Health Literacy and Self-Medication Behavior among Undergraduate Students at the University of Ibadan, Nigeria

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Sunday Itasanmi
Department of Adult Education, University of Ibadan, Nigeria

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ABSTRACT. This study investigated the relationship between health literacy and self-medication among undergraduate students in Nigeria. Using a cross-sectional survey design, researcher collected data from 279 students via a structured questionnaire. Analysis revealed that most students possess adequate health literacy but engage in low self-medication practices. While a weak association exists between health literacy and self-medication, researcher found significant differences in self-medication behavior based on gender and living arrangements. The study concludes that solely enhancing health literacy may not substantially reduce self-medication among students. Therefore, interventions should consider gender, incorporate other relevant factors, and promote responsible healthcare practices alongside health literacy initiatives.

1.0. Introduction

In contemporary society, health literacy is rapidly gaining recognition and has been identified as a crucial determinant of health outcomes and overall well-being (Alqarni et al., 2023). Defined as the personal skills and knowledge that enable an individual to locate, comprehend, evaluate, and use health information and services to maintain and enhance their health and well-being, as well as that of those around them (World Health Organization [WHO], 2021), health literacy influences a range of health behaviors and outcomes. According to Liu et al. (2020), health literacy is acquiring and applying knowledge and information to maintain and improve health within appropriate contexts, highlighting the interactions between individuals, healthcare providers, and healthcare systems. It encompasses more than just accessing websites, reading pamphlets, and following prescribed health-seeking behaviors. It also involves the ability to critically evaluate health information and resources and communicate and articulate personal and societal needs to promote health (WHO, 2021). Individuals with adequate health literacy are more likely to engage in preventive health behaviors, capable of managing chronic diseases, effectively communicating with healthcare providers, understanding treatment options, and adhering to prescribed medications that could lead to better health outcomes (WHO, 2023).

Self-medication, the practice of individuals using synthetic drugs or herbs or following unprofessional advice, is a widespread phenomenon globally (Shaghaghi et al., 2014). According to the World Health Organization (2000), self-medication involves using drugs to treat self-diagnosed disorders or symptoms or the intermittent or continuous use of prescribed medication for chronic or recurrent diseases or symptoms. This behavior includes taking leftover medicines stored at home, sharing medications with family or friends, or purchasing over-the-counter (OTC) medications without a doctor's prescription, guidance, or supervision during therapy (Alqarni et al., 2023). While self-medication can provide quick relief and reduce the burden on healthcare systems, it also poses significant risks, such as incorrect self-diagnosis, drug interactions, and antimicrobial resistance (Penagos-Corzo et al., 2024). Many people use self-medication to treat minor illnesses or relieve symptoms (Ge et al., 2023). Despite efforts to limit its prevalence, self-medication has increased in various countries (9), becoming a significant public health issue with varying prevalence worldwide (Rathod et al., 2023). In developing countries, self-medication is particularly prevalent due to limited access to

*Correspondence: itasunny2000@gmail.com
Sunday Itasanmi, Department of Adult Education, University of Ibadan, Nigeria

health care, high medical costs, and the widespread availability of OTC medications (Al-Worafi, 2023). Economic constraints and inadequate healthcare infrastructure often lead individuals to rely on self-medication to manage health issues (Bennadi, 2013). This trend is exacerbated by a lack of regulatory enforcement and public awareness about the potential dangers, contributing to its widespread practice in these regions (Katengele et al., 2021).

Given the importance of health literacy to individual well-being and the increasing prevalence of self-medication in developing countries, especially among the student population (Tohan et al., 2024), there is a notable lack of focused research examining these behaviors, specifically among undergraduate students in Nigeria. Numerous studies (Zafar et al., 2008; Klemenc-Ketis et al., 2010; Kamran et al., 2015; Alkhatatbeh et al., 2016; Lee et al., 2017; Mitra et al., 2018; Muflih et al., 2022; Subashini & Udayanga, 2020; Khadka et al., 2022; Auta et al., 2012) have explored health literacy and self-medication behavior among students, but the specific factors influencing these behaviors among Nigerian university students remain underexplored. This gap is significant, considering the unique challenges students face, such as academic pressures, financial constraints, and limited access to professional healthcare services (Smith, 2020). Undergraduate students, characterized by newfound independence and increased health risks, are particularly prone to problematic self-medication practices (Rahimisadegh et al., 2022). Addressing this gap is crucial for developing targeted interventions to improve health literacy and reduce the risks associated with self-medication in this vulnerable population.

The study is guided by four research questions: first, what is the health literacy level of the undergraduate students? Second, what is the pattern of self-medication behavior among the students? Third, what is the relationship between health literacy and self-medication behavior? Lastly, what is the impact of age, gender, and residence on health literacy and self-medication behavior among the students? The findings of this research are expected to inform the development of targeted interventions to enhance health literacy and promote safe medication practices among university students.

2.0. Methodology

This study adopted a descriptive cross-sectional survey design to assess health literacy and self-medication behaviors among undergraduate students at the University of Ibadan, Nigeria. It had a student population of 16,623 in 2021 to 2022 (University of Ibadan, n.d.). The study utilized a stratified sampling technique to divide the student population into strata based on faculties, and students were randomly selected to participate in each faculty. The study's participants answered through online and physical paper to maximize participation and cater to different preferences and technological access levels. The questionnaire was designed on ArcGIS Survey123 for the online survey, and the link generated from the platform was sent to those who opted for the online survey. In contrast, the physical paper survey was given to those who desired it. Out of the 279 participants, 173 participated through the online platform, while 106 students participated through the physical paper-based survey.

This study utilized a structured questionnaire consisting of demographic characteristics (age, gender, and residence), a health literacy scale, and a self-medication behavior scale (see appendix). Health literacy scale (HLS), a validated 17-item questionnaire developed by Itasanmi et al. (2022), evaluates an individual's capacity to access, understand, appraise, and apply health-related knowledge to make informed decisions about their health. The self-medication behavior scale (SmBS) is a 15-item scale designed to assess the participants' behavior regarding the practice of self-medicating. The SmBS items were largely adapted from various existing studies (Shankar et al., 2002; James & French, 2008; Amiri et al., 2022) on self-medication practices and were pilot-tested, yielding a Cronbach coefficient of .70. Participants responded to each question on a 5-point Likert scale (strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1).

Before the commencement of data collection for the study, approval to conduct the study was obtained from the Department of Adult Education, University of Ibadan. Also, informed consent was sought and obtained from the students, who were assured of the confidentiality of the information provided before participating in the study. The data collection period spans from May 9 to June 7, 2023. The collected data were analyzed using the SPSS version 26.

For descriptive variables, frequency and percentage were used to present the data. For the bivariate analysis, responses were summed, and full score linear regression, independent samples t-test, and Pearson correlation analysis were conducted. A significance level of $P \leq 0.05$ was used. Levels of health literacy and self-medication behavior were assessed by summing the scores of the items in each scale, dividing by the maximum possible score, and multiplying by 100. Scores below 60% were classified as inadequate HL/low self-medication behavior, while 60% and above were classified as Adequate HL/High self-medication behavior.

3.0. Results and Discussion

Demographic characteristics of the respondents

Table 1 shows that 60.6% of the respondents were female, while 39.4% were male. Also, the majority of participants reside on campus (60.9%), while a smaller proportion live off campus (39.1%).

Table 1
Demographic Characteristics of the Respondents

Categorical Variable	Subcategory	f	%
Gender	Male	110	39.4
	Female	169	60.6
Residence	On campus	170	60.9
	Off-campus	109	39.1

Health literacy and self-medication levels

Table 2 presents an overview of the health literacy level and self-medication behavior among the respondents. Notably, the findings reveal that a substantial majority (92.5%) exhibit adequate health literacy, whereas a smaller proportion (7.5%) demonstrates inadequate health literacy. Moreover, the table illustrates that 62% of participants display low self-medication behavior, while 38% exhibit a propensity towards high self-medication practices.

Table 2
Health Literacy and Self-Medication Levels

Variables	Subcategory	f	%
Health Literacy	Adequate Health Literacy	258	92.5
	Inadequate Health Literacy	21	7.5
Self-Medication	Low Self Medication Behavior	173	62.0
	High Self Medication Behavior	106	38.0

Relationship between health literacy and self-medication

Table 3 shows the association between health literacy and self-medication behavior. It revealed that the correlation between Health Literacy and Self-Medication is -0.112, which indicates a weak negative correlation between the two variables. The p-value of 0.061 suggests that the correlation is not statistically significant.

Table 3
Relationship between health literacy and self-medication

Variables	M	SD		Health Literacy	Self-Medication
Health Literacy	63.63	9.10	ρ	1	-0.11
			p-value		0.061
Self-Medication	48.36	11.37	ρ	-0.11	1
			p-value	0.061	

Table 4
Mean Comparison of Self-medication and Health Literacy Between Gender and Residence

Variables	Self-Medication	p-value	Health literacy	p-value
Gender				
Male	M=46.50, SD=11.09	0.027	M=63.78, SD=8.98	0.82
Female	M=49.57, SD=11.41		M=63.54, SD=9.20	
Residence				
On Campus	M=49.75, SD=11.49	0.010	M=63.26, SD=9.44	0.398
Off-Campus	M=46.18, SD=10.87		M=64.21, SD=8.55	

Mean scores comparison for self-medication and health literacy

Table 4 presents the results of the comparison of mean scores for self-medication and health literacy based on gender and residence. The analysis indicates a slightly higher mean self-medication score for females (p-value = 0.027); the difference is statistically significant. Similarly, the mean health literacy scores are similar between genders, and the difference is not statistically significant (p-value = 0.82). Conversely, a statistically significant difference in mean self-medication scores (p-value = 0.01) is observed between on-campus and off-campus students, with on-campus students exhibiting higher scores. There is no significant difference in health literacy scores between Genders, indicating that, on average, males and females in the study have similar levels of health literacy.

Relationship between health literacy, age, gender, and residence with self-medication

The linear regression model was used to evaluate the relationship between health literacy and self-medication, and the outcomes are presented in Table 5. The results reveal that the effect of age (P = 0.859) and gender (P = 0.086) on self-medication is not statistically significant. However, the effect of residence (P = 0.047) is statistically significant, while health literacy (P = 0.079) on self-medication shows a marginally significant association. Specifically, the mean self-medication score increases by 2.90 points for individuals living on campus. In contrast, an increase of one unit in health literacy is associated with a 0.13-point decrease in the mean self-medication score conditional on being constant other variables.

Table 5
Relationship between Health Literacy, Age, Gender and Residence with Self-Medication

Variables	Regression Analysis			
	Coefficient	StandardError	p-value	95% Confidence Interval
Constant	56.70	6.92	0.000	(43.08 - 70.32)
Gender				
Male	-2.43	1.41	0.086	(-5.20 - 0.34)
Female	Ref.	-	-	-
Residence				
On Campus	2.90	1.45	0.047	(0.04-5.753)
Off-Campus	Ref.	-	-	-
Age	-0.04	0.22	0 .859	(-0.46 - 0.38)
HealthLiteracy	-0.13	0.07	0.079	(-0.28 - 0.02)

4.0. Discussion

The findings of the study revealed that the majority of the students at the University of Ibadan possess adequate health literacy, indicating their ability to comprehend health information and make informed health decisions. Only a small fraction of students demonstrated inadequate health literacy skills. This outcome aligns with prior research findings (Ickes & Cottrell, 2010; Mas et al., 2014; Dolezel et al., 2020; Grygo, 2020; Itasanmi et al., 2022; Itasanmi et al., 2023; Singhawansa et al., 2024). Conversely, it contradicts the results of studies by Gairhe et al. (2023), Juvinyà-Canal et al. (2020), Bhusal et al. (2021), Sukys et al. (2017), and Ramezankhani et al. (2015), which found that most undergraduate students had inadequate or limited health literacy. The researchers attributed these results to successful public health education campaigns and the accessible healthcare information provided by the university management, which likely contributed to the students' adequate health literacy skills.

The study's results revealed that the majority of undergraduate students at the University of Ibadan exhibit low self-medication behavior. This finding contradicts the overall trend in previous research (Lukovic et al., 2014; Alkhatatbeh et al., 2016; Mayo-Gamble & Mouton, 2018; Alshogran et al., 2018; Arunkumar et al., 2019; Subashini & Udayanga, 2020; Alkhawaldeh et al., 2020; Gras et al., 2020; Behzadifar et al., 2020; Ali et al., 2010), which suggests high self-medication behavior among students. The tendency towards low self-medication among these students implies a preference for professional medical advice over self-diagnosis and treatment. This preference may be attributed to the robust healthcare facilities and services available at the university, making it easier and more convenient for students to seek professional medical advice. However, a significant portion of the students engage in high self-medication practices, which can be risky. According to Banerjee and Bhadury (2012) and Uppal et al. (2014), students usually opt for self-medication due to the convenience and immediacy it offers, especially if they perceive their symptoms as minor or have had prior success with self-medication. Financial constraints and cultural beliefs and practices could also contribute to the substantial number of students engaging in self-medication. For these students, self-medicating may serve as a cost-saving measure and be viewed as a normal or traditional approach to health management (Shahin et al., 2019).

It was further revealed that there is a weak negative correlation between health literacy and self-medication. This means that as health literacy increases, there is a slight tendency for self-medication behavior to decrease. This finding aligns with the research of Amiri et al. (2022) and Javadzade et al. (2020), who also observed a slight decrease in self-medication behavior with increasing health literacy among students. However, the association between health literacy and self-medication is not statistically significant, indicating that the observed relationship could have occurred by chance. Therefore, there is insufficient evidence to conclude that a significant relationship exists between health literacy and self-medication. This is consistent with the research findings of Mousaeipour et al. (2018), who found no significant association between health literacy and self-medication behavior. The researcher believes that while health literacy is important, it alone does not strongly influence self-medication behavior. Other factors may play a more significant role in influencing self-medication behaviors among students.

Moreover, the results indicated a significant gender difference in students' self-medication behavior. This result is consistent with previous research findings (Kumar et al., 2013; Helal & Abou-ElWafa, 2017; Zeru et al., 2020; Nizamani et al., 2021). Similarly, the results revealed a statistically significant difference between on-campus and off-campus students, with on-campus students exhibiting higher self-medication behavior. This finding aligns with the research study by Subashini and Udayanga (2020), which identified residence as a significant factor influencing self-medication behavior among undergraduate students. The tendency of on-campus students to perceive minor health issues as not requiring professional medical attention, combined with easier access to over-the-counter medications available in campus shops (Shudifat et al., 2024). These factors may encourage more frequent self-medication. Additionally, on-campus living arrangements often involve close interactions with peers who may share their self-medication practices and experiences, leading to higher rates of self-medication as on-campus students adopt similar behaviors (Petrović et al., 2022).

5.0. Conclusion

The study found that most undergraduate students at the University of Ibadan possess adequate health literacy, with only a small minority having inadequate health literacy. This indicates a favorable environment for implementing health programs that require basic health literacy. However, the minority with inadequate health literacy needs targeted interventions to improve their understanding. Therefore, the university management, particularly the health committee, should intensify health promotion campaigns and include simplified health communication, visual aids, and personalized education strategies. While most students exhibit low self-medication behavior, a significant number engage in high self-medication practices. The university management should conduct public health campaigns to highlight the risks of self-medication and promote the benefits of consulting healthcare professionals. Emphasis should be placed on educating the students during medical consultations to help them understand their conditions and treatments, reducing the likelihood of self-medication. Additionally, the university should implement support systems such as peer mentoring, accessible health clinics, and telemedicine services to reduce self-medication tendencies.

The study also revealed a weak, non-significant association between health literacy and self-medication behavior. This suggests that improving health literacy alone may not significantly reduce self-medication behaviors. Policy actions to reduce self-medication among students should incorporate economic factors, cultural beliefs, and healthcare accessibility, alongside improving health literacy. Moreover, female and on-campus students exhibit higher self-medication behavior compared to male and off-campus students. This indicates that gender and the living environment influence health behaviors. The university should enhance the capacity and accessibility of campus healthcare facilities to reduce wait times and improve service delivery. Also, gender-specific workshops and counseling should be organized to address specific tendencies or common myths in each group. Developing stress management programs will help students manage academic and social pressures, reducing the tendency to self-medicate.

6.0. Limitations of the Findings

One of the limitations of the current study is related to the sample size. Although the initial sample size was estimated to be 375 participants, only 279 questionnaires were filled correctly and used for analysis. Additionally, the study excluded postgraduate and ODL students. This reduced sample size and the exclusion of certain groups may affect the generalizability of the findings to the entire undergraduate student population at the University of Ibadan. Future studies should aim to increase the sample size and include a more diverse range of students, such as postgraduate and ODL students, to enhance the generalizability of the findings. Secondly, the study relied solely on a quantitative approach, using a structured questionnaire with specific scales. While these tools are validated, they might not capture all dimensions of health literacy and self-medication behaviors, potentially omitting critical aspects relevant to the student population.

7.0. Practical Value of the Paper

This study sheds light on patterns, relationships and factors influencing health literacy and self-medication behavior among undergraduate students in a university in Nigeria. Specifically, the study provides insights into the prevalence of health literacy and self-medication, highlighting the coexistence of health knowledge and risky self-care practices among the students. Also, the study established the level of association between health literacy and self-medication behavior, underscoring the complexities of the relationship between the two constructs. This therefore suggest that adequate health literacy alone may not prevent risky health behaviors, emphasizing the need for complementary behavioral interventions for the students. Further, the identification of residence and gender as factors influencing students' self-medication behavior add a unique dimension to the existing knowledge and offers a basis for tailored public health interventions to shape students' health behavior. Moreover, as one of the few studies focused on health literacy and self-medication in a Nigerian university context, the study contributes to the global discourse on health behaviors among young adults, particularly in developing countries.

8.0. Directions for Future Research

Future research should adopt a mixed-method approach to data collection. Incorporating qualitative methods, such as interviews or focus groups alongside the questionnaire, could provide deeper insights into the reasons behind students' health literacy levels and self-medication behaviors, capturing nuances that structured questionnaires might miss. Nevertheless, this current study addresses the timely and important issue of health literacy and self-medication behaviors among university students, which is critical for public health interventions and policymaking in Nigerian educational institutions. The study provides valuable insights into the prevalence and patterns of health literacy and self-medication behaviors and the factors influencing these behaviors among undergraduate students. These findings can inform future research,

interventions, and educational programs to improve student health outcomes.

8.0. Declaration of Conflict of Interest

The author declares no competing interests in the study.

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Additional Author's Information:

SUNDAY ITASANMI
itasunny2000@gmail.com
https://orcid.org/0000-0002-2136-583X