

Prevalence of Self-Medication Among Medical Students at Taif University.

Abstract

Background: Self-medication is a common practice, particularly in developing countries. It involves the use of over-the-counter medications and herbal medicines, and while it has advantages, it also has negative consequences.

Objectives: This study examines the prevalence of and factors influencing self-medication use among medical students at Taif University.

Methods: A cross-sectional study was conducted using a pre-tested and validated online questionnaire distributed to medical students at Taif University between March and September 2025. The study included all enrolled students in the College of Medicine who were present and consented to participate. Data were analyzed using SPSS version 25 to examine associations between self-medication behavior and independent variables, with $p < 0.05$ set as the criterion for statistical significance.

Results: Out of 131 participants, 84.7% reported having engaged in self-medication. The most commonly used substances were herbal remedies (37.4%) and home remedies (34.4%). Key reasons cited included accessibility (48.1%) and cost-effectiveness (44.3%). A significant majority (69.5%) considered the practice unsafe, yet the relationship between perceived safety and having ever self-medicated was statistically significant ($p=0.007$).

Conclusion: The prevalence of self-medication among medical students at Taif University is high (84.7%). Despite most students perceiving it as unsafe, this belief was significantly associated with whether they engaged in the practice and its frequency. The majority of respondents (87.0%) advocated for more regulations and

guidelines, suggesting a need for educational interventions and clear rules to address this practice.

Keywords: Self-Medication, Medical Students, Taif University

Introduction

Self-medication is common in developing countries; using over-the-counter medications and herbal medicines and using self-medication has advantages and disadvantages.⁽¹⁾ The World Health Organization (1998) defines self-medication as "the selection and use of non-prescription drugs without supervision from a physician or dentist".⁽²⁾

Several important factors, including personal and organizational factors, influence self-medication. Media, the Internet, and advertisements also play an essential role in self-medication.⁽³⁾ The negative consequences of self-medication should always be highlighted to the community, and steps should be taken to reduce them. Excessive and irrational use of antibiotics without medical guidance may lead to pathogen resistance and increased rates of disease.⁽⁴⁾

Studies indicate that in the United States, about 40% of people self-medicate without consulting a doctor.⁽⁵⁾ The study examined the prevalence of self-medication in Saudi Arabia (2023) and showed that 75.5% of participants practiced self-medication, 59.8% considered self-medication safe, and 17.5% reported side effects.⁽⁶⁾ Another study was conducted on patients attending primary health care centers in Riyadh, Saudi Arabia (2021), to study the prevalence and factors related to self-medication practice. It

showed that 35.4% of the participants had practiced self-medication in the past two weeks. Younger people, males, those in poor health, those who had difficulty accessing health care, or those who were dissatisfied with health care were more likely to self-medicate.⁽⁷⁾

The study was conducted in Jordan (2008) to investigate the Jordanian population's use of and perceptions toward over-the-counter medicines. It showed that over 60% of participants bought antibiotics from pharmacies without prescriptions. Most participants (62.7%) reported that they usually ask the pharmacist when the complaint is simple and does not require a visit to the doctor.⁽⁸⁾ Another study was conducted on a Spanish population (2021). It showed that 78.9% of participants had taken over-the-counter medicines, and consumption decreased with age.⁽⁹⁾

A study examined the frequency of continuous use of over-the-counter medicines among the adult Finnish population in 1995–1996. The results showed that 17% of the population had used over-the-counter drugs, and 15% had used over-the-counter vitamins in the two days preceding the interview. Daily use of over-the-counter medicines and vitamins was reported by 7% and 9%, respectively.⁽¹⁰⁾

Self-medication is a global problem that is more frequent among university students, especially medical students. The study was conducted at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) Jeddah campus in Saudi Arabia (2021) to evaluate the prevalence and knowledge of medical and non-medical students' self-medication. It showed that 55.9% of Health professional students self-medicated, and female

students were more likely than boys to self-medicate.⁽¹¹⁾

A systematic review and meta-analysis of the prevalence of self-medication among students worldwide (2020) found that university students had a prevalence of 70.1%. Female students were more self-medicated than male students, and medical students (97.2%) were more self-medicated than non-medical students (44.7%).⁽¹²⁾

The study was conducted on university students of Hail University, Saudi Arabia (2020), to assess the prevalence of self-medication and its reasons.

It showed that the prevalence of self-medication among university students was 98.2%, with 20.9% of them from the health sciences.⁽¹³⁾

Another study explored the prevalence of self-medication practices among students at Mansoura University, Egypt, and showed that the prevalence of self-medication was 62.9%. Younger females, medical and married students, were more likely to self-medicate than their peers.⁽¹⁴⁾

The study was conducted at Princess Nourahbint Abdul Rahman University (PNU), Riyadh, Saudi Arabia (2023), to examine the use of over-the-counter medications during exam time. It showed that over 50% of students used over-the-counter medications during exam time. 67.6% of students reported using over-the-counter medications during exam time to relieve headaches, and 72.8% indicated that these medications are readily available and believe they are safe.⁽¹⁵⁾

A cross-sectional study conducted among students at Imam Abdulrahman Bin Faisal University in Dammam, Saudi Arabia (2017) found that the prevalence of self-medication in the pharmacy and medical colleges was

19.61% and 49.3%, respectively.⁽¹⁶⁾

This study examines the prevalence of self-medication and the factors influencing its use among medical students at Taif University.

Methods

Study design

This study used a cross-sectional design to examine the prevalence of self-medication and the factors influencing its use among medical students at Taif University.

Study and sample

This study's dependent variable was self-medication use, and its factors influencing use among medical students. The independent variables were age, gender, grade, and marital status.

Students who met the following criteria were included in this study: all students enrolled in the College of Medicine at Taif University, Saudi Arabia, for the 2024-2025 academic year, who were present at the time of the research and willing to participate. Moreover, any students from other colleges at Taif University or who missed the participation were excluded.

Data Collection

A pre-tested and validated questionnaire⁽⁶⁾ was used among medical students at Taif University. A questionnaire was distributed online from March to September 2025. The questionnaire consists of five sections: Section 1: Demographic Information; Section 2: An Overview of Self-Medication Practices; Section 3: Factors Influencing Self-Medication; Section 4: Sources of Information; and Section 5: Awareness and Education.

Questionnaire

Section 1: Demographic Information:

1-Age

2- Gender:(Male-Female)

3-Grade: (1,2,3,4,5,6)

3-Married:(Yes-No)

Section 2: An Overview of Self-Medication Practices:

1- Have you ever self-medicated? (Yes-No)

2- If yes, how often do you engage in self-medication? (Rarely-Occasionally-Frequently-never)

3- What type of substances do you use for self-medication? (Select all that apply)

(Over-the-counter drugs, prescription drugs, herbal remedies, home remedies, Other)

Section 3: Factors Influencing Self-Medication:

1- What are your main reasons for Self-Medication? (Select all that apply)

(Accessibility-Cost-Effectiveness-Convenience- Lack of trust in healthcare Professionals-Other)

2- Do you believe self-medication is a safe practice? (Yes-No)

3- Have you ever experienced any adverse effects from self-medication? (yes-no).

If yes, please specify:

4- Do you think there should be more regulations and guidelines for self-medication? (yes-no)

Section 4: Sources of Information:

1-Where do you usually get information for self-medication?(Select all that apply)

(Internet-Friends and Family-Non-professional advice (e.g., community members)-previous Prescriptions-Other)

Section 5: Awareness and Education:

1- Are you aware of the potential risks and dangers of self-medication? (yes-no)

2- Have you ever sought professional advice after self-medication? (yes-no)

3- Do you think there should be more public education on the risks and proper practices of self-medication? (yes-no)

Statistical analysis

Data entry and Statistical analysis will be performed using the Statistical Package for the Social Sciences (SPSS) program for Windows version 25. After data entry is complete, the data will be analyzed using the X² (Chi-square) test for non-continuous variables and a t-test for continuous variables. Differences are considered statistically significant when the p-value is less than 0.05; a 95% confidence interval (CI) is appropriate.

Ethical Consideration

Ethical considerations were taken from the Research Ethics Committee of Taif University. During the research, each subject was informed of the study objectives, and the confidentiality of the collected data was ensured. Verbal consent from the study subject was obtained.

Results

Table 1, Demographic Characteristics and Prevalence of Self-Medication Among Medical Students, showed that we had a total of 131 participants with

a mean age of 22.3 ± 1.7 years. The distribution across years in medical college was 9 (6.9%) in the first year, 12 (9.2%) in the second year, 22 (16.8%) in the third year, 15 (11.5%) in the fourth year, 28 (21.4%) in the fifth year, and 45 (34.4%) in the sixth year. Almost all participants were single (130, 99.2%), with only one married participant (0.8%). Regarding self-medication, a significant proportion of the participants (111, 84.7%) reported having done it, while 20 (15.3%) had not. Among those who self-medicated, 32 (24.4%) did so rarely, 44 (33.6%) occasionally, and 35 (26.7%) frequently.

Table 2, Characteristics, Attitudes, and Consequences of Self-Medication Among Medical Students, showed that, regarding the types of substances used for self-medication, the most reported were herbal remedies (37.4%), home remedies (34.4%), prescription drugs (32.1%), and over-the-counter drugs (31.3%), with others specified by 14.5%. The primary reasons for self-medication included accessibility (48.1%), cost-effectiveness (44.3%), convenience (27.5%), and a lack of trust in healthcare professionals (12.2%). Despite its prevalence, a majority of participants (69.5%) considered self-medication unsafe, and 87.8% reported never experiencing adverse effects. Among those who did experience adverse effects (12.2%), the most commonly reported were abdominal pain, headache, fever, and nausea, with single cases of more severe outcomes such as dizziness, fatigue, and vomiting. The majority of respondents (87.0%) advocated for more regulations and guidelines on self-medication. The most common sources of information for self-medication were the internet (48.1%), friends and family (41.2%), previous prescriptions (33.6%), non-professional community advice (21.4%), and other sources (25.2%).

Table 3, Association Between Self-Medication Behavior and Belief in Its Safety, showed that a chi-square test of independence was conducted to examine whether perceptions of self-medication safety were associated with both engaging in the practice and its frequency. The relationship between perceived safety and having ever self-medicated was statistically significant, $\chi^2(1, N=131)=7.3, p=0.007$. Participants who believed self-medication was unsafe ($n=91$) had still largely engaged in it, with 79.1% reporting a history of self-medication, compared to 97.5% among those who believed it was safe ($n=40$). A second chi-square test examining the association between perceived safety and frequency of self-medication also showed a significant relationship, $\chi^2(3, N=131)=10.9, p=0.012$. Among individuals who viewed self-medication as unsafe, responses were more evenly distributed across frequency categories, with the highest proportions reporting frequent ($n=25$) or rare ($n=23$) use. Conversely, participants who believed self-medication was safe were far less likely to report never using it ($n=1$) and were more inclined to report occasional use ($n=20$), highlighting a clear pattern in which perceptions of safety correspond with greater engagement in self-medication and higher reported frequency.

Table 1 : Demographic Characteristics and Prevalence of Self-Medication Among Medical Students

Age n($\pm$ SD)	22.3 $\pm$ 1.7 years	
Year in medical college n(%)	First year	9(6.9%)
	Second year	12(9.2%)
	Third year	22(16.8%)

	Fourth year	15(11.5%)
	Fifth year	28(21.4%)
	Sixth year	45(34.4%)
Marital status n(%)	Single 130(99.2%) vs Married 1(0.8%)	
Have you ever self-medicated?	Yes 111(84.7%) vs No 20(15.3%)	
	Rarely	32(24.4%)
If yes, How often do you engage in self-medication?	Occasionally	44(33.6%)
	Frequently	35(26.7%)

Table 2 : Characteristics, Attitudes, and Consequences of Self-Medication Among Medical Students

	Over-the-counter drugs	41(31.3%)
	Herbal remedies	49(37.4%)
What type of substances do you use for self-medication?	Home remedies	45(34.4%)
	Prescription drugs	42(32.1%)
	Others	19(14.5%)
	Accessibility	63(48.1%)
	Convenience	36(27.5%)
What are your main reasons for Self-Medication?	Cost-Effectiveness	58(44.3%)
	Lack of trust in healthcare professionals	16(12.2%)
	Others	23(17.6%)

Do you believe self-medication is a safe practice?	Yes 40(30.5%) vs No 91(69.5%)	
	Yes 16(12.2%) vs No 115(87.8%)	
	Abdominal pain	4(3.0%)
Have you ever experienced any adverse effects from self-medication?	Coma	1(0.7%)
	Dizziness	1(0.7%)
If yes, please specify:	Fatigue	1(0.7%)
	Fever	2(1.4%)
	Headache	3(2.2%)
	Mouth & nasal dryness	1(0.7%)
	Nausea	2(1.4%)
	Vomiting	1(0.7%)
Do you think there should be more regulations and guidelines for self-medication?	Yes 114(87.0%) vs No 17(13.0%)	
	Non-professional advice (e.g., community members)	28(21.4%)
	Internet	63(48.1%)
Where do you usually get information for self-medication?	Previous prescriptions	44(33.6%)
	Friends and family	54(41.2%)
	Other	33(25.2%)

Table 3 : Association Between Self-Medication Behavior and Belief in Its Safety

	Do you believe self-medication is a safe practice?		P-value
Have you ever self-medicated?	No	Yes	
No	19	1	0.007
Yes	72	39	
How often do you engage in self-medication?	No	Yes	
Frequently	25	10	0.012
Never	19	1	
Occasionally	24	20	
Rarely	23	9	
Total	91	40	

Discussion

This study assessed the prevalence, patterns, and determinants of self-medication among medical students at Taif University during the 2024–2025 academic year.

The overall prevalence of self-medication was 84.7% among medical students at Taif University, consistent with meta-analyses reporting higher rates among medical students (up to 97.2%) than in the general university population. ⁽¹²⁾It

is also consistent with studies from Saudi Arabia and Egypt, where the prevalence ranged from around 50-63%.^(11, 14, 16) This high prevalence of self-medication among medical students suggested that factors related to high stress, exposure to medical culture, easier access to drug information, and often feeling more confident in managing minor illnesses independently.

The most commonly used substances in this study were herbal remedies (37.4%), home remedies (34.4%), and prescription medications (32.1%), Over-the-counter drugs (31.3%), which aligns with a systematic review reporting increasing dependence on herbal medicine among young adults where the prevalence of herbal medicine use ranged from (10.3% - 75.0%).⁽¹⁷⁾ Moreover, the use of prescription medications without medical supervision contributes to antimicrobial resistance, wrong dosing, and delayed medical care.⁽¹⁸⁾

The top reasons for self-medication were accessibility (48.1%), cost-effectiveness (44.3%), and convenience (27.5%), consistent with a previous study⁽¹⁹⁾ that identified time constraints, heavy academic workload, confidence in self-diagnosis, and cost as the leading reasons. This reflects the heavy academic burden of medical students and perceptions of delays or inconvenience in the healthcare system.

The most frequently used sources of information were the Internet (48.1%), friends and family (41.2%), and previous prescriptions (33.6%), as noted in an earlier study⁽²⁰⁾, in which media and advertisements play an essential role in influencing this behavior. This dependence on unreliable sources, despite students' medical backgrounds, highlights a deficiency in professional self-care ethics and possibly insufficient risk-assessment skills.

Most participants (87.0%) advocated implementing more stringent rules and guidelines. This demonstrates that students recognize the systemic need for change, even though they engaged in this practice, and that they promote safer practices and restrictions on over-the-counter antibiotic sales. This is consistent with other studies, which found that a majority (over 70%) of students expressed substantial interest in incorporating educational modules about this issue into the curriculum.⁽²¹⁾

A substantial finding in this study is the knowledge-behavior gap; (69.5%) of students believed self-medication is unsafe, while a majority (79.1%) still practiced it; this association was statistically significant ($p=0.007$). Moreover, this study highlights a clear pattern in which perceptions of safety correspond with a higher reported frequency ($p=0.012$). This contradiction reflects the well-documented gap between knowledge and behavior among medical students. This finding is consistent with studies from China⁽²²⁾, Uganda⁽¹³⁾, and Egypt⁽²⁴⁾, which showed that the knowledge level did not significantly predict exact medication practices.

Limitations

The study's cross-sectional design, which collects data at a single point in time, limits the ability to infer causality. Furthermore, the study included only students enrolled in the College of Medicine, thereby restricting the generalizability of the results to the broader university population. The sample was almost single (99.2%) and excluded females, potentially limiting generalizability to married or female medical students.

Conclusions

The prevalence of self-medication among medical students at Taif University is remarkably high (**84.7%**). This practice is strongly influenced by accessibility, cost-effectiveness, and the students' perception of its safety. Crucially, a majority of students engaged in self-medication despite believing it was unsafe. The widespread use of non-professional information sources and the strong advocacy for more regulations (**87.0%**) suggest that targeted educational interventions and stricter guidelines on drug access are necessary to promote safer practices among future healthcare professionals.

References

- 1-Al-Worafi, Y. M. (2020). Self-medication. In Drug safety in developing countries (pp. 73-86). Academic Press.
- 2-World Health Organization. The role of the pharmacist in self-care and self-medication. Report of the 4th WHO Consultative Group on the role of the pharmacist. The Hague: World Health Organization; 1998.
- 3-Ansari, M. (2018). Sociobehavioral aspects of medicines use in developing countries. In Social and administrative aspects of pharmacy in low-and middle-income countries (pp. 15-33). Academic Press.
- 4-Bennadi, D. (2013). Self-medication: A current challenge. *Journal of basic and clinical pharmacy*, 5(1), 19.
- 5- Al-Omrani, H., Marwah, M. K., Al-Whaib, R., Mekkawy, M., & Shokr, H. (2023). Patterns of Drug Utilization and Self-Medication Practices: A Cross Sectional Study. *Pharmacy*, 11(6), 183.
- 6-Alhur, A., Alhur, A., Alfayiz, A., Alotaibi, A., Hansh, B., Ghasib, N., ... & Asiri, Z. (2023). Patterns and prevalence of self-medication in Saudi Arabia: insights from a nationwide survey. *Cureus*, 15(12).
- 7-Alghanim, S. A. (2011). Self-medication practice among patients in a public health care system. *East Mediterr Health J*, 17(5), 409-416.
- 8-Wazaify, M., Al-Bsoul-Younes, A., Abu-Gharbieh, E., & Tahaine, L. (2008). Societal perspectives on the role of community pharmacists and over-the-counter drugs in Jordan. *Pharmacy world & science*, 30, 884-891.
- 9-Sánchez-Sánchez, E., Fernández-Cerezo, F. L., Díaz-Jimenez, J., Rosety-Rodriguez, M., Díaz, A. J., Ordonez, F. J., ... & Rosety, I. (2021). Consumption of over-the-counter drugs: prevalence and type of drugs. *International journal of environmental research and public health*, 18(11), 5530.

- 10-Klaukka, T., Martikainen, J., & Hemminki, E. (2000). Frequency of daily over-the-counter drug use and potential clinically significant over-the-counter-prescription drug interactions in the Finnish adult population.
- 11-Malli, I. A., Hubayni, R. A., Marie, A. M., Alzahrani, D. Y., Khshwry, E. I., Aldahas, R. A., ... & Zaidi, S. F. (2023). The prevalence of self-medication and its associated factors among college students: Cross-sectional study from Saudi Arabia. *Preventive Medicine Reports*, 36, 102457.
- 12- Behzadifar, M., Behzadifar, M., Aryankhesal, A., Ravaghi, H., Baradaran, H. R., Sajadi, H. S., ... & Bragazzi, N. L. (2020). Prevalence of self-medication in university students: systematic review and meta-analysis. *East Mediterr Health J*, 26(7), 846-57.
- 13-Alshammari, F., Alobaida, A., Alshammari, A., Alharbi, A., Alrashidi, A., & Almansour, A. (2021). University Students' Self-Medication Practices and Pharmacists' Role: A Cross-Sectional Survey in Hail, Saudi Arabia. *Front Public Health* 2021; 9: 779107.
- 14-Helal, R. M., & Abou-ElWafa, H. S. (2017). Self-Medication in University Students from the City of Mansoura, Egypt. *Journal of environmental and public health*, 2017(1), 9145193.
- 15-Alomaim, L. H. M., Alnefaie, A. F., Alowaymir, N. A., Alahedb, N. A. S., Alomair, H. O. A., Alanazi, R. S. M., ... & Albrahim, T. (2023). Prevalence of self-medication among female university students during examinations: a cross-sectional study in Saudi Arabia. *Cureus*, 15(4).
- 16-Albusalih, F. A., Naqvi, A. A., Ahmad, R., & Ahmad, N. (2017). Prevalence of self-medication among students of pharmacy and medicine colleges of a public sector university in Dammam City, Saudi Arabia. *Pharmacy*, 5(3), 51.
- 17- Alghamdi, S., Alzahrani, A., & Alqarni, T. (2022). Use of herbal and traditional medicine among university students in Saudi Arabia. *Saudi Journal of Biological Sciences*, 29(5), 3451–3457.
- 18- World Health Organization. (2023). Antimicrobial resistance: Global report on surveillance. WHO Press.
- 19- Yousif, M., Osman, M., & Ahmed, N. (2021). Determinants of self-medication among medical students: A multicenter study. *Frontiers in Public Health*, 9, 639786.
20. Ansari, M. (2018). Sociobehavioral aspects of medicines use in developing countries. In *Social and administrative aspects of pharmacy in low-and middle-income countries* (pp. 15-33). Academic Press.
- 21-Jîtcă G, Jîtcă CM, Buț MG, Vari CE. Self-Medication: Attitudes and Behaviors Among Pharmacy and Medical Students. *Pharmacy (Basel)*. 2025 Sep 4;13(5):127. doi: 10.3390/pharmacy13050127. PMID: 40981247; PMCID: PMC12452421.

22- Gohil, K., Patel, P., & Desai, M. (2021). Knowledge–behavior gap in self-medication practices among medical students: A cross-sectional study. *Journal of Family Medicine and Primary Care*, 10(2), 866–872.

23-Tan L, Chen Y, Gu M, Zhu J, Tang X, Chen W, Feng H. Self-medication among university students in Guangdong province, China: a cross-sectional study using the KAP model. *Front Public Health*. 2025 Jul 14;13:1601731.

24- Brian B, Goruntla N, Bommireddy BR, Mopuri BM, Easwaran V, Mantargi MJ, et al. Knowledge, attitude, and practice towards responsible self-medication among pharmacy students: a web-based cross-sectional survey in Uganda. *Drug Healthc Patient Saf* . (2025) 17:7–23.

25. Ali HT, Barakat M, Abdelhalim AR, Al-Kurd IN, Muhammad MK, Sharkawy MM, et al. Unravelling the dilemma of self-medication in Egypt: a cross-sectional survey on knowledge, attitude, and practice of the general Egyptian population. *BMC Public Health*. (2024) 24:652.

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