



ST PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

**ASSESSMENT OF MAGNITUDE OF SELF-MEDICATION
PRACTICES AND ASSOCIATED FACTORS AMONG
UNDER GRADUATE MEDICAL STUDENTS IN SPHMMC**

BY: AMEN BEKELE (MMR/5014/04)

**A RESEARCH REPORT TO BE SUBMITTED TO THE
DEPARTMENT OF PUBLIC HEALTH, SPHMMC IN PARTIAL
FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF MEDICINE.**

**September 2017
ADDIS ABABA**



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**ADVISORS; SAMRAWIT SOLOMON (MD., MPH)
Mrs. MISRAK FELEKE**

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Abstract

Background

Self-medication is defined as “obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment [1]. It’s a common practice worldwide and the irrational use of the drugs is a major cause of concern. Self-medication is an issue with serious global implication. It assumes a special significance among medical students as they are expected to have knowledge about diseases and drugs. There is no current data available regarding the self-medication practice among undergraduate medical students and there is no data available on the self-medication practice among undergraduate medical students in SPHMMC which this research aims to generate.

Objective: To assess the magnitude of self-medication practices and associated factors among under graduate medical students in SPHMMC

Methods: A descriptive cross-sectional study in which the study population consisted of randomly selected regular undergraduate medical students of SPHMMC was conducted. This study was conducted from March 30 to April 15 2017. A total of 279 students were taken. Simple random sampling technique was used and a pretested self-administered questionnaire was used to collect data and it was analyzed using spss version 20 for counts and percentages.

Results- Among 270 students approximately 58.5% practiced self-medication. Headache 52(19.3%) followed by cough and common cold (8.5%), dyspepsia (8.1%), dysmenorrhea (6.3%), were disease conditions for which they self-medicated. The classes of drugs that were commonly used for self-medication were analgesics (27.8%), antibiotics (11.5%) and anta acids (6.7%). The reasons for SM were quick relief 59(21.9%), prior experience 51 (18.9%) and mildness of the illness 32 (11.9%).The major sources of the drugs used for self-medication were the pharmacies 87 (40%), friends/relatives 55 (20.4 %), leftover drugs from previous prescriptions 14(5.2%) and kiosks 2(07%).Information about drugs were through self-decision 75(27.6%), family and friends 30(11.1%) and reading material 30(11.1%).

Conclusion –self-medication is practiced by a majority of undergraduate medical students. Since using drugs without prescription inappropriately can cause serious harm, not only to students themselves but also to those whom they suggest medication. Restriction of sale of drugs with potentially harmful effects should be implemented effectively with monitoring systems between the physicians and pharmacist

Acknowledgment

First of all I would like to express my deepest gratitude to my Lord Jesus Christ who carries all my burdens and shepherded me healthy. Secondldy I would like to extend my sincere gratitude to my research advisors Dr. Samrawit solomon and Mrs. Misrak Felleke for their relentless support and valuable advice in doing this research.Finally I would like to thank every body that has helped me in doing this research.

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Table of Content

Summary.....	iv
Acknowledgment.....	ii
Tables.....	iii
Acronym.....	v
Chapter one	
Introduction.....	1
1.1. Background of study.....	1
1.2. Statement of the problem.....	2
Chapter two	
2.1. Literature Review.....	5
2.2. Significance of the study.....	7
2.3. Conceptual framework	8
3.Objectives.....	9
3.1 General objective.....	9
3.2 Specific objectives.....	9
4. Methods.....	10
4.1 Study setting.....	10
4.2 Study design.....	10
4.3. Study period.....	10
4.4 population.....	10
4.5 sample size and sampling procedures.....	11
4.6 Measurement.....	11
4.6.1. Study variables.....	11
4.6.2 Data collection instruments.....	11

4.7. Data collection process.....,,,	11
4.8. Data quality control.....	11
4.9. Data analysis, processing and interpretation.....	11
4.10.. Ethical consideration.....	13
4.11. Operational definition.....	13
4.12. Plan for dissemination of findings.....	13
5. Results	14
6. Discussion	
Strength and limitations	15
7. Conclusions and recommendations	
7.1. Conclusions	
7.2. Recommendations.....	
References	16
Annexes	
Data collection tools.....	
Details of procedures.....	

List of table

Table 1: Socio- demographic characteristics of undergraduate medical students of SPHMMC from March 30- April 15.....	
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List of figures

Figure 1- Frequency of reported symptoms/conditions for those self-medicated.....

Figure 2-Frequency of commonly self-medicated drugs by undergraduate medical students of SPHMMC from March 30- April 15.....

Figure 3-frequency of common reasons for self-medication reported by undergraduate medical students of SPHMMC from March 30- April 15.....

Figure 4- Frequency of source of information for self-medicated drugs by undergraduate medical students of SPHMMC from March 30- April 15.....

List of Acronyms

A.A-Addis Ababa

SPHMMC- St. Paul's Hospital Millennium Medical College

WHO- world health organization

SM- self medication

CHAPTER ONE

INTRODUCTION

1.1 **Background of the study**

Self-care is a behavioral response of individuals to promote or restore their health. Self-medication which is one form of self-care is an important initial response to illness [2]. Self-medication is defined as "the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms [3]. It involves acquiring medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle or using leftover medicines stored at home [4].

Medicines for self-medication are often called 'nonprescription' or 'over the counter' (OTC) and are available without a doctor's prescription through pharmacies. Self-medication with OTC medicines is sometimes referred to as 'responsible' self-medication to distinguish it from the practice of purchasing and using a prescription medicine without a doctor's prescription [5]. Self-medication is widely practiced in both developed and developing countries. It has high prevalence rate all over the world ranging from 32.5- 81.5%. Self-medication prevalence rate in developing countries is alarming that is 92%, prevalence rate in European countries is 68 % [7, 8].

In developing countries, most of the illnesses are treated by self-medication mainly due to lack of access to health care, easy availability of OTC drugs in market and poor drug regulatory practices. Fever, cold and cough were the most common illnesses for which most undergraduate medical students self-medicated. Antipyretics and analgesics were the most commonly used class of drugs for self-medication. Followed by them are drugs used for treatment of cold, and cough and the anti-microbial [9].

Self-medication can be attributed by various factors i.e., to socio-economic factors, life style, ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products, socio-demographic, epidemiological, availability of healthcare and health professional, law, society and exposure to advertisement; high level of

education and professional status. [10] On the other hand self-medication can also have a positive impact on the health care if it follows guidelines issued by the WHO .[11] According to WHO guidelines responsible self-medication can help prevent and treat diseases that do not require medical consultation and reduce the increasing pressure on medical services for relief of minor ailments especially when resources are limited [12] Major problems related to self-medication is wastage of resources, increases resistance of pathogens and generally causes serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence Antimicrobial resistance is a current problem worldwide particularly in developing countries where antibiotics are often available without a prescription. [13].

The study of self-medication practice among university medical undergraduates is very important as they are a segment of the population that is highly educated and with access to information regarding their health. They are also the segment of population that have prescriptions at hand and can prescribe various drugs without supervision. Looking at this practice among medical undergraduates is also very vital as they represent the future generation of drug prescribers and health educationalists. Nonprescription drugs amongst youth; especially in students are being misused due to exposure to media and advertisements [14]. It has become a serious ailment raising the concern of incorrect diagnosis and drug reaction as well. Being future medical practitioners, SM has a special impact on medical students. Prevalence of SM was found to vary in medical students of different countries in earlier studies. Since majority of the studies were conducted in countries other than Addis Ababa, pattern of SM practices in our city remained uncharted [15]. With this in mind, the present study was planned to determine the prevalence of SM practices, to find out the common ailments and common drugs used, reasons for SM along with assessing relationship between the level of medical education and the SM practices among medical undergraduates.

1.2 Statement of the problem

The word self-medication history (WSMI) defines self- medication as the treatment of common health problems with medicines especially designed and labeled for use without medical supervision and approved as safe and effective for such use. The prevalence rates vary all over the world [2]. The prevalence rates among the general population are 11% in Germany, 9% in Spain, 11% in Australia, 13% in USA 15% in southern part of Ethiopia, 50% in in central part of Ethiopia and 27.2% in northern part of Ethiopia. But the prevalence rate among medical students differs significantly from the general population as they have the knowledge and exposure to these drugs. Self-medication practice has been surveyed among medical students in different parts of the world and prevalence rates were ranging from 12% to 99%.In a survey conducted among final year medical students in Slovenia 94.1% of students stated that they self-medicated .In Bahrain about 44.8% of students practiced self-medication while in Karachi the percentage is 76% and 55% in Egypt . The prevalence rate was found to be 38.5% among medical students in Ethiopia [10].

People may disuse drugs in the form of getting medications of others who told them that they have improved when they had taken those medications self-medication if not based on authentic medical information can lead to irrational use of drugs, wastage of resources and can lead to serious health hazards such as adverse drug reaction and prolonged morbidity. About 2.9 - 3.7 % causes of death in hospitals as a result of drug-drug Interactions has been documented. Self-medication with antibiotics occur in many developing countries where drugs are not well-regulated. Hence there is easier access to prescription or over-the-counter medicines without prescription. Self-medication, could cause bacteria resistance to such antibiotics and may precipitate the emergence of multiple resistant organisms that would be difficult to treat and this has caused increased morbidity [1].

Self-medication provides a lower cost alternative for people who cannot afford the cost of clinical services. Studies revealed that increase in self-medication was due to a number of factors. These included socioeconomic factors ,life style, ready access to drugs, the increased potential to manage certain illnesses through self-care, previous experience, greater availability of medicinal products,

socio-demographic, epidemiological, availability of healthcare and health professional, legislation regulating dispensing and sale of drugs, society and exposure to advertisement; high level of education and professional status[5]. There is no data available on any solutions sought for the problems arising due to self-medication as well as on the current status in SPHMMC. Additional research also is needed because previous researches conducted among medical students in our country is a while back and the prevalence rates as well as factors associated with self-medication are highly likely to change due to the wide availability of the internet which is the commonest source of information for the students. This research will provide essential information on the reasons for which students resort to this practice and the data will be used to formulate appropriate educational, regulatory and administrative measures used in reducing the public health risks arising from inappropriate self-medication practices.

CHAPTER TWO

LITERATURE REVIEW

Self-medication is the use of drugs with therapeutic intent but without professional advice or prescription. It has also been defined as the use of nonprescription medicines by people on their own initiative [20]. Drugs that are prone to self-medication include analgesics, antimalarial, antibiotics and cough syrups, among others. A number of studies were conducted on the practice worldwide.

2.1. Prevalence of self-medication

Studies revealed that there is an increase in trends of self-medications particularly among the youth. In a study conducted in Karnataka, India in which study population consisted of undergraduate medical students of Mahadevappa Rampure Medical College, It was found that 388 (88.18%) students practiced self-medication [23]. A similar study was conducted on medical students from Aim Shams University Egypt and the prevalence of self-medication was 55% [24]. In Nigeria it was found that the prevalence of the practice of self-medication was high among the age group of 25 – 44 years but lower in the 15 - 24 and ≥ 45 year age groups, respectively[25]. In Ethiopia a study conducted on 307 health sciences students in ACMU the prevalence of self-medication was 43.24% [15].

2.2. Commonly self-medicated drugs

There are certain group of drugs that are widely used for self-medication and they differ from place to place. Among pharmacy students in Guntur India the most commonly used drugs for self-medication were antipyretics(90.6%) , cough and cold(78.4%) ,analgesics& anti-inflammatory(85%) , antibiotics(62%) [26] Where as in Nigeria a majority, 982 (53.8 %), of the students used antibiotics for self-medication while 845 (46.3 %) used anti-malarial drugs for self-medication [25].In our country the most common classes of drugs used in self-medication were analgesics, in particular Paracetamol, which was reported by 31(48.44%) of the respondents followed by Non-Steroidal Anti-inflammatory Drugs (NSAIDs) as reported by 27(42.20%) of the respondents. Other common types of medications reported were antibiotics 11(17.20%), cough syrup 8(12.50%) and antacids 5(7.80%) [15]

2.3. Reasons for self-medication

There are many reasons why students self-medicate. Among reasons for seeking self-medication among medical students in Nepal, 79.2% felt that their illness was minor while 61.9% preferred as it is due to previous experience [23]. 32 (27.35%) of nursing students in India believes self-medication relieves from minor illness, 25 (21.36%) saves money, 23 (19.65%) saves time and 24 (20.51%) easily available, which seems to be a benefits for them [22] In Ethiopia a study conducted among nursing students revealed that the two main reasons for self-medication were prior experience 25(39.10%) and mildness of the disease 24(37.50%).

2.4. Common sources of information

The sources of information where students hear or read about the self-medicated drugs also differs in different parts of the world but they also share some similar sources. When asked about the sources of information 31.7% take medications in consultation with the pharmacist rather than going for formal prescription from the doctors.56.3% take medicines on the advice of friends and family(48%).the trend of self-medication has been increased as a result of advertisements and the impact of the media in India [26].In Nepal Out of 63 respondents, 38 (60.31%) use sources of information as pharmacist followed by 29 (46.03%) use sources of information as textbook, 20 (31.74%) use sources of information as senior, and 11 (17.46%) use advertisements[23].The most common sources of information used by the respondent were pharmacist (60.31%) and text book (46.03%). Self-decisions 41(64.00%) followed by family/friends 20(31.65%) were the two most frequently reported source of drug information for self-medication in the study conducted in Mekelle [15].

1.3 Significance of the study

The practice of self-medication is widespread in many countries. In developing countries like ours, easy availability of wide range of drugs coupled with inadequate health services result in increased proportion of drugs used as self-medication [15]. Self-medication can lead to interaction between drugs which would be prevented, had the patient sought care from a licensed medical practitioner. It may lead to delay in care seeking which results in paradoxical economic loss due to delay in the diagnosis of underlying conditions and appropriate treatment. It has also resulted in the emergence of multiple antibiotic resistant strains of micro-organisms which is a major public health concern. Self-medication assumes a special significance among medical students as they are the future medical practitioners and have a potential role in counseling the patients about the advantages and disadvantages of self-medication. It can represent a serious threat to professionalism in medicine and it has potential to put at risk public trust into this profession [7-13].

Various researches have been conducted on the knowledge, attitude and prevalence of self-medication worldwide as well as locally. The previous local studies have provided information on the prevalence and factors associated with self-medication practice in Gondar and Mekelle University. The study conducted in Addis Ababa included households in Addis and did not consider medical students who differed from the general population of Addis since they have the knowledge and exposure and are expected to behave differently. There is no study conducted on the prevalence of self-medication in SPHMMC. These students differ from other medical students as the school curriculum follows an integrated system and the students are subjected to the knowledge about the indications, dosage, contraindications and adverse effects of drugs from their first year of study and are prone to self-medicate. Also the previous researches conducted in our country are a while back and a more recent data should be available to find solutions for the emerging problems. One of the major problems we are facing today as a result of self-medication is the emergence of multi drug resistant bacteria which are very difficult to treat therefore there is a need to get information on the reasons for self-medication and the commonly self-medicated drugs so that we can halt the problem as soon as possible before more bacteria become resistant to drugs and morbidity and mortality increases. This study will provide a baseline information about the practice among medical students in SPHMMC and provide an insight about its prevalence among undergraduate medical students in Addis Ababa since it's the second biggest government

owned medical school. Improved knowledge and understanding about self-medication may result in rationale use and thus limit emerging microbial resistance issues which is a major public health concern. As mentioned above the data obtained from this study will be the only one among undergraduate medical students in the capital city and it can also help in comparing with the prevalence rates in other cities in Ethiopia and also in predicting future trends.

After having essential information from this research the drug regulatory and health authorities will have to dedicate some resources used to raise awareness of the students and the general public on the pros and cons of responsible self-medications to eventually improve their attitudes towards the practices of self-medication. It might also help the policy makers and regulatory authorities to streamline the process of drug regulations, updating list of essential medicines and safety issues of over the counter drugs. . Moreover, it might be helpful if the concepts and principles of self-medication could be reflected in the formal curricula of health care disciplines in Ethiopia.

Conceptual framework

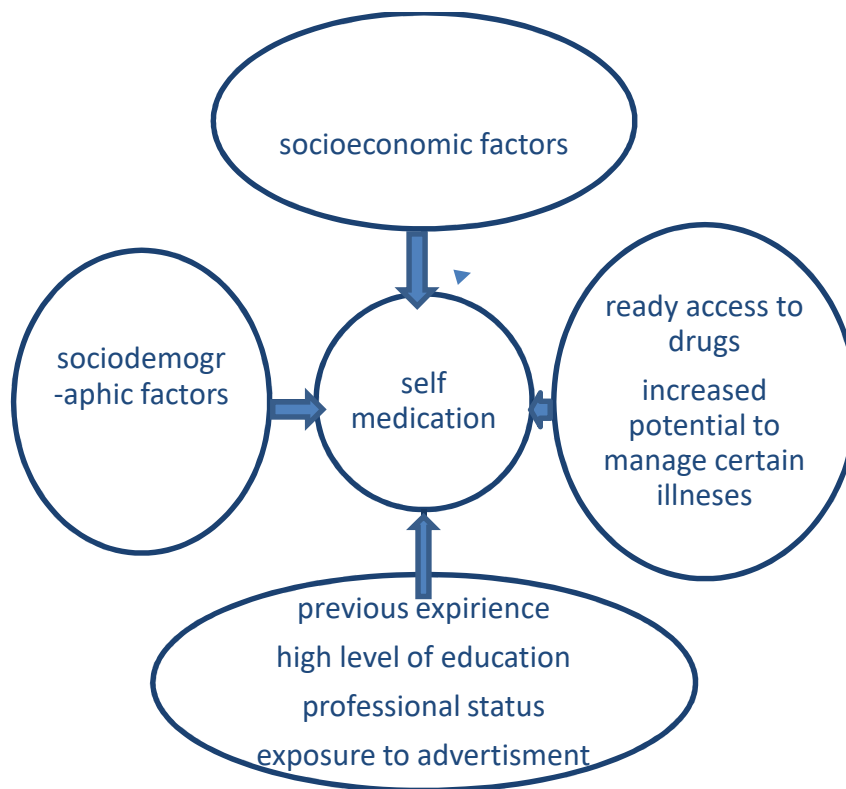


Fig 1 conceptual framework on relationship between self-medication practice and associated factors.

3. OBJECTIVES

3.1 General objective

- To assess the magnitude of self-medication practices and associated factors among under graduate medical students in SPHMMC

3.2 Specific objectives

- ❖ To determine the magnitude of self-medication among the under graduate medical students in SPHMMC.
- ❖ To find out common disease conditions necessitating self medication.
- ❖ To assess the common reasons for self-medication.

4. METHODOLOGY

4.1 Study setting

The study was conducted in SPHMMC. The Medical School opened in 2007 with the initiative of Dr. Tedros Adhanom together with Professor Gordon Williams of the department of urology at the Hammersmith Hospital in London as its first Dean. The college has undergraduate programs in medicine, emergency nursing & ICU care and OR nursing. The students are selected by written exam and structured interview with their previous educational background and their motive to work in the homeland is accredited. The students come from all regions in Ethiopia with students from emerging and underrepresented regions given special consideration. There are currently 796 medical students at Saint Paul. The curriculum at Saint Paul is unique in Ethiopia it follows an integrated and modular educational model using hybrid problem solving techniques.

4.2 study design

A descriptive cross-sectional study design was used.

4.3 Study period

The study period is from March 30- April 15 2017.

4.4 population

The source populations are all under graduate medical students of SPHMMC.

Study Population

All randomly selected undergraduate medical students studying in SPHMMC who fulfill the inclusion criteria during the study period.

Inclusion & Exclusion Criteria

❖ Inclusion criteria:-

- All under graduate medical students in SPHMMC

❖ Exclusion Criteria:-

- Under graduate medical students whose questionnaires are incompletely filled.

4.5 Sample size and sampling procedure

Sample size of the study is determined based on the assumption that

$$n = \frac{Z_{\alpha/2}^2 p(1-p)}{d^2}$$

Z= 1.96 corresponding to 95 % confidence interval

N= sample size

α =degree of accuracy

p=42 %(prevalence of self-medication in Mekelle university)

d=degree of precision within (+ or -) 5% of the true value

$$N = \frac{(1.96)^2 (0.42) (0.58)}{(0.05)^2} = 374$$

But the total population is less than 10,000 so I use correction formula

$$N = \frac{n}{1 + (n/N)}$$

$$N = \frac{375}{1 + (375/796)} = 254$$

Adding 10% contingency of non-response rate 25 to the value 254, the final sample will be equal to 279.

Sampling methods

Simple random sampling technique was employed as an appropriate method of sampling for selecting representative sample for the college by creating a sampling frame consisting of list of all undergraduate students then by generating a table of random numbers.

4.6. Measurement

4.6.1. Variables

- prevalence of self-medication practice
- Age, sex ,study year
- initial response to illness
- frequency and number of drugs used
- common conditions for self-medication
- common reasons for self-medication
- reasons against self-medication
- common source of information
- common sources of self-medicated drugs

4.6.2. Instrument

Data was collected by using pretested self-administered questionnaire.

4.7 .Data collection process

Data was collected & used after fully informing the purpose & methods of the study to the hospital personnel responsible for the undergraduate program. The data was collected from the undergraduate students after a list of all the students was obtained from the colleges' registrar office and they were stratified according to their respective year of study and then selected using simple random sampling technique. The data was collected by the principal investigator and five collectors who were medical students of the college. The data was collected from April up to May by using a pretested self-administered questionnaire prepared in English. The finances were covered by the principal investigator and the college's public health department.

4.8. Data quality control

The questionnaires were pre-tested on 15 individuals to avoid any confusion during actual data collection period and the choice of drug retail outlets was changed to pharmacy after the pretest. .

During data collection principal investigator checked data for its completeness and missing information. Furthermore data was checked during entry into the computer before analysis.

4.9. Data analysis, processing and interpretation

The data was analyzed after collection of the data by self-administered questionnaire was completed. The analysis was entirely based on the data collected. Data obtained from the questionnaire was coded, given sequential numbers and entered into the Statistical Package for Social Sciences (SPSS), version 20. Descriptive analysis was employed to describe the percentages and number distributions of the respondents for socio-demographic characteristics and the results was be presented using absolute figures and percentages.

4.10. Ethical consideration

During data collection, all methodological and ethical considerations were taken care of. Permission to conduct the research was obtained from public health department and provost office. Informed verbal consent was obtained from the students after explanation of the purpose of the study and the part they will take in the research. The privacy of the students was protected and confidentiality was maintained at all the times.

4.11. Operational definition

Self-medication - Any event of use of over the counter (OTC) or prescription medicines without consulting a doctor in the past year.

5. Result

Socio demographic characteristics

A total of 279 students participated in the study. The percentage of non-participants among the eligible was 3.3 % because 270 of the 279 questionnaires were harvested. Nine respondents did not properly fill the questionnaire, probably due to lack of time and interest. Therefore, their questionnaires were not used for the study. From the 270 undergraduate students 187 (69.3%) were male and 83(30.7%) were female, making the male to female ratio 2.2:1 of which 184(68.1%) where aged between 21-25. Among these 270, 59(21.9%), 44(16.3%), 41(15.2%), 54(20%), 40(14.8%) 32(11.9%) where in the first, second, third, fourth, fifth and sixth year respectively. The socio demographic characteristics are summarized in the table below.

Variable		Frequency	Percentage
Sex	Male	187	69.3%
	Female	83	30.7%
Age	16-20	78	28.9%
	21-25	184	68.1%
	25-30	8	3%
Study year	First	59	21.9%
	Second	44	16.3%
	Third	41	15.2%
	Fourth	54	20%
	Fifth	40	14.8%
	Intern	32	11.9%

Table 1- sociodemographic characteristics of undergraduate medial students of SPHMMC from March 30- April 15.

Magnitude of Self-medication practice

In this study, the immediate response of the undergraduate medical students when they got sick was assessed and 80(29.6%) waited till their symptoms subsided, 72(26.7%) self-medicated, 67(24.8%) consulted a doctor and 51(18.9%) asked people for suggestions. Out of the 270 students 158(58.5%) self-medicated with in the last 1 year of which 67.4% were male. Of these 46(17%) took medication without doctor's prescription with an average frequency of 2-3 times per year and a majority of them that is 88(32.6%) took an average of one drug in a month.

There are many disease conditions for which undergraduate medical students might self-medicate in this research headache was found to be the prominent disease condition that predisposed them to self-medicate as 52(19.3%) students reported .It is followed by cough and common cold (8.5%), dyspepsia (8.1%), dysmenorrhea (6.3%), fever (4.8%), sore throat (3.7%), diarrhea (3.3%), and nausea and vomiting (3.0%).

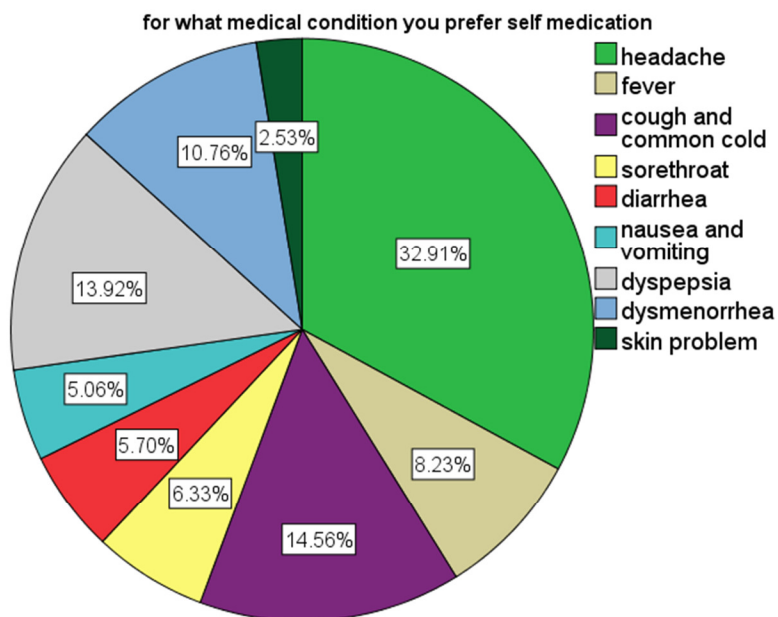


Fig 1: Frequency of reported symptoms/conditions for those self-medication by undergraduate medical students in SPHMMC from March 30- April 15.

The classes of drugs that were commonly used for self-medication were analgesics (27.8%), antibiotics (11.5%), anta acids (6.7%) and cough syrups (3.7%). and the reasons for SM were reported as quick relief 59(21.9%) followed by prior experience 51 (18.9%) and mildness of the illness 32 (11.9%).

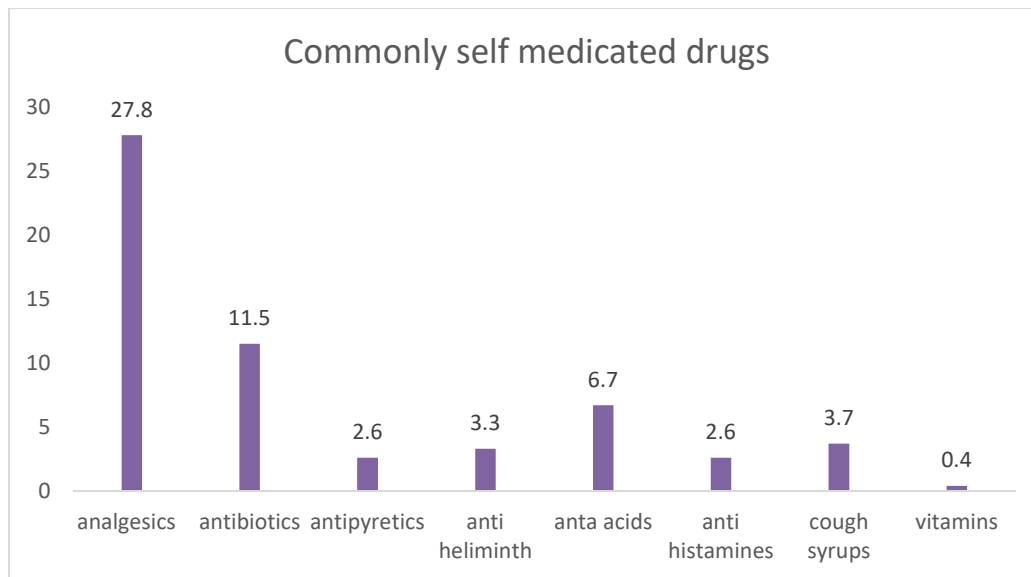


Fig 2. Frequency of commonly self-medicated drugs by undergraduate medical students in SPHMMC from March 30- April 15.

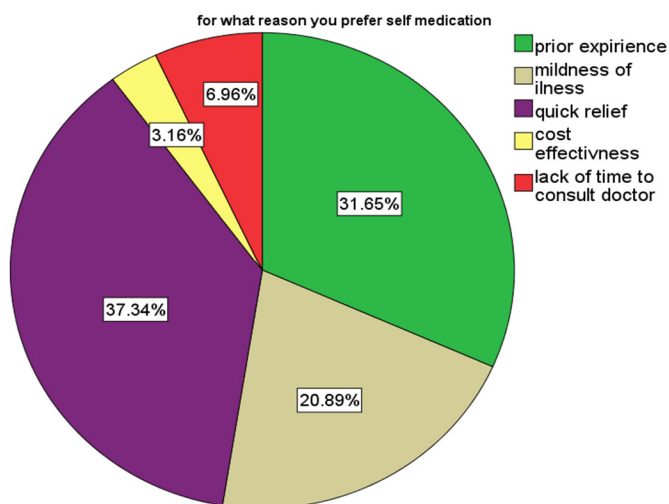


Fig 3: The reasons for self-medication given by undergraduate medical students in SPHMMC from March 30- April 15.

The major sources of the drugs used for self-medication by the respondents were the pharmacies 87 (40%), friends/relatives 55 (20.4 %), leftover drugs from previous prescriptions 14(5.2%) and kiosks 2(07%). I observed that respondents got information about drugs through self-decision 75(27.6%), family and friends 30(11.1%) and treading material 30(11.1%).

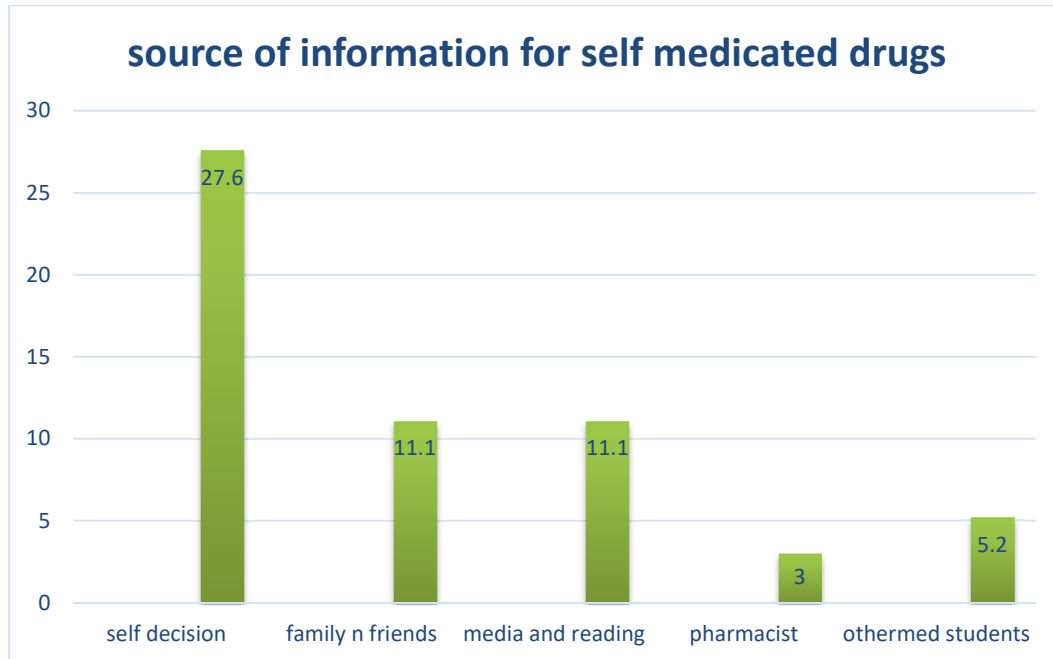


Fig 4 -Frequency of source of information for self-medicated drugs for undergraduate medical students in SPHMMC from March 30- April 15.

Out of the 37.4% who responded that they have not self-medicated the reasons against self-medication was assessed and 31(11.5%) said because or risk of wrong diagnosis,25(9.3%) risk of drug dependence,20(7.4%) risk of adverse reaction and 16(5.9%) risk of missing actual diagnosis.

6. Discussion

The magnitude of self-medication was high in the current study which was conducted among undergraduate medical students of SPHMMC from March 30- April 15. The disease conditions for which undergraduate medical students self-medicated were headache followed by cough and common cold, dyspepsia and dysmenorrhea and the common reasons undergraduate medical students gave for self-medication were quick relief, prior experience and mildness of the illness.

The magnitude of self-medication in this study was found to be 58.5%. This high magnitude is probably because SPHMMC students differ from other medical students in Ethiopia as the school curriculum follows an integrated modular system and the students are subjected to the knowledge about the indications, dosage, contraindications and adverse effects of drugs from their first year of their study which helps them make right selection of their medicines for self-medication and are prone to self-medicate. This result is almost comparable with the study done in Western Nepal among medical students which was 59% [5]. In studies conducted in India amongst university students the prevalence of self-medication was also found to be 57.05% in West Bengal [29]. The other study done in Egypt among medical students also indicated the prevalence of self-medication to have been 55.2% [24] which shows that there is no major difference with the current study. However a lower prevalence was reported in two studies conducted among undergraduate medical students in Gondar and Mekelle which was 38.5% and 42% respectively [28, 15]. This difference may be due to the fact that the current research was carried out solely on medical students whereas the previous two included pharmacy and other health science students. It can also be explained by the relatively long time gap between the previous and latter studies. This time gap can have an effect on the magnitude since widespread internet access and also state of the Art electronic devices have been introduced increasing the availability and easy access of information about the self-medicated drugs and also on how to treat and with what to treat minor ailments without consulting a medical personnel.

The most common ailments that led undergraduate medical students to indulge in self-medication was Headache 52(19.3%) followed by cough and common cold (8.5%), dyspepsia (8.1%), dysmenorrhea (6.3%). Headache and common cold are disease conditions commonly occurring in medical students as well as the general public. The reason dyspepsia is common in medical students can be explained by the relatively stressful condition of medical school and also as a consequence of the cafeteria meal which most students eat. The above result goes in concordance

with the study done in Gondar which reported that headache followed by common cold were the two most common symptoms [28]. The study conducted in Mekelle also indicated that the most common type of ailments for which the respondents reported to have practiced self-medication were headache 33(51.5%), followed by cough/common cold 28(44.8%), dysmenorrhea 13(20.3%) and dyspepsia 11(17.2%) [15].

The reason why dysmenorrhea was more common than dyspepsia can be explained by the relatively larger number of female participants in the latter study. However, fever was the most common indication for self-medication in another study conducted in Ethiopia and Mangalore [27]. Another study conducted on the Palestinian University students also reported similar findings [31]. However, a study conducted in south India indicated that the conditions prompting self-medication were the common cold and fever (37.56%) and pain (22.33%), followed by gastrointestinal ailments [22]. Another study conducted in India also indicated that fever, headache; and cough/common cold were the most frequently reported illnesses for the practice of self-medication [26].

The reasons for SM found in this study were quick relief 59(21.9%) followed by prior experience 51 (18.9%) and mildness of the illness 32 (11.9%).since self-care is a behavioral response to restore and promote health the first response undergraduate medical students would give will be finding a quick relief to the condition causing them distress and if they had experienced a disease condition previously for which they took OTC medication and found relief they are more likely to take it again. Disease conditions perceived to be mild by undergraduate medical students will usually lead to self-medication because they the increased potential to manage certain mild illnesses through self-care .This finding which slightly differs from a study conducted in Mekelle in which prior experience (39.10%) and mildness of the illness (37.50%) were the two major reasons[15]. Similar reasons were also reported in the study conducted in Gondar [28]. Mildness of disease (58.00%) and previous experience (29.00%) were the two major reasons reported in the study conducted in Palestine [31]. Most common reasons for SM reported in a study conducted in India were minor ailments and quick relief [22] and upon asking for the reasons of self-medication in Palestine about 46% said due to economic problems, 73.5% lack of time to visit the physician and these reasons were compared with that of a study by Motassen where the most common

reasons for self-medication were that the ailment was too minor to see a doctor (46.4%), the long waiting time to be seen by doctors (37.7%) and avoiding the cost of doctors[26, 31].

The fact that prior experience and minor ailments were in general the commonest reasons was attributed to the ignorance and lack of knowledge regarding the progression of diseases in previous studies. The finding that those with a mild illness practiced self-medication has got serious implications as many diseases may initially appear to be mild but misdiagnosis and wrong treatment may invite serious health hazards. However ignorance and lack of knowledge regarding the progression of diseases could not be attributed in this study since the higher the educational level students have the knowledge yet they are the ones who were found to self-medicate.

Analgesics (27.8%), antibiotics (11.5%), anta acids (6.7%) and cough syrups (3.7%) were the most commonly self-medicated drug classes in this study. Analgesics were the most commonly used because it is usually used to treat simple common illness like headache which was the found to be the most common reason for self-medication. It is also used to treat dysmenorrhea which was also a common reason for self-medication. Similar findings were reported the studies done in Mekelle, Gondar and Mozambique as well [15, 28, 30]. Other studies reported that analgesics were the most commonly used followed antipyretics. [25].

Common sources of information for self-medication found in this study were self-decision 75(27.6%), family and friends 30(11.1%) and reading material 30(11.1%).self-decision which includes from previous experience, having the information from previous teachings was a principal source. Family and friends who has previously used medications and got relief also suggest the same medications when they encounter similar symptoms. Reading materials are currently widely available from previous times due to the simplicity of carrying around books in portable electronic devices, different applications on mobile phones and tablets about different disease conditions and which drug to use and the dosage, duration, widely available internet. This finding goes in agreement with the study conducted in Mekelle which found the common sources to be self-decision 41(64.00%), family/friends 20(31.25%);and media and reading material 9(14.10%)[15]. other studies also revealed the source of information as self-decision , seniors, family and friends, and previous prescriptions. self-decision (47.00%), and advice from family/friends (41.00%) were also the two most common sources of information to practice self-

medication in study among medical and non-medical students in Palestine . On the contrary most common source of information for SM in India was reported s as reading material followed by previous prescriptions also reading material was the main source of information (30.50%) while advice from herbalist/traditional healers accounted least (3.70%) in another study reported in Gondar University[27, 31]

The undergraduate medical students in this study acquired the drugs from pharmacies 87 (40%), friends/relatives 55 (20.4 %), leftover drugs from previous prescriptions 14(5.2%) and kiosks 2(07%).The finding that the pharmacy is the common source of the drugs can be explained by the close vicinity of the pharmacy which is a 3 min walk from their dormitories .The reason that kiosks account for 7% is because many kiosks in the vicinity do not carry OTC drugs and a pharmacy is available. Similarly the main source of medications for those self-medicated was drug retail outlets, followed by friends/relatives, and open markets in the Mekelle study [15]. Drugs retail outlets (52.40%), open market (19.00%) and drugs left over past prescription (11.00%) were reported in a similar study done in Jimma [27]. In order to decrease unnecessary health risk and bacterial resistance due to improperly obtained and used drugs, it is important to consider the manners of drug availability to consumers.

Limitation of the study

Limitation

The limitations of this study were the relatively small sample size that was used and the resource constraint. This research was also based self-report of self-medication within the past 1 year therefore recall bias cannot be ruled out and Even though filling of questionnaire was individual mutual influence cannot be ruled out.

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7. Conclusion and recommendation

7.1. Conclusion

The results indicate that self-medication is practiced by a majority of undergraduate medical students. Its magnitude is also increasing as seen from previous studies. This is facilitated by the easy availability of drugs and information from the internet, textbook and the media. This findings can help also explain the reason for an increase in emerging anti-microbial resistance since antibiotics are the second commonly self-medicated classes of drugs. Using drugs without prescription inappropriately can cause serious harm, not only to students themselves but also to those whom they suggest medication. Restriction of sale of drugs with potentially harmful effects should be implemented effectively with monitoring systems between the physicians and pharmacist.

7.2. Recommendations

- Increase the awareness of all under graduate medical students by educating them on the disadvantages of irresponsible use of over the counter drugs by reflecting concepts and principles of self-medication in the formal curricula of health care disciplines
- Strict monitoring system between physician and pharmacist.
- Policy makers should strictly implement regulatory control on the sale of prescription and over the counter drugs.
- Further research should be made on the magnitude of self-medication and associated factors in other medical colleges in Ethiopia and the impact of media on self-medication practice.

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