
Exploring self-medication behaviors among pharmacy and medical students: a regional cross-sectional survey

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ABSTRACT

Background and objective: Self-medication (SM) is an increasing global concern, particularly among pharmacy and medical students. This group often has early access to medical knowledge and prescription drugs, which may lead to inappropriate medication practices. Understanding their behavior is crucial to addressing potential risks associated with SM. The purpose of this study was to evaluate the prevalence, causes, and patterns of self-medication among pharmacy and medical students in the Kurdistan Region of Iraq.

Methods: A total of 106 pharmacy and medical students from different medical schools in the Kurdistan Region of Iraq participated in a cross-sectional survey. Data on demographics, self-medication habits, reasons for use, symptoms treated, and medication types were gathered using a structured questionnaire.

Results: Of the 106 participants, 68 (64.2%) were female and 90 (84.9%) were undergraduate students. Most students fell within the 18–27 age range. A total of 85 students (80.5%) reported using self-medication for acute pain, while only 21 (19.5%) used it for chronic conditions. The most common symptoms treated were headache, runny nose, and cough (38.7%). Menstrual issues were also frequently reported among female students (16%).

Conclusion: Kurdistan's medical students frequently use SM, mostly for minor acute ailments. Even though this practice is not as dangerous as when seen among licensed physicians, it nevertheless raises health concerns. Educational activities are required to encourage appropriate SM and increase awareness of its possible hazards.

Keywords: Medical students, Pharmacy students, Self-care, Self-medication

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INTRODUCTION

The World Health Organization describes self-medication (SM) as the practice of people using medications or pharmaceutical products independently to treat ailments they are aware of. This may involve obtaining information from non-professional sources, acting on recommendations from people not authorized to administer drugs, or using drugs previously prescribed by a doctor for a chronic or recurrent problem. These pharmaceuticals, also referred to as non-prescription or OTC drugs, are usually available from pharmacies without a doctor's prescription (1, 2).

The growing prevalence of SM worldwide raises significant public health concerns, including incorrect self-diagnosis, insufficient treatment, and heightened antibiotic resistance. Research shows that SM practices vary significantly among cultures and geographical areas, depending on factors such as cultural attitudes toward health, educational attainment, and healthcare accessibility. According to a systematic review, the prevalence of SM ranges from 0.1% to 100% worldwide (3). In a community study in Central India, 60% of participants reported SM, primarily using analgesics and antipyretics (4, 5), a pattern echoed regionally, where nearly half of a sampled population of pregnant women in Duhok reported using over-the-counter medication despite most considering it unsafe (5). A meta-analysis indicated that 67% of individuals in selected studies had experienced SM, with Eastern Europe showing the highest rates (6). Common reasons for SM include the desire for self-care, time constraints, and the belief that conditions are not serious enough to warrant professional consultation (4, 6). Analgesics, antipyretics, and antibiotics are frequently self-medicated, with antibiotics a major concern due to their role in fostering

resistance (3, 7). Misuse of SM can lead to adverse drug reactions, disease masking, and increased morbidity, straining healthcare resources (3, 8). Public health initiatives are urgently needed to promote appropriate behavior and increase awareness of the dangers of SM (6, 7).

While SM can offer immediate relief and convenience, it also carries significant risks that can undermine public health efforts. Addressing these challenges requires a multifaceted approach, including education, regulation, and improved access to healthcare services. This study was carried out to determine the prevalence of SM practices among medical students in the Kurdistan Region in light of these concerns. It also sought to investigate the underlying causes of this behavior, identify related adverse effects, and assess measurable outcomes. In contrast to earlier research, this study focuses on pharmacy and medical students in the Kurdistan Region, a population with early medical exposure for which there is a scarcity of regional data. The findings are intended to inform future awareness efforts and preventative measures that encourage the safe and secure use of pharmaceuticals.

METHODS

Study Design and Setting

This study was designed as a cross-sectional survey to assess SM practices among pharmacy and medical students in the Kurdistan Region of Iraq. It was conducted between March and April 2025, targeting both undergraduate and postgraduate students from various medical colleges across the region.

Study Population and Sampling

A total of 106 pharmacy and medical students participated in the study. Participants were recruited from different medical colleges in the

Kurdistan Region using a convenience sampling method. Eligible participants included both undergraduate and postgraduate students who reported using prescription or non-prescription medications without a medical diagnosis.

Data Collection Tool

A structured and validated questionnaire, distributed as a Google Form, was developed by the research team for data collection. The questionnaire was designed to obtain the following information: (1) demographic characteristics, including age, gender, marital status, and level of study; and (2) SM practices, such as awareness of SM, types of drugs used, sources of information, history of illness within the past six months, types of pain experienced, adherence to reading medication information prior to use, and the occurrence of adverse effects related to SM.

Data Analysis

Descriptive statistics were run using the Statistical Package for Social Sciences (SPSS) version 30 to compile SM habits and demographic characteristics. Frequency and percentage representations were

used for categorical variables. A bar chart illustrating comparative distributions across categories was used for data visualization. Due to the descriptive nature of the analysis, no inferential statistical tests were used.

Ethical Considerations

Participation in the study was voluntary. All participants were informed about the purpose of the study, and informed consent was obtained before completing the questionnaire. The anonymity and confidentiality of participants were strictly maintained.

RESULTS

A total of 106 pharmacy and medical students from various medical colleges across the Kurdistan Region of Iraq participated in the survey. Among them, 38 (35.8%) were male and 68 (64.2%) were female, all of whom reported using SM for a range of symptoms and conditions. The majority of respondents were undergraduate students (90; 84.9%) and belonged primarily to the 18–22 and 23–27 age groups (Table 1).

Table 1. Demographic characteristics of the participating medical students (n=106)

Variable	Category	n	%
Student stage	Undergraduate	90	84.9
	Master's students	14	13.2
	PhD students	2	1.9
Age group	18-22	55	51.9
	23-27	44	41.5
	28-32	4	3.7
	33-37	3	2.8
Gender	Male	38	35.8
	Female	68	64.2
Marital status	Single	96	90.6
	Married	10	9.4

Table 2 presents a comprehensive overview of students' SM behaviors and practices. Most students (79.2%) reported using SM, primarily for acute pain (80.5%). While over half (52.4%) always checked drug information, 14.2% experienced

adverse effects. The various reasons behind students' decisions to use SM are illustrated in Figure 1, highlighting the common motivations and circumstances that led them to this practice.

Table 2. Information on self-medication among medical students (n=106)

Variable	Category	n	%
Using self-medication	Yes	84	79.2
	No	22	20.8
Had a disease (past 6 mo)	Yes	64	60.4
	No	42	39.6
Pain type	Acute	85	80.5
	Chronic	21	19.5
Checks info before use	Always	55	52.4
	Sometimes	41	39.0
	Never	10	8.6
Had adverse effects	Yes	15	14.2
	No	91	85.8

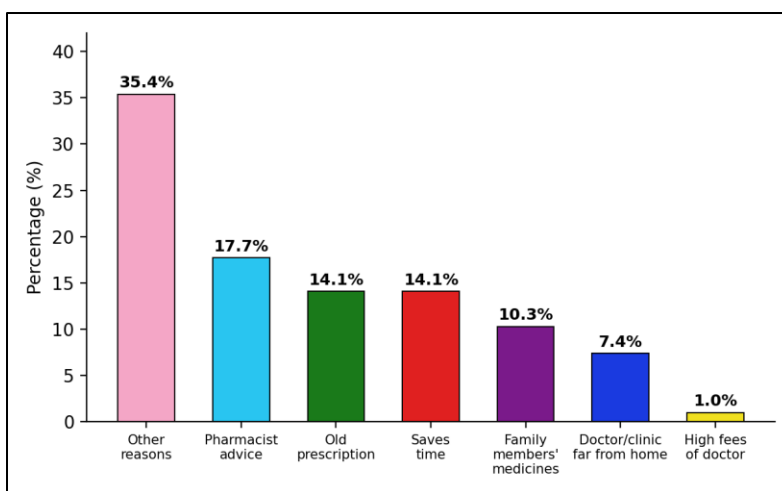


Figure 1. Frequency of reasons for using self-medication

Note: the corresponding chart in the original manuscript had unlabeled category axes (each bar was labeled only with its own percentage). Category labels here have been reconstructed from the figure's original color-coded legend text and are reproduced as a standard bar chart rather than the original's "bar chart representation of pie chart data."

The most reported symptoms prompting the use of SM were headache, runny nose, and cough, cited by 41 students (38.7%). Menstrual-related issues were reported by 17 female participants (16%) as

a reason for SM use. The least reported condition was urinary problems, mentioned by only 2 participants (1.9%), as shown in Table 3.

Table 3. Diseases/symptoms for which students used SM in the past 6 months

Disease/Symptom	n	%
Headache/runny nose/cough	41	38.7
Menstrual problems	17	16.0
Nausea/vomiting/diarrhea	10	9.4
Hair fall	9	8.5
Dental pain	7	6.6
Dandruff	5	4.7
Eye/ear infection	3	2.8
Mouth ulcers	3	2.8
Urination problems	2	1.9
Other problems	9	8.5

DISCUSSION

SM is increasingly viewed as a valid element of contemporary healthcare frameworks, reflecting a broader acceptance of individual autonomy in managing minor health concerns without always requiring professional intervention⁹. However, medical students are particularly susceptible to adopting self-diagnosis and self-treatment practices, which may compromise their clinical objectivity and adversely influence future patient care standards. The practice of SM carries notable risks, including inappropriate drug use, harmful drug interactions, and the growing threat of antimicrobial resistance due to unsupervised antibiotic use. Given their role as future healthcare

providers, the SM habits of medical students have implications not only for their own well-being but also for the development of responsible prescribing attitudes and behaviors in clinical practice.

This concern is underscored by the findings of the current study, in which 79.2% of participants reported practicing SM — 84 of 106 medical students admitted to using medications without professional guidance. This prevalence closely aligns with international studies, demonstrating the widespread nature of SM among university students. For instance, Gras et al. (2020) reported a rate of 86.5% among French students (10), Mukadam et al. found 75.5% among Indian medical

students (11), and Kahnamouei-Aghdam et al. (2017) documented 65% in Iranian universities (12).

The findings of the present study reveal a multifaceted rationale behind SM practices among medical university students. Participants cited several reasons for engaging in SM, including limited access to healthcare services due to geographic distance, the desire to save time by avoiding clinical consultations, reliance on old prescriptions, and the accessibility of medications previously prescribed to family members. Advice from pharmacists also played a notable role in influencing SM behavior. Additionally, concerns about the cost of medical consultations and various other personal or situational factors were mentioned. These findings are consistent with previous studies highlighting similar motivations. For example, Marouf et al. (2023) reported that medical students in the Kurdistan Region self-medicated not only for symptom management but also for general health enhancement (26.3%) and stress relief (21.5%), indicating that wellness and cosmetic goals may also drive this behavior (13). Likewise, Shafie et al. identified common triggers such as perceived mildness of illness, prior knowledge of medications, and urgency in accessing treatment (14). Sridhar et al. emphasized the role of treatment familiarity (15), while Rathod et al. found that time-saving was the principal motivation (4).

In the present study, the most frequently reported symptoms leading to SM were headache, cough, and menstrual problems. This finding aligns with previous research among medical students, where similar acute conditions were common drivers of self-directed treatment. Singh and Kohli similarly observed that students often self-medicated for headache, sore throat, and fever, indicating a shared behavioral trend across comparable academic populations (16). Headache remains one

of the most commonly cited reasons for SM, as reported by Sajjad et al. (2023) (17). Similarly, menstrual discomfort has been identified as a significant factor influencing SM practices among female students, as also emphasized by Singh and Kohli (16).

However, SM is not confined to managing acute ailments; it is also frequently used for recurring symptoms associated with chronic conditions (18, 19). People may feel sufficiently informed about their condition in such situations, particularly those with persistent health issues, and may forgo professional reassessment in favor of their own judgement or previously prescribed treatments. Additionally, chronic disease sufferers or their caregivers may develop a perceived sense of expertise, which can lead to advising others on medication use without medical supervision. This behavior underscores a significant area of concern, as it may contribute to inappropriate drug use, delayed clinical intervention, and increased health risks, necessitating targeted public health education and regulatory oversight (8).

The risks associated with SM are further amplified in these contexts. Adverse drug reactions, increased morbidity, and the potential for drug dependence have all been documented as consequences of unsupervised medication use (20, 21). In the present study, 14.2% of participants reported experiencing negative effects from SM, highlighting the real-world implications of this practice. Medical students' patterns of SM may shape their future prescribing habits, potentially fostering careless or inappropriate clinical practices (22). Although many students recognize the associated risks, they often continue to engage in SM, underscoring the need for targeted educational interventions that emphasize its potential dangers and long-term consequences (23). These insights highlight the

importance of promoting responsible medication practices and raising awareness about the risks of self-treatment, particularly in managing chronic or recurrent conditions. Addressing SM should therefore be viewed not only as a matter of personal health but also as a critical aspect of professional development. By instilling a strong foundation in rational drug use during medical training, future healthcare providers may adopt safer prescribing behaviors and help prevent the normalization of unsupervised medication use within the medical community.

CONCLUSION

The prevalence of SM is concerning, especially given how common it has become among pharmacy and medical students. There are a number of reasons for this, including the strain and stress of medical school, the accessibility of pharmacological information, the availability of prescriptions, and their belief that they know enough to self-diagnose and treat minor health conditions. This study highlights that SM is a common practice among medical students in the Kurdistan Region of Iraq, particularly for managing acute conditions such as headaches, coughs, and menstrual discomfort. The majority of participants were female and undergraduate students, with a notable 80.5% reporting self-medication for acute pain. While SM use for minor ailments may reflect confidence in medical knowledge and easy access to medications, it also raises concerns about potential risks such as misdiagnosis, inappropriate drug use, and the development of resistance, especially in the absence of professional guidance. The role of pharmacists is important here: they must advise customers to see a physician before taking any medications on their own, and patients should receive appropriate health education. Consistently promoting education can influence significant

portions of the population, as these individuals may in turn directly influence their friends and relatives.

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COMPETING INTEREST

The authors declare that they have no competing interests.

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