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Self- Medication among Medical Students in a Tertiary Health Facility in Enugu State, South East Nigeria

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ABSTRACT
Background: Self-Medication (SM) is common in both developed and developing countries but higher in developing countries, due to wider increase of drug availability without prescription. SM can increase the possibility of drug abuse and drug dependency. It can also mask the signs and symptoms of underlying diseases, hence complicating the problem, creating drug resistance, and delay in diagnosis.
Materials and methods: This study was a descriptive cross-sectional study conducted among the medical students of Enugu State University of Science and Technology College of Medicine Enugu, Nigeria. Data was collected with an online questionnaire formulated in Google form and shared through their different class chat group (WhatsApp). Collected data was analysed using SPSS version 25 and variables were presented in frequencies and percentages with the aid of tables. Bivariate analysis was done to find out the factors that affect the practice of SM using chi-square test and the level of significance was set at p value ≤ 0.05.
Results: Majority of the students were aged 15-24 years 272 (75.6%), females 240(66.7%) and single 336(93.3%). All of them were Christians and Igbos. Highest proportion were in their 5th year of study 168(46.7%).
Almost all the students have heard about SM 344(95.6%) but only 240(66.7%) have good knowledge of SM. Their major sources of information on SM were physicians 224(62.2%), friends 160(44.4%) and family members 152(42.2%). Majority of the students have practiced SM in the past one year 312(86.7%). Common symptoms for which SM was practiced were headache 288(80.0%), pain 216(60.0%) and fever 192(53.3%). The common drugs used were analgesics/antipyretics 296(82.2%), anti-malarias 272(75.6%) and antibiotics 224(62.2%). The major source of drug was from pharmacy shops 344(95.6%) and the major reason while the medical students practiced SM was prior knowledge about the illness and its treatment (66.7%), followed by emergency illness (55.6%) and mild illness (48.9%).
Age, gender, marital status and year of study all affected the practice of SM
Conclusion: The prevalence of SM was high among these students.
KEY WORDS: Self-medication; Medical students; Knowledge; Practice; Nigeria; Tertiary health facility.

I. INTRODUCTION

Self-medication (SM) can be defined as the use of medication (modern and/or traditional) for self-treatment without consulting a physician either for diagnosis, prescription, or surveillance of treatment [1]. It includes getting medications without prescription or taking medications based on advice from friends and relatives. SM is common in both developed and developing countries but higher in developing countries, due to wider increase of drug availability without prescription [2]. SM can increase the possibility of drug abuse[3] and drug dependency. It can also mask the signs and symptoms of underlying diseases, hence complicating the problem, creating drug resistance, and delay in diagnosis [4, 5]. SM has been reported to be on the rise globally [6].

SM offers ease of access to Over the Counter (OTC) medications at a lower cost, which serves as an alternative to the costly and time-consuming clinical consultations. However, safety of these medications is a major concern as many diseases have similar symptoms. Also, the risk of SM is increased if the individual does not have knowledge and understanding of the disease. This practice is also associated with an increased risk of misdiagnosis, Adverse Drug Reactions (ADRs), drug abuse and misuse [7]. Financial condition of the patients has been cited as one of the reasons why people indulge in SM. This is common in those countries where the individuals pay out of pocket for medical treatment. As a result, patients may prefer SM over costly consultation. Another possible reason can be the non-regulated practices concerning sale of prescription drugs

which is common in developing countries including Nigeria. This may result in the availability of Prescription Only Medications (POM) without a valid prescription and, hence, patient may skip consultation and directly purchase prescription medications [8.] Evidence indicates that self-medication is practiced by teenagers, adults, parents, and students [9]. Familial practice may also render individuals more prone to indulge in self-medication as it lowers their stigma towards SM. This highlights the need to educate parents about the problems of SM as well.

SM is especially encountered among medical students, which may be due to their medical knowledge or their future medical preferences [10, 11] and the fact that medical students find themselves having more knowledge about the drugs. Though SM practice is seen by lots of students as a time-managing, easy and successful process, it has many hazards which cannot be over emphasized and include misdiagnosis, delays in seeking medical advice when needed, problems of low or high drug dosage, prolonged duration of use and drug interactions, and drug abuse or dependence [1, 5,12].

It is widely accepted that SM with its adverse consequences has an important role to play in health care and with the continued improvement in people's education, general knowledge and socio-economic status SM has been successfully integrated into many healthcare systems throughout the world [13]. The WHO elaborates on this using the term 'Responsible Self Medication', which is defined as the practice whereby individuals treat their ailments and conditions with medicines which are approved and available without prescriptions and which are safe and effective when used as directed [14]. In developing countries, most illnesses are treated by SM [15] and many reasons abound for this practice. People resort to the practice instead of contacting professional healthcare workers because of long waiting periods in hospitals [16], ailments not being severe [17], cost [18], to save money and time [19], lack of accessibility[20, 21], shortage of doctors, or a feeling that their ailment is beyond the knowledge of western trained doctors [1, 22].

Worthy to note that SM is one aspect of Self-care. Self-care is what people do for themselves to establish and maintain health, prevent and deal with illness. It is a broad concept encompassing: · hygiene, nutrition, lifestyle, environmental factors and socioeconomic factors [6].

The youth are highly influenced by the media and the internet which promote SM behaviour [2]. The increased advertising of pharmaceuticals poses a big threat of SM to the younger population in general. This raises concerns of incorrect self-diagnosis, drug interaction, and use of drugs other than for the original indication [23]. The increase in the quantities and varieties of pharmaceuticals worldwide eases the accessibility of medicine by consumers, thereby giving options for its misuse.

This study was undertaken to ascertain the knowledge, practice and reasons for SM among medical students in a tertiary health facility in Nigeria. Medical students due to medical knowledge may differ in their practice of SM when compared to the general population. Thus, there is need for continuous study on these group of students. Also most studies on SM in Nigeria was conducted in the South Western part of Nigeria but the present study was conducted in South Eastern part of Nigeria. This study among population of medical students is important as their attitude towards pharmacotherapy could have considerable impact on their prescription pattern in the future [22].

II. MATERIALS AND METHODS

Study area

The study was carried out in Enugu State. It is one of the states in the Southeast of Nigeria. It shares border with the following states Abia and Imo to the South, Ebonyi to the East, Kogi to the North - west and Anambra to the West. Occupants of Enugu are majorly Igbos. Major language is Igbo [24].

Enugu State College of Medicine is one of the campuses of the Enugu State University of Science and Technology (ESUT). It is located within Enugu Metropolis.

Study design

A cross-sectional study conducted at the College of Medicine, (ESUT) Enugu, Nigeria.

Study population and sampling

All the medical students presently at the ESUT College of medicine were used for the study. There were about 552 medical students but only 360 responded to the questionnaire giving a response rate of 65.2%.

Data collection

All the data was collection within 4 weeks; 3rd-30th July 2020 through an online questionnaire formulated in Google form. It was shared through their different class WhatsApp group.

The questionnaire was formulated by the principal investigator after extensive literature review. The questionnaire had four sections: Socio-demographic characteristics, knowledge of SM, practice of SM and reasons for practice of SM. The students' knowledge of SM was assessed using 9 questions. A correct answer scores one while an incorrect answer scores zero. The higher the score, the more knowledgeable the student. Having practiced SM in the past one year was used to assess the one year prevalence of SM among the students.

Other variables like common symptoms for which SM was practiced, common drugs used for SM and sources of drugs for SM were also assessed under practiced.

Statistical analysis

The data was analysed using SPSS version 25. The categorical variables were summarized using frequencies and percentages. The significance level was placed at ≤ 0.05. The knowledge scores were categorized into poor and good. Scores of < 80% were classified as poor while scores of ≥ 80% were classified as good. Practice of SM in the past one year was classified as a poor practice of SM while non-practice was classified as good practice.

Ethical Approval

Ethical approval to conduct research was obtained from the Research and Ethics Committee of ESUT Teaching Hospital Enugu with reference number ESUTHP/C-MAC/RA/034/vol.2/24. The study followed the Helsinki Declaration in line with the ethical principles for medical research involving human subjects. The research study posed minimal risks to the participants. Participants were assured of the confidentiality of their data. Anonymity was maintained since there was no way of linking any response to the responder as it was submitted directly in Google form. There was no form of coercion and participation was completely voluntary.

III. RESULTS

Table no 1: Socio-demographic characteristics of the medical students

Variable	Frequency	Percentage
Age in years		
15-24	272	75.6
25-34	88	24.4
Gender		
Male	120	33.3
Female	240	66.7
Marital status		
Single	336	93.3
Married	24	6.7
Number of children		
0	352	97.8
1-2	8	2.2
Religion		
Christianity	360	100.0
Others	0	0.0
Ethnicity		
Igbo	360	100.0
Others	0	0.0
Year of study		
3	56	15.5
4	48	13.3
5	168	46.7
6	88	24.4

Table 1 shows the socio-demographic characteristics of the students. Majority of them were aged 15-24 years 272 (75.6%), females 240(66.7%) and single 336(93.3%). All of them were Christians and Igbos. Highest proportion were in their 5th year of study 168(46.7%).

Table no 2: Knowledge of Self-Medication among the medical students

Variable	Frequency	Percentage
Have heard about SM		
Yes	344	95.6
No	16	4.4
Sources of information on SM*		
Physician	224	62.2
Pharmacist	88	24.4
Colleagues	32	8.9

Family member	152	42.2
Friends	160	44.4
Internet	136	37.8
Radio	8	2.2
Television	8	2.2
SM can be practiced with all drugs		
Yes	96	26.7
No	264	73.3
SM is better than seeking medical consultation		
Yes	8	2.2
No	352	97.8
Medications can be shared between two people with different ailment		
Yes	96	26.7
No	264	73.3
SM can result to harmful effects		
Yes	344	95.6
No	16	4.4
SM can cause addiction		
Yes	328	91.1
No	32	8.9
SM can delay one from seeking medical care		
Yes	352	97.8
No	8	2.2
SM results to drug resistance		
Yes	336	93.3
No	24	6.7
SM can result in complications		
Yes	344	95.6
No	16	4.4
Knowledge categorized		
Good	240	66.7
Poor	120	33.3

SM= self-medication *multiple answers allowed

Table 2 shows the students' knowledge of SM. Almost all the students have heard about SM 344(95.6%) but only 240(66.7%) have good knowledge of SM. Their major sources of information on SM were physicians 224(62.2%), friends 160(44.4%) and family members 152(42.2%).

Table no 3: Practice of Self-Medication among the medical students

Variable	**Frequency**	**Percentage**
Have practiced SM in the past one year		
Yes	312	86.7
No	48	13.3
If yes, how often	N=312	
Rarely	304	97.4
Very often	8	2.6
Common symptoms for which SM is practiced*		
Headache	288	80.0
Fever	192	53.3
Pain	216	60.0
Sleep disorder	16	4.4
Cold/flu	104	28.9
Allergy	80	22.2
Diarrhoea	144	40.0
Constipation	88	24.4
Indigestion	16	4.4
Respiratory tract infections	24	6.7

Skin infections	40	11.1
Heart burn	24	6.7
Common drugs used for SM*		
Analgesics/antipyretics	296	82.2
Antibiotics	224	62.2
Cough/flu medications	160	44.4
Anti-diarrhoea	168	46.7
Laxatives	48	13.3
Anti-allergics	88	24.4
Multi vitamins	104	28.9
CNS stimulants	8	2.2
Anti-malaria	272	75.6
Antacids	88	24.4
Sedatives	24	6.7
Sources of drugs for SM*		
Pharmacy shop	344	95.6
Friends	96	26.7
Family members	144	40.0
From left over drugs at home	72	20.0

SM= self-medication *multiple answers allowed

Table 3 showed the practice of SM among the studied medical students. Majority of the students have practiced SM in the past one year 312(86.7%). Among those that practiced, majority practiced rarely 304(97.4%). Common symptoms for which SM was practiced were headache 288(80.0%), pain 216(60.0%) and fever 192(53.3%). The common drugs used were analgesics/antipyretics 296(82.2%), anti-malarias 272(75.6%) and antibiotics 224(62.2%). The major source of drug was from pharmacy shops 344(95.6%)

Table no 4: Reasons for Self-Medication among the medical students*

Variable	**Frequency**	**Percentage**
Emergency illness	200	55.6
Long distance to health facility	40	11.1
Pharmacy shop is close to me	48	13.3
Health facility charges high	48	13.3
Delay/long protocol in hospital services	128	35.6
Prior knowledge about the illness and its treatment	240	66.7
The illness was mild	176	48.9
To save time	72	20.0
Unfriendly attitude of HCWs	24	6.7

*multiple answers allowed

In table 4, the major reason for which the medical students practiced SM was having prior knowledge about the illness and its treatment (66.7%), followed by emergency illness (55.6%) and mild illness (48.9%).

Table no 5: Factors that affect practice of Self-Medication among the medical students

Variable	**Practice**		χ^2	**P value**
	Good N (%)	**Poor N (%)**		
Age (years)				
15-24	48(17.6)	224(82.4)	17.919	<0.001*
25-34	0(0.0)	88(100.0)		
Gender				
Male	8(6.7)	112(93.3)	6.923	0.009*
Female	40(16.7)	200(83.3)		
Marital status				
Single	48(14.3)	288(85.7)	3.956	0.047*
Married	0(0.0)	24(100.0)		
Number of children				
None	48(13.6)	304(86.4)	1.259	0.262
1-2	0(0.0)	8(100.0)		

Year of study				
3	16(28.6)	40(71.4)	94.316	<0.001*
4	24(50.0)	24(50.0)		
5	0(0.0)	168(100.0)		
6	8(9.1)	80(90.9)		

*Statistically significant

Table 5 shows the factors that affected the practice of SM among the students. Age, gender, marital status and year of study all affected the practice of SM

IV. DISCUSSION

Prevalence of self-medication has remained common in both developing and developed countries [25, 26] and the trend is increasing among youths [27] and common among university students [28]. Socioeconomic factors, lifestyle, readily available drugs, increased medical consultation cost, time consuming clinical process, lack of nearby access to healthcare, past experiences, and extensive advertisement are some of the leading reasons for people seeking self-medication [29-31].

Self-care, including self-medication, has been a feature of healthcare for many years and people have always been keen to accept more personal responsibility for their health status [32]. SM by itself has both pros and cons that depend on who and what one choses to self-medicate [33].

In the present study, 95.6 % of the students have heard of SM but only about 66.7% of them had good knowledge of SM. This was similar to the report of another Nigerian study [34] but lower than the report of another study among nurses [35]. The difference in knowledge may be because nurses by virtue of their experience and training, have better knowledge of SM than the medical students.

The commonest source of information on SM was physicians (62.2%) followed by friends (44.4%) and family members (42.2%). Similar study from Jordan reported similar findings [36]. Both studies were carried out among medical students and this can explain the similarity. Medical students are always close to the physicians in the course of their training, so it is not surprising that physicians were their major source of information on SM. Another study reported that friends and family, chemist, and internet were the primary 3 resources of self-medication among undergraduate students of Nepal [37]. These group of students are not medical students and hence can get their information from any available and convenient source.

The one year prevalence of SM in this study was 86.7%. This was high considering the dangers associated with SM. The finding was similar to the report of similar studies among undergraduates in Nigeria [38] and UAE [39]. Other studies in Saudi Arabia [40, 41], Ghana [42] and Nigeria [35, 43] reported lower prevalence.

Availability and accessibility of health facilities and health personnel's may have contributed to the observed differences. Other possible explanations may be the difference in sample size, sampling population, survey location and sampling method. Also the discipline of the students surveyed, country's drug laws, or the effectiveness of the drug regulating agencies of the countries where the studies were conducted. It is believed that students in medicine and other health sciences tend to self-medicate themselves than other students from other disciplines.

Age, gender, marital status and year of study significantly affected the practice of SM in the study. More males (93.3%) practiced SM than females (83.3%). This was similar to the report of a Nigerian study [44]. However, other similar studies reported that more females practiced SM than males [11, 38 , 45]. The prevalent illness and the major reasons for SM may explain the difference.

The commonest symptoms for which SM was practiced were headache (80.0%), pain (60.0%) and fever (53.3%). An Indian study reported a similar finding. [46] However, a Jordan study reported headache, flu and cold as the commonest symptoms for the practice of SM [36]. Environmental conditions may explain the similarities and differences reported.

The commonest drugs used for SM in the present study were analgesics/antipyretics (82.2%), anti-malarial (75.6%) and antibiotics (62.2%). The ready availability of these groups of drugs, even without prescription, is the main reason behind the high intake of them by the students. Similar observations were made in studies from Ethiopia [47] and Nigeria [34, 38]. Also, in studies from Iran [48], Pakistan [49] and Egypt [50] analgesics were the most common group of drugs self-medicated. A Saudi Arabian study, however reported that sedatives and antibiotics were the commonly used drugs for SM by the medical students [40]. A similar study in Jordan reported analgesics and anti- flu decongestants as the commonest drugs used [36] .This was not surprising as the same study reported that headache, flu and cold were the commonest symptoms for practice of SM.

The high rate of antibiotics use in this study is of a great concern as this inappropriate use of antibiotics may delay the prescribing of proper treatment, may result in the emergence of resistant strains and increased cost and morbidity [26, 51].

The main source of drugs was mainly from pharmacy shops (95.6%). A similar study showed that most of the medical students obtained their drugs from patent medicine stores [44]. This was different from the report of a similar study among students where majority of the students obtained the antibiotics they used from their friends in the hostel [27]. Absence of pharmacy shops within the student's hostels may be a possible explanation.

Major reasons for practice of SM were prior knowledge about the illness and its treatment (66.7%), emergency illness (55.6%) and mild illness (48.9%). Medical student by virtue of their closeness to the physicians and clinical experience have knowledge about the treatment of illnesses and this makes them more prone to practice SM. Studies from Ethiopia [27, 46], Karachi [49] and Malaysia [52] reported that prior experience with the illness was the most common reason for self-medication. A similar study among HCWs in Nigeria reported that illness coming as an emergency and being mild were the major reasons for SM [35]. Students are prone to make unsupervised health-related decisions especially students of health sciences who feel confident of their knowledge about the drugs. Other studies reported several other reasons for SM like illness being trivial [11], time saving [53], quick relief [54] and unfriendly attitude of HCWs at the school clinic [38]. However, environment factors, study populations, availability and affordability of drugs may influence these reasons.

Limitations

This was an internet based online survey and as such students who reside in places without internet access may not be captured which may lead to a demographic selection bias.

Recall bias may also have occurred since recall of past practice of SM was required but this was overcome by keeping the questions simple and short.

V. CONCLUSION

The prevalence of self-medication is high among the medical students in Enugu State University College of Medicine, South-East Nigeria. There is the need for legislation and enforcement of existing laws to discourage uncontrolled access to prescription only medications. Efforts should also be made to educate not just the medical students but the general populace on the dangers of SM.

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Conflict of interest

None declared

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