Patterns and Factors Influencing Self-Medication among Students of The American International University West Africa (Aiuwa), The Gambia

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ABSTRACT

Aims/Objectives: **This study aimed to throw more light on how common self-medication is, among the American International University West Africa (AIUWA), The Gambia's student population, the common patterns, and the factors that aid or prevent self-medication among the students.**

Materials and Methods: **This study utilized a descriptive cross-sectional design. A sample of 168 AIUWA students was collected online. Qualitative data was hardcoded and data was analyzed using descriptive statistics and multivariable binary logistic regression to determine the correlation between factors for, and outcomes of self-medication.**

Results and Discussion: **38.9% of the respondents practiced self-medication. The most common rationale for self-medication is the perception of the illness to be mild (42%) and having similar symptoms in the past (36.2%). Other reasons were availability of home remedies (26.1%) or drugs for self-medication (20.3%), emergency use (17.4%), and because self-medication saves time. The least common reasons given for self-medicating were clinic being far away (2.9%) and being a health worker or practicing nurse (1.4%). Knowledge from the past experiences of an illness (51.5%) and online sources (26.5%) were the most common sources of knowledge for self-medication. The most common medications used are Paracetamol (60.9%) and antibiotics (46.4%) and the most common conditions treated are headache (52.2%) and cold symptoms (46.4%). Less than half of the respondents (46.4%) self-medicated according to the recommended duration, 42% were sure that they did not take the medication for the correct duration of time and 11.6% did not even bother to check. Almost all the participants who self-medicated said that the medication solved the health condition they treated. Majority of the students who practiced self-medication preferred orthodox medicines to alternative medicines. By far, the most common source of drugs for self-medication was the drug store (81.4%), followed by friends and family (16.7%), drugs stored at home (15.7%), and home remedies (15.7%). Most of the students sometimes read the prescribing information before using a medication, and 51.2% do not support the idea of self-medication. In addition, self-medication was significantly associated with being a student in the health science center (p<0.001), married (p<0.05) or single (p<0.05), and being in or beyond the third year of studies (p<0.05).**

Conclusions: **Almost half of the respondents admitted to having practiced self-medication because they perceived their illness to be mild. Students who were significantly more likely to self-medicate were those in the health science center, those who are married or single, and those who have reached or passed the third year of studies.**

Keywords: Alternative medicines, Gambia, orthodox medicines, self-medication, university students, West Africa.

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I. BACKGROUND

The World Health Organization has defined self-medication as "use of pharmaceutical or medicinal products by the consumer to treat self-recognized disorders or symptoms, the intermittent or continued use of a medication previously prescribed by a physician for chronic or recurring disease or symptom, or the use of medication recommended by lay sources or health workers not entitled to prescribe medicine" [1]. It is a term that covers a variety of behaviors that range from self-care to prevention and management of diseases [2]. It is one of the components of self-care.

The World Health Organization (WHO) defines self-care as "the ability of individuals, families, and communities to

promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider". It includes health promotion, prevention and control of diseases, self-medication, provision of care to dependent persons, seeking professional care when necessary, and rehabilitation which includes palliative care. It is a broad concept that includes personal and general hygiene, adequate nutrition, healthy lifestyle, environmental factors such as living conditions and social habits, socio-economic factors, and self-medication. Its fundamental principles include features of the individual as well as the community at large [3].

It is part of human life to experience disorders or ill health. How a person responds to such ill health or disease depends on the personal beliefs of the individuals and several other factors [4]. The doctor-to-patient ratio in The Gambia is 1:10,000 [5]. This ratio signifies a huge burden on healthcare and the common sight of drug stores all over the country is enough proof of compensation for this shortage of healthcare professionals through self-medication.

The Gambia is a country situated in West Africa on the Atlantic coast. It occupies a long narrow area of land which surrounds the popular Gambia River. The Gambia, which is surrounded by neighboring Senegal, is one of the most densely populated countries in Africa [6]. The country's population consists mostly of young people with about two-thirds being below 30 years of age [6].

The students of the American International University West Africa (AIUWA), The Gambia comprising students at AIUWA Health Science Center (who are aspiring healthcare professionals) and the students of the College of Management and Information Technology (CMIT) also a college in AIUWA, who have online and offline access to numerous healthcare resources are already inclined to want to self-medicate despite having limited knowledge and experience, already found themselves in a very enabling environment, a country with an imbalance between the number of healthcare professionals and the number of drugstores, with the drugstores high up in the scale. Limited access to doctors would be only one of many reasons why AIUWA students would self-medicate.

Self-medication is recognized to have a significant role in the healthcare system and so it has become widely accepted. People have come to realize that they are responsible for their health. There is also an increased awareness that seeking professional care for minor conditions is often not necessary, therefore a general improvement in knowledge, educational level, and socioeconomic status in several countries form a reasonable foundation for self-medicating successfully [7]. Self-medication is an umbrella term, which includes a variety of behaviors, ranging from self-care to disease prevention and disease management [2].

The prevalence of self-medication worldwide varies between 32.5% and 81.5% [8]. It is a global health problem with serious implications on public health [9] and the most common reasons given for practicing self-medication were restricted access to healthcare, little or no time, issues in securing a medical consultation as a result of administrative delays, and economic factors [10]. Hence, patients who had mild symptoms do not feel the need to seek professional healthcare, instead, they meet the pharmacist for self-medication advice and drugs for their illnesses and numerous studies that have been conducted to assess self-medication practices found that self-medication is a regular practice, especially in populations that are poor economically.

II. AIMS/OBJECTIVES

This study aims to shed light on the patterns and factors of self-medication among AIUWA, The Gambia's students by determining the patterns of self-medication and the factors influencing self-medication among the students.

III. MATERIALS AND METHODS

This research was carried out as a cross-sectional study design and data was collected from 3rd February, 2021 to 11th May, 2021. Questionnaires were administered online through Google forms to all AIUWA students. Questionnaires were administered anonymously online. After the survey forms were created on Google, the page link was generated and the links to the Google forms were distributed to most of the students through various students' WhatsApp groups by purposive non-random sampling whereby only students who belonged to an AIUWA students' WhatsApp group were targeted. The inclusion criteria were all AIUWA students who belong to students' WhatsApp group and consented to fill the online questionnaire. The exclusion criteria were AIUWA students who did not have internet access and who did not consent to fill the online questionnaire. To ensure confidentiality, names, student ID number, email address, or any means of identification were not requested from the participants. An electronic written consent form was presented before the questionnaire and each participant was required to give consent, after the aims and objectives of the research have been made clear before proceeding to the survey. Final data were downloaded and exported into Microsoft Excel Spreadsheet in preparation for verification and data analysis.

The sample size was calculated using the single population proportion formula, $n = (Z\alpha/2)2 \, p \, (1 - p) \, d2$.

p represents the sample proportion and was taken to be fifty percent (50%). The sample proportion is often determined by using the results from a previous similar study carried out on the same population or by running a small pilot study, but in the case where those are not available, 50% can be used as it is more conservative and gives the largest sample size. In this case, no previous studies had been carried out on this topic among students in the Gambia and due to time constraints, a pilot study could not be conducted, therefore 50% was used to represent P in the formula.

d represents the margin of error or confidence interval; it was set at five percent (5%) or 0.05.

The critical value, Z at a level of confidence $\alpha/2$ (i.e., $0.05/2 = 0.025$) is equal to 1.96 as retrieved from the Z-score table [9].

And the end of the calculation, after adding a non-response rate of ten percent (10%), the minimum sample

size that would be required was 81.

Data were checked, cleaned, and hardcoded before being entered into Epi Info software version 7. The factors associated with self-medication were analyzed with binary logistic regression. After analysis, variables with a p-value less than 0.05 in the multivariable analysis were taken as statistically significant predictors of self-medication.

IV. RESULTS AND DISCUSSION

Some questions had multiple options which allowed respondents to select more than one option; hence, the sum of the percentages would not always be 100% in all cases.

TABLE I: FACTORS ASSOCIATED WITH SELF-MEDICATION AND THEIR FREQUENCIES

FACTOR	FREQUENCY			
	Yes (%)	No (%)	Total (%)	p-Value
GENDER				
Male	34 (69)	15 (31)	49 (100)	0.1879
Female	31 (61)	20 (39)	51 (100)	0.1879
AGE				
> 25	30 (73)	11 (27)	41 (100)	0.6429
< 25	35 (59)	24 (41)	59 (100)	0.6429
CAMPUS				
Health Science Center	58 (72)	23 (28)	81 (100)	0.0002
CMIT	7 (37)	12 (63)	19 (100)	0.0002
LOCATION				
Off-Campus	61 (65)	33 (35)	94 (100)	0.3939
Hostel	4 (67)	2 (33)	6 (100)	0.3939
RELATIONSHIP				
Single	31 (66)	16 (34)	47 (100)	0.0035
Dating	19 (54)	16 (46)	35 (100)	
Separated	2 (100)	0 (0)	2 (100)	0.9636
Married	13 (81)	3 (19)	16 (100)	0.0067
RELIGION				
Yes	57 (65)	31 (35)	88 (100)	0.9271
No	8 (67)	4 (33)	12 (100)	0.9271
YEAR OF STUDY				
> 3rd Year	42 (60)	28 (40)	70 (100)	0.0407
< 3rd Year	23 (77)	7 (23)	30 (100)	0.0407
TREATED MOSQUITO NETS				
Yes	6 (40)	9 (60)	15 (100)	0.4757
No	59 (69)	26 (31)	85 (100)	0.4757
MONTHLY ALLOWANCE				
≥ GMD 10k (USD 200)	12 (86)	2 (14)	14 (100)	0.4154
< GMD 10k (USD 200)	19 (68)	9 (32)	28 (100)	`
< GMD 5k (USD 100)	34 (59)	24 (41)	58 (100)	0.1202

When testing for association of the factors for self-medication using multivariable binary logistic regression: Being a student from the Health Science Center, married or single, and reaching or passing the third year in their field of study were significantly associated with self-medication (Table II).

The odds ratio of self-medication was 8.80 for students who were in the Health Science Center campus: AOR = 8.80, CI = (0.76, 4.15), p<0.01; 5.89 for respondents who are married: AOR = 5.89, CI = (1.64, 21.19), p<0.01; 3.87 for those who are single: AOR = 3.87, CI = (1.56, 9.59),

p<0.01; and 2.21 for those who are > 3rd Year of study: AOR = 2.21, CI = (1.03, 4.72), p<0.05.

In this study, the rate of self-medication among AIUWA students during the study period was 38.9%. The most common reason given for self-medication was a minor illness, headache was the most common condition treated and the most common medication used was Paracetamol.

Some factors were also found to be significantly associated with self-medication among the participants:

- Being a student in the Health Science Center campus (OR = 8.8039, CI = 2.8078, 27.6047, p< 0.05)
- Being married (OR = 5.8879, CI = 1.6364, 21.1855, p< 0.05)
- Being single (OR = 3.8693, CI = 1.5607, 9.5926, p< 0.05)
- Being in or above the third year of study in the university (OR = 2.2084, CI = 1.0341, 4.7162, p< 0.05)

According to this study, the rate of self-medication among AIUWA students is 38.9%. This finding was remarkably similar to a study in urban India where the rate of self-medication was 38% [12]. The result is also similar to studies in Tabuk city, Kingdom of Saudi Arabia (43.24%) [13], and an urban colony in Delhi, India (31%) [14].

The prevalence of self-medication in this study is significantly higher than similar studies conducted in Rwanda (12.1%) [15] and Spain (12.7%) [16] and lower compared to 92.8% found in an urban community in Delhi, India [14], 81.8% in a Nigerian private university [17], 88% reported among students in Gujarat, India [18], 91.4% in South-West Nigeria [19], 92% among students in South India [20], 92.8% in an urban area of India by [21] 86.4% among students in Rio Grande, Brazil.

The similarities and differences among these researches may be due to the respondent's age, education or discipline, healthcare availability, drug regulation, and socio-demographic differences. Our study combined health sciences, management, and information technology students. The student population in this case mimicked an urban society in a less developed country with a mix of people from different educational backgrounds who have easier access to funds and drug stores than to a standard or trusted health facility. Nonetheless, the rate of self-medication in this study may have been underreported as some students may have not considered consultation offered by the drug store clerk as self-medication. Female students who also use contraceptives may also have kept the information private considering that most of the respondents (90%) practice a religion. Healthcare systems and infrastructures in developed countries are also well established to make healthcare easily accessible, hence discouraging self-medication.

The strength of this study includes, (but not limited to) the following: this study was conducted online, so it was fast and inexpensive, and therefore easy to replicate. Another strength is the educational background of the target population. Limitations of this study include: this study employed a cross-sectional study design; as a result, it was very difficult to establish causal relationships between variables. Moreover, data collected for this study is based on self-report from participants.

TABLE II: MULTIVARIABLE BINARY LOGISTIC REGRESSION OF BASELINE CHARACTERISTICS OF PARTICIPANTS

Term	Odds Ratio	95%	C.I.	Coefficient of correlation, R	S.E.	Z-Score	p
Sex (Male/Female)	1.7721	0.7562	4.153	0.5722	0.4345	1.3168	0.1879
Campus (Health Science Center/CMIT)	8.8039	2.8078	27.6047	2.1752	0.5831	3.7306	0.0002
Age (<25/>25)	0.7947	0.3007	2.0999	-0.2298	0.4958	-0.4636	0.6429
Home (Off-Campus/Hostel)	0.4276	0.0606	3.0153	-0.8497	0.9966	-0.8525	0.3939
R/ship (Married/Dating)	5.8879	1.6364	21.1855	1.7729	0.6533	2.7138	0.0067
R/ship (Separated/Dating)	3712910.773	0	>1.0E12	15.1273	331.4119	0.0456	0.9636
R/ship (Single/Dating)	3.8693	1.5607	9.5926	1.3531	0.4632	2.9209	0.0035
Religion (Yes/No)	1.0646	0.2784	4.0716	0.0626	0.6844	0.0915	0.9271
Year (>3rd/<3rd)	2.2084	1.0341	4.7162	0.7923	0.3871	2.0465	0.0407
Treated mosquito nets (Yes/No)	0.6403	0.1881	2.1796	-0.4457	0.625	-0.7132	0.4757
Monthly Allowance (<5k/<10k)	0.4852	0.1949	1.2081	-0.7232	0.4654	-1.5538	0.1202
Monthly Allowance (>10k/<10k)	0.5669	0.1446	2.222	-0.5676	0.6969	-0.8144	0.4154

V. CONCLUSIONS

Self-medication is an umbrella term, which includes a variety of behaviors, ranging from self-care to disease prevention and disease management. People have come to realize that they are responsible for their health. There is also an increased awareness that seeking professional care for minor conditions is often not necessary, therefore a general improvement in knowledge, educational level, and socioeconomic status in several countries form a reasonable foundation for successful self-medication.

Factors that were significantly associated with self-medication in this study were studying a health-related course, being married or single, and being in or beyond the third year of study. Gender, age, address (home), religion, use of treated mosquito nets, and monthly allowance were significantly associated with self-medication.

About half of the respondents admitted to having practiced self-medication within 4 months before this study was conducted. Students mostly practiced self-medication because they thought their conditions were mild. They also took note of medications used to treat previous illnesses and when similar symptoms occur, they feel confident enough to self-medicate using knowledge from their previous experiences. Indeed, the most common condition treated is headache, which conforms with Paracetamol as the most common drug used in self-medication and the most common source of medications was the roadside's or street's drug store.

Most of the respondents read the prescribing leaflet and agreed that their health issues were resolved after self-medication, yet less than half of them did not self-medicate for the recommended duration.

VI. RECOMMENDATIONS

Self-medication is not entirely harmful, it has many indisputable benefits, yet it poses a great threat when drugs for self-medication are not used properly or abused. Considering the threats posed by the misuse of drugs, health programs on self-medication should be organized at specific intervals to enlighten the students on the risks and benefits of self-medication.

Contemporarily, people, especially students are heavily dependent on technology. Online resources were the most common source of knowledge for self-medication after their previous experiences. Hence technological means should be employed in facilitating students' access to healthcare and designing educational interventions to help students practice proper self-medication.

VII. PROSPECTS FOR FURTHER RESEARCH

To establish causal relationships for the higher frequency of self-medication in single and married students and to find out if these causes can be mitigated; and to determine how self-medication affects the academic performance of students.

VIII. CONFLICT OF INTEREST

The authors guarantee responsibility for everything published in this manuscript, as well as the absence of a conflict of interest and the absence of their financial interest in performing this study/research and writing this manuscript.

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