



Knowledge, Attitude, and Practice of Self-Medication among Medical Students at UST, Aden, Yemen

Ayman Abdulwadood Hamood Qahtan¹, Afnan Abdulwadood Hamood Qahtan¹, Al-Hassan Ali Saleh Saeed¹, Arwa Adnan^{1*}, Hudhaifa Mohammed Saeed Mohrez¹, Abdullah Awadh Abdullah Bamakhramah¹, Bashar Fadl Mohammad Muthanna¹, Eshaq Fathi Qassem Abdulrab¹, Sameera Adel Saeed Ali¹, Rayan Yousef Mohammed Afif¹, Hayat Saeed Mohammed salem¹, Sultan Thabit Ahmed Saeed Bin-Hamadh¹, Hassan Ali Saleh Sylan¹, Ezzaldeen Nasser Ali Ahmed¹, Yousef Mohammed Abdullah Tarmoom¹, Hareth Mohammed Ali Abdulwali¹, Khaled Abdulrahman Hussein Qasim¹, Khalid Abdusslamm Ali Saeed¹, Hamza Mohammed Salim AL-marfadi¹

¹ Department of Health Sciences, Faculty of Medicine and Health Sciences, University of Science and Technology, Aden, Yemen.

ABSTRACT

Background: Self-medication is known as using drugs to treat self-diagnosed diseases without consulting a physician. Self-medication is a widespread practice worldwide.

Objective: This study investigates the knowledge, attitudes, and practices related to self-medication among medical students at the University of Science and Technology (UST), Aden, Yemen.

Methods: This study is a descriptive cross-sectional study with a sample of 265 among medical students at UST.

Results: The results revealed that 86.04% of participants practiced self-medication, primarily using analgesics (61.1%), and 85.29% of participants identified self-medication as using medication without a doctor's consultation, 10.56% said it is associated with incorrect dosing or herbal remedies, and 40.0% believed self-medication should be encouraged among medical students.

Conclusion: The findings indicate prevalent misconceptions about the risks associated with self-medication, emphasizing the need for enhanced educational programs to promote responsible healthcare practices.

Keywords: Self-medication, medical students, Aden, KAP, UST.

* Corresponding author address: a.alsakaf@ust.edu



INTRODUCTION

Self-medication is using drugs to treat self-diagnosed ailments without consulting a physician; it is a widespread practice worldwide [1]. Due to their unique position of having some medical knowledge but not yet being qualified physicians, medical students represent a specific population of interest in the study of self-medication [2].

The World Health Organization (WHO) acknowledges the potential benefits of self-medication when practiced appropriately, but it also warns of the severe outcomes of misuses. The patient must receive the medication in the right dosages, for an appropriate length of time, and at the lowest possible cost in order for them to take it as prescribed. The irrational use of drugs causes problems for many populations around the world, which need to be controlled. The World Health Organization (WHO) created guidelines during an international conference in Nairobi, Kenya, in 1985. A group of pharmaceuticals known as essential drugs is used to treat a community's medical needs. They should always be accessible in adequate amounts and in the right dosage forms. This idea was created to enhance public health and optimize the beneficial effects of drugs, especially in underdeveloped nations [3].

The topic of this study is unique and not widespread as research in Yemen; therefore, we see this study as an opportunity in the self-medication field. The study emphasizes the need to understand the factors that affect self-medication practices and ensure individuals have the necessary knowledge to make appropriate health decisions. Factors such as the belief that minor diseases do not require professional care, the desire for rapid symptom relief, and easy access to medications contribute to the high prevalence of self-medication among medical students.

It's highly important to understand the patterns and factors that lead to self-medication among medical students to create effective programs that encourage responsible self-care. Studies in 2023-2024 show a very high prevalence reaching up to 71.0% in Egypt of the practice of self-medication [1]. Analgesics and antibiotics are the most common drugs used, often without understanding the associated risks. Educational initiatives should focus on the proper use of medications, the potential dangers of misuse, and the crucial need to seek professional medical advice. The

current study's aims are to investigate the knowledge, attitudes, and practices related to self-medication among medical students at UST, ultimately informing interventions to enhance health outcomes and promote responsible healthcare practice.

METHODS

Study Design, Area, and Period

The current study was conducted at the University of Science and Technology, Aden, Yemen, in 2025. It targeted medical students from the first to the fourth academic year. The research was a cross-sectional descriptive design and was carried out in February 2025. Data collection was done by a questionnaire.

Study Populations

The total study population consisted of 881 medical students across four academic levels at the University of Science and Technology, Aden. The sample size was determined using Cochran's formula, based on a study population of 881 students across four academic years. With a 95% confidence level and a 5% margin of error, the resulting sample size was 268 students. A representative sample was selected using the stratified random sampling method to ensure balanced representation of males and females from the first to the fourth academic year.

Participation was entirely voluntary. Before collecting any information, participants were informed about the purpose of the study, and verbal consent was obtained from each participant. No personal identifiers were recorded, and all responses were kept strictly confidential. The collected data were used solely for academic and research purposes.

Inclusion and Exclusion Criteria

The study subjects included those who met the eligibility criteria, were willing to participate, and were available during the study period. Inclusion criteria were defined as medical students enrolled from the first to the fourth academic year. Students who refused to participate or were absent during data collection were excluded.



Study Variables

This study investigates the Knowledge, Attitudes, and Practices (KAP) of medical students regarding self-medication through a structured questionnaire. The study variables include demographic factors (age, gender, year of study, residence, family income, and health insurance status), knowledge aspects (definition, risks, safe use, and adequacy of education on self-medication), attitudes (acceptability in different situations, belief in responsible self-medication, support for its encouragement among medical students, and need for stricter regulations), and practices (experience, frequency, reasons for self-medication, types of medications used, sources of acquisition, and perception of medical education's role in understanding self-medication risks). The questionnaire is divided into four sections: demographics, knowledge, attitudes, and practices, allowing for a comprehensive assessment of self-medication behavior among medical students. The study questionnaire was quoted, inspired, and taken generally from literature [4-13].

Data Analysis

The data were coded, cleaned, and analyzed using IBM SPSS (22). Descriptive statistics such as frequencies and percentages were applied to summarize the collected information.

RESULTS

Demographic Data and Self-Medication Prevalence

The demographic data of respondents are presented in Table 1. This study investigated the knowledge of self-medication, as well as the attitude and practice of self-medication among medical students in UST. The findings indicate a high prevalence (86.04%) of self-medication among respondents, where self-medication is often linked to easy access to medications, medical knowledge, and busy schedules [1].

Self-Medication Related To Demographic Factors

The study revealed significant demographic variations in self-medication behavior. Both male and female students engaged in self-medication, although a slightly

higher percentage of females (87.1%) practiced it compared to males (84.9%). Moreover, the prevalence was higher among students above 20 years (89.5%) compared to those ≤ 20 years (82.0%). In addition, we found that fourth-year students had the highest prevalence (89.1%), which may be due to increased exposure to medical knowledge and clinical experience. First-year students had the lowest rate (84.1%). Urban students reported lower self-medication rates (85.7%) than rural students (88.9%). Similarly, those from low-income families (88.9%) were the most frequent self-medication users, while those from high-income families had the lowest prevalence (85.0%). Interestingly, cost-related factors did not seem to be a primary driver for self-medication in this study. Students without health insurance had a higher prevalence of self-medication (87.4%), compared to those with insurance (80.6%). As expected, the students who have not been previously informed had a higher prevalence of self-medication (88.3%) compared to those who have been informed (84.4%) (Table 2).

Table 1: Distribution of respondent's demographic characteristics, (n= 265)

Variable	Frequency	Percentage (%)
Age:		
≤ 20	123	46.4
> 20	142	53.6
Sex:		
Male	139	52.43
Female	126	47.57
Year of study:		
First year	83	31.3
second year	68	25.7
third year	59	22.3
fourth year	55	20.7
Residence:		
urban	238	89.8
rural	27	10.2
Family income:		
Very High	20	7.54
High	71	26.79
Medium	165	62.26
Low	9	3.41
Health insurance:		
Yes	37	13.96
No	205	77.36
I had	23	8.68

SM: Self-medication



Table 2: Distribution of respondent’s demographic characteristics based on the practice of SM, (n= 265).

Variables	Used Self-Medication				
	Yes		No		
	No.	%	No.	%	
Age	≤ 20	100	82.0%	22	18.0%
	> 20	128	89.5%	15	10.5%
Sex	Male	107	84.9%	19	15.1%
	Female	121	87.1%	18	12.9%
Level	first	69	84.1%	13	15.9%
	second	61	88.4%	8	11.6%
	third	49	83.1%	10	16.9%
	fourth	49	89.1%	6	10.9%
Residence	urban	204	85.7%	34	14.3%
	rural	24	88.9%	3	11.1%
Family income	Very High	17	85.0%	3	15.0%
	High	63	87.5%	9	12.5%
	Medium	140	85.4%	24	14.6%
	Low	8	88.9%	1	11.1%
Health insurance	yes	29	80.6%	7	19.4%
	no	180	87.4%	26	12.6%
	I had	19	82.6%	4	17.4%
Previous awareness	yes	130	84.4%	24	15.6%
	no	98	88.3%	13	11.7%

Knowledge of Self-Medication

The study examined participants' knowledge and awareness of self-medication. A majority (85.29%) correctly identified self-medication as using medication without a doctor's consultation. Although some misconceptions remain, a small percentage associated it with incorrect dosing or herbal remedies. Furthermore, respondents identified risks such as wrong dosages (33.3%), drug-drug interactions (33.7%), and antibiotic resistance (22.8%) as primary concerns. Three percent believed that there were no risks associated with self-medication.

Educational influence was apparent. More than half of respondents (55.4%) believed they were well-educated about self-medication during their studies, and (56.2%) agreed that medical education improved their awareness of self-medication risks (Table 3).

Table 3: Distribution of respondent’s knowledge of SM, (n= 265)

Variable	Frequency	Percentage (%)
Self-Medication definition		
using medication without consulting a doctor	226	85.29
using medication with wrong doses	4	1.50
using herbal remedies	24	9.06
I do not know	11	4.15
Self-Medication potential risks		
wrong doses	89	33.3
drug-drug reaction	90	33.7
antibiotic resistance	60	22.8
delay diagnosis	18	6.7
no risks	8	3.0
Medical Education improve Awareness of SM instruction		
yes	150	56.2
no	116	43.4
Well education about SM during study		
yes	148	55.4
no	118	44.2

Attitude of Self-Medication

The study explored attitudes towards self-medication. For instance, most respondents considered self-medication acceptable for common conditions like headaches (82.64%) and colds (78.49%). However, fewer found it acceptable for fever (60.37%) or gastrointestinal diseases (37.35%). However, 40.0% believed self-medication should be encouraged among medical students (Table 4).



Table 4: Distribution of respondent’s attitude, (n=265)

Variable	Frequency	Percentage (%)
Acceptance of SM in headache		
acceptable	219	82.64%
Unacceptable	46	17.36%
Acceptance of SM in cold		
acceptable	208	78.49%
Unacceptable	57	21.51%
Acceptance of SM in fever		
Acceptable	160	60.37%
Unacceptable	105	39.63%
Acceptance of SM in GIT diseases		
Acceptable	99	37.35%
Unacceptable	166	62.65%
SM is responsible practice if done correctly		
strongly agree	37	13.97%
Agree	84	31.70%
Undecided	96	36.22%
Disagree	36	13.59%
strongly disagree	12	4.52%
SM should be encouraged among medical students		
yes	106	40.0%
No	159	60.0%
Strict regulation is needed for SM		
yes	226	85.22%
no	39	14.78%

Practice of self-medication

Finally, the study identified self-medication patterns and reasons. The most common pattern of self-medication was once a month (38.5%), though a minority used it every week (4.5%), which means that the rest of the participants use SM more than once a month. The most cited reasons for self-medication included previous experience (34.7%), treatment of minor ailments (27.2%), and lack of time (17.0%).

Analgesics were the most frequently used drugs (61.1%). On the other hand, antibiotics were used by 10.9%. It is noteworthy to mention that the main source of purchasing medications for self-medication by respondents is pharmacies (66.8%), followed by family and friends (13.6%), and the rate of previous awareness of self-medication among medical students is low, with only 58.1% (Table 5).

Table 5: Distribution of respondent’s practice (n= 265)

Variable	Frequency	Percentage (%)
Used Self-Medication		
yes	228	86.04%
No	37	13.96%
Frequencies of SM		
rarely	73	27.5%
once a month	102	38.5%
a few times in one month	41	15.5%
every week	12	4.5%
Reasons for SM		
previous experience	92	34.7%
lack of time	45	17.0%
expensive cost	11	4.2%
treatment of minor ailment	72	27.2%
no reasons	8	3.0%
Class of medication Self-Medication		
analgesic	162	61.1%
antibiotic	29	10.9%
flu medicine	23	8.7%
GIT medicine	2	0.8%
Vitamins	12	4.5%
Source of medication		
pharmacy	177	66.8%
family / friends	36	13.6%
previous prescriptions	7	2.6%
Other	8	3.0%
Previous awareness		
yes	154	58.1%
No	111	41.9%
Medical education increase knowledge about SM risks		
strongly agree	103	38.9%
agree	112	42.2%
undecided	36	13.6%
disagree	12	4.5%
strongly disagree	2	0.8%
SM should be discouraged among medical students		
yes	177	66.8%
no	88	33.2%

DISCUSSION

The findings indicate a high prevalence (86.04%) of self-medication among medical students at UST, which is notably higher than some previous studies that showed lower prevalence rates, as studies from Saudi Arabia reported that the prevalence of self-medication was 55.9%, Jordan 42.5%, and Bahrain 44.8%, where self-medication is often linked to easy access to medications, medical knowledge, and busy schedules [1]. It seems that the rich countries with respected laws usually have low rates of self-medication, unlike Yemen, which is a poor country with no respected laws. However, this high prevalence aligns with previous research on university



students and healthcare professionals, as in Palestine (98%), the rate was very high, and this may be due to the siege and shortage of health services [1], and this is a common factor that led to a shortage of health care services.

Notably, both male and female students engaged in self-medication, although a slightly higher percentage among females (87.1%) practiced it compared to the percentage among males (84.9%). This finding supports previous studies in Nigeria where (58.4%) of females practiced self-medication and (50.5%) of males, which suggests women are more likely to use analgesics for menstrual pain and other minor ailments [15], but in Egypt, (68.9%) of females practiced self-medication and (74.3%) of males, which may be due to the small sample size [1].

Furthermore, urban students reported lower self-medication rates (85.7%) than rural students (88.9%). Numerous reasons related to the social, economic, and cultural perception towards diseases and their perceived responses to indigenous medications around where they live can affect SM patterns of the rural society, as in the Ethiopian study [14]. In contrast, in the Egyptian study, urban-living students are more self-medicated (77.0%), and rural-living students are less self-medicated (67.1%), which may be due to the small size of their sample [1].

Additionally, students without health insurance had a higher prevalence of self-medication (87.4%) compared to those with insurance (80.6%), suggesting that lack of formal healthcare access might encourage reliance on self-prescribed treatments, and there was no available study to compare with, so this factor needs more studies.

Regarding participants' knowledge and awareness of self-medication, a majority (85.29%) correctly identified self-medication as using medications without a doctor's consultation. However, some misconceptions remain, as a small percentage associated it with incorrect dosing or herbal remedies, while a study in Uganda (95%) correctly identified self-medication [15], which may be due to the absolute absence of education about SM.

Besides, respondents identified risks such as wrong dosages (33.3%), matching with an Indian study with (33.7%) [16]. drug-drug interactions (33.7%) and antibiotic resistance (22.8%) as primary concerns. In addition, 3.0% believed there were no risks associated

with self-medication, emphasizing the need for more education about potential dangers.

Furthermore, the study explored attitudes towards self-medication. For instance, most respondents considered self-medication acceptable for common conditions like headaches (82.64%), while in India, most respondents considered self-medication acceptable for headaches (75.4%) [17]. However, 40.0% believed self-medication should be encouraged among medical students, in contrast with 68.4% of a study in Nepal [18]. Interestingly, a strong majority (85.22%) agreed that self-medication requires stricter regulation, while only 10.5% agreed about stricter regulation in Nepal [18].

In addition, the most cited reason for self-medication was previous experience (34.7%). Interestingly, previous experience was also the most common reason in Saudi Arabia (50%) [19], similar to the Egyptian study in which the most cited reason for self-medication was medical knowledge (55.9%) [1]. This indicates that a person's previous experience using the treatment without adverse effects encourages them to repeat the experience. This is where health education plays a crucial role, explaining that complications arising from the use of over-the-counter medications can stem from multiple uses.

Additionally, analgesics were the most frequently used drugs (61.1%), and Egypt was similar (92.4%) [1], because pharmacists do not think about how important a prescription is to release these drugs. On the other hand, antibiotics were used by 10.9%, raising concerns about antibiotic resistance.

It is noteworthy to mention that the main source of purchasing medications for self-medication by respondents is pharmacies (66.8%), followed by family and friends (13.6%), similar to the Nigerian study, which indicates pharmacies (59.4%) and family and friends (10.2%) [15], because it is well known that pharmacies are less regulated than hospitals, and in some places, especially in villages and small towns, the person working in the pharmacy may not be qualified or hold a pharmacy degree.

Although respondents demonstrated good awareness, the findings indicate a high prevalence (86.04%) of self-medication among them. This may be attributed to their prior knowledge and experience from medical educational courses, ability to read research papers and



books about various medications, and understanding of the labels of the consumed medicine [1].

CONCLUSION

This study assessed the knowledge, attitudes, and practices related to self-medication among medical students at UST in Aden and revealed a high prevalence of this behavior within the study population. The findings indicate that self-medication is common and represents a potentially concerning pattern among future healthcare professionals. Several demographic factors—including gender, age, academic year, place of residence, family income, and health insurance status—were significantly associated with variations in self-medication practices.

Although participants demonstrated a general awareness of the concept of self-medication, important gaps in knowledge persist. Misconceptions regarding the safety of certain medications and insufficient recognition of potential risks highlight the need for targeted educational interventions. Of particular concern is the frequent use of analgesics and the unsupervised consumption of antibiotics, a trend consistent with reports from similar student populations in other settings. These findings underscore the urgent need for structured awareness programs, strengthened pharmacological education, and institutional policies aimed at promoting responsible medication practices among medical students.

Limitations

Recall bias, potential peer influence during survey completion, and the restriction to only four academic levels at UST mean our findings should be interpreted with some caution. These limitations also provide opportunities for more comprehensive research in the future.

Recommendations

This study recommends reducing the risks of inappropriate self-medication, targeted interventions, better awareness campaigns, and structured educational strategies as essential for promoting safer self-care practices among medical students.

Author's Contributions

Arwa Adnan contributed to the conceptualization and overall study design. The remaining authors contributed collectively to the development of the study objectives and the design of the questionnaire. They were involved in multiple stages of the research process, including methodology development, data analysis, interpretation of findings, and manuscript preparation. All authors participated in drafting and critically revising the manuscript for important intellectual content and approved the final version for submission.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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