMI, IDA, CSA, BIE and CCN. GUE, EFO, and BAO prepared tables and figures. The first draft of the paper was written by EAE and NKD, while GUE, EAE, EUM, AMI, IDA, CSA, BIE, UCC, CTE, CMO, SCE, AAO, and OCE critically revised the paper. All authors reviewed and edited the final draft. All authors critically reviewed the article, gave final approval of the version to be published, agreed on the journal to which the article has been submitted, and agreed to be accountable for all aspects of the work.

Consent for Publication

Not applicable.

Competing Interests

The authors have declared that no competing interests exist.

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