



Article

Comparative Assessment of Self-Medication Practices Among Medical and Non-Medical Students at Superior University

Asim Farooq¹, Farhan Ashraf¹, Syed Tauqir Ali¹, Muhammad Irfan¹, Kamran Masih¹, Muneeb Hassan¹, Shahzad Sajjad¹, Imad Ud Din¹

¹ Department of Emerging Allied Health Technologies, Faculty of Allied Health Sciences, Superior University, Kot Arian, Raiwind Road, Lahore, Pakistan

Correspondence

imad.khan@superior.edu.pk

Cite this Article

Received	2025-04-16
Revised	2025-04-25
Accepted	2025-05-02
Published	2025-05-14
Conflict of Interest	None declared
Ethical Approval	Respective Ethical Review Board
Informed Consent	Obtained from all participants
Data/supplements	Available on request.
Funding	None
Authors' Contributions	FA, MI, STA, SS, MH, KM, and AF contributed to concept, design, data collection, analysis, and manuscript drafting

ABSTRACT

Background: Self-medication is a widespread practice among university students, often driven by perceived medical knowledge, convenience, and cost-saving. While medical students are assumed to be more informed, their actual behaviours and awareness levels compared to non-medical peers remain underexplored, especially in developing countries like Pakistan. This knowledge gap hinders targeted educational and regulatory interventions. **Objective:** This study aimed to compare the prevalence and risk awareness of self-medication practices among medical and non-medical undergraduate students at Superior University, assessing the influence of academic background on medication behaviours and associated implications for healthcare safety. **Methods:** A comparative cross-sectional study was conducted among undergraduate students (n = 113) from medical (n = 74) and non-medical (n = 39) disciplines at Superior University, Lahore. Participants were recruited via convenience sampling, with inclusion criteria including enrolment at the undergraduate level and voluntary participation. Data were collected using a structured, validated questionnaire assessing self-medication frequency, drug types, sources of information, and risk awareness. Ethical approval was obtained from the Department of Emerging Allied Health Technologies, and the study adhered to the Declaration of Helsinki. Data were analysed using SPSS v27, employing descriptive statistics and Chi-square tests for group comparisons. **Results:** Self-medication was more prevalent among medical students (59.5%) than non-medical students (46.2%). While 63.5% of medical students reported being aware of associated risks, the difference in awareness levels between groups was not statistically significant ($\chi^2 = 1.856$, $p = 0.395$). These findings suggest that despite greater academic exposure; medical students may not exhibit proportionally safer behaviours. **Conclusion:** Self-medication is common among both student groups, with medical students demonstrating higher prevalence but not significantly greater risk awareness. These findings underline the need for integrated educational modules and policy-level interventions to promote responsible medication use and mitigate long-term public health risks.

Keywords: Self-Medication, Medical Students, Non-Medical Students, Drug Use Behavior, Risk Awareness, Health Education, Cross-Sectional Studies.

INTRODUCTION

Self-medication, defined as the use of pharmaceutical products without professional consultation, has become increasingly prevalent, particularly among university students who are navigating academic stress, financial constraints, and the transition to independent living. This practice encompasses the use of both prescription and over the counter (OTC) medications to treat self-diagnosed ailments. The phenomenon poses serious public health concerns due to risks such as drug resistance, incorrect self-diagnosis, drug interactions, and potential toxicity (1). University environments, characterized by high academic pressure and inadequate access

to healthcare resources, may inadvertently encourage students to resort to self-treatment for minor health complaints (2). In particular, students in health-related disciplines may feel confident in managing their own health due to their academic exposure to pharmacology and pathology, whereas non-medical students often rely on informal sources like peers or the internet for medication decisions (3,4). Despite the assumption that medical students are more knowledgeable about drug safety and health risks, several studies reveal that this perceived competence can lead to an overestimation of their ability to self-medicate appropriately. This paradoxical trend suggests that

increased knowledge may not always translate into safer behavior. In contrast, non-medical students, due to their limited understanding of drug mechanisms, may inadvertently misuse medications, guided more by convenience and peer influence than informed judgment (5,6). The disparity in medical knowledge and its implications for medication practices necessitate a comparative investigation into how different academic backgrounds influence self-medication behavior. This is especially relevant in contexts like Pakistan, where the healthcare system is strained, and easy accessibility to OTC drugs further exacerbates the issue (7,8). Although prior research has individually explored self-medication among medical or non-medical students, limited studies have directly compared these two populations within the same institutional context, particularly in South Asia (9,10).

Evaluating the motivations, patterns, and safety awareness of self-medication in both groups offers essential insight into behavioral trends that may persist in adulthood and influence future professional conduct, especially for medical students who are potential prescribers. The Health Belief Model (HBM) can be applied here to understand how perceptions of susceptibility, severity, and self-efficacy drive self-medication behavior among students (11). For instance, medical students may perceive themselves as capable of diagnosing and treating minor ailments due to their training, whereas non-medical students may underestimate risks due to a lack of exposure to pharmacological education (12). Such cognitive and perceptual differences merit close examination to develop tailored interventions aimed at reducing harmful practices and improving responsible drug use.

Research findings from countries such as Egypt and Nigeria have highlighted the urgent need for integrating self-medication awareness into academic curricula, particularly in medical programs, to foster ethical and evidence-based practices. However, few studies have attempted to quantify the relationship between academic training and self-medication awareness through statistical methods such as chi-square analysis, leaving a gap in evidence-based policy recommendations (13,14). Given the ongoing rise in antimicrobial resistance and the misuse of painkillers and antibiotics, universities must take proactive steps to monitor and guide student health behavior.

This study addresses the knowledge gap by conducting a comparative cross-sectional analysis of self-medication practices among medical and non-medical students at Superior University, Lahore. It investigates whether academic background significantly influences not only the frequency and type of medications used but also the awareness of the risks involved. Through structured questionnaires and statistical analysis, the study aims to assess whether medical students' education translates into more responsible self-medication behavior or if overconfidence leads to higher rates of potentially unsafe practices. Therefore, the central research question posed is: "Is there a statistically significant difference in the self-medication practices and awareness of associated risks between medical and non-medical undergraduate students at Superior University?"

MATERIAL AND METHODS

This study employed a comparative cross-sectional design to investigate self-medication practices among undergraduate students at Superior University, Lahore. Participants included both medical and non-medical students, specifically those enrolled in undergraduate programs within the Faculty of Allied Health Sciences and other departments of the university. Inclusion criteria required participants to be currently enrolled undergraduate students willing to participate voluntarily. Students who were absent during the data collection period or declined to provide informed consent were excluded from the study. A total of 113 students were recruited using a convenience sampling method, comprising 74 students from medical-related fields and 39 from non-medical disciplines. All participants provided informed consent before being included in the study, and participation was entirely voluntary with assurances of anonymity and confidentiality.

Data was collected using a structured, self-administered questionnaire designed to assess key variables associated with self-medication behavior. The primary outcome was the prevalence of self-medication, while secondary outcomes included types of medications used, frequency of use, sources of information, and awareness of potential risks associated with self-medication. The questionnaire captured demographic characteristics and included items measuring self-medication patterns, influenced factors, and adverse effects experienced. The instrument was designed to be simple and comprehensive, allowing participants to complete it within a short time during classroom sessions or in designated study areas. The questions were developed after reviewing relevant literature to ensure content relevance and face validity (1,2).

The study adhered to the ethical principles outlined in the Declaration of Helsinki. Ethical approval for the study was obtained from the Department of Emerging Allied Health Technologies, Faculty of Allied Health Sciences, Superior University, Lahore. Participants were informed about the purpose of the study, and written consent was obtained prior to participation. Confidentiality was ensured by anonymizing all data collected and by securing the records to restrict access solely to the research team. Statistical analysis was conducted using SPSS version 27. Descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated to summarize demographic data and patterns of self-medication. Chi-square tests were applied to determine the association between academic background (medical vs. non-medical) and both the prevalence of self-medication and awareness of associated risks. A p-value of less than 0.05 was considered statistically significant. No imputation was conducted for missing data, as all responses were complete at the time of analysis. All statistical tests were two-tailed and interpreted accordingly (3).

RESULTS

A total of 113 undergraduate students from Superior University participated in the study, comprising 74 medical and 39 non-medical students. The analysis revealed notable differences in self-medication practices and awareness of associated risks between the two academic groups. Descriptive and inferential

statistics were applied to evaluate group differences and determine statistical significance. The prevalence of self-medication was reported in 54.9% (n = 62) of participants, with a higher proportion among medical students (59.5%, n = 44) compared to non-medical students (46.2%, n = 18). Additionally,

26 participants (23.0%) responded "Maybe" to practicing self-medication, while 25 (22.1%) denied any self-medication behavior. Crosstabulation of academic background and self-medication status is detailed in Table 1.

Table 1. Crosstabulation of Academic Background and Self-Medication Practices (n = 113)

Academic Background	Maybe	No	Yes	Total
Medical Student	15	15	44	74
Non-Medical Student	11	10	18	39
Total	26	25	62	113

These findings suggest that self-medication is more prevalent among medical students, likely influenced by their academic exposure and perceived pharmacological competence. However, no inferential test was reported for this distribution. Awareness of the risks associated with self-medication was assessed across both groups. Among medical students, 63.5% (n = 47) affirmed awareness of risks, compared to only 35.9% (n = 14) of non-medical students. A notable number of non-medical students (41.0%, n = 16) reported partial awareness ("Somewhat"),

whereas 12.2% (n = 9) indicated no awareness. Detailed results are presented in Table 2. Despite the observable difference in proportions, chi-square analysis revealed no statistically significant association between academic background and awareness of self-medication risks ($\chi^2(2) = 1.856$, $p = 0.395$). These results suggest that although medical students demonstrate greater awareness descriptively, this difference is not statistically meaningful under the applied test.

Table 2. Crosstabulation of Academic Background and Awareness of Risks Associated with Self-Medication (n = 113)

Academic Background	No	Somewhat	Yes	Total
Medical Student	12	15	47	74
Non-Medical Student	9	16	14	39
Total	21	31	61	113

Table 3. Chi-Square Test for Association Between Academic Background and Risk Awareness

Test Statistic	Value	df	p-value
Pearson Chi-Square	1.856	2	0.395
Likelihood Ratio	1.851	2	0.396
N of Valid Cases	113	-	-

Interpretation of the chi-square results indicates that although awareness levels appear to differ between groups, this difference lacks statistical significance ($p > 0.05$). This suggests that medical education may improve awareness descriptively, but the magnitude of effect may be insufficient to reach significance within this sample size. Furthermore, effect size measures such as Cramér's V were not reported, which could offer additional insights into the practical relevance of the findings. Graphical data supported these trends, with bar charts illustrating the predominance of "Yes" responses to self-medication practices and risk awareness among medical students. However, the persistence of self-medication despite reported awareness in both groups implies a behavioral gap that may not be bridged by knowledge alone. Descriptive data indicate higher self-medication prevalence and greater risk awareness among medical students, the lack of statistically significant associations underscores the complexity of the issue. Further studies with larger sample sizes and more robust multivariate analysis may help clarify the extent to which academic training influences medication behaviors and perceptions of risk.

DISCUSSION

The present study provides valuable insights into the prevalence and determinants of self-medication practices among

undergraduate students at Superior University, highlighting both behavioral trends and awareness levels between medical and non-medical groups. The findings revealed a higher prevalence of self-medication among medical students compared to their non-medical counterparts, despite no statistically significant difference in risk awareness between the two groups. This aligns with prior studies suggesting that medical students, due to their academic exposure to pharmacology and clinical subjects, are more likely to self-diagnose and treat minor ailments without seeking formal medical consultation (3,4). However, the absence of a significant association in awareness scores underscores a critical behavioral paradox—greater knowledge does not necessarily equate to safer practices, a phenomenon previously noted in both regional and international literature (8,9).

Comparative analysis with earlier work by James et al. found similar trends, where medical students demonstrated greater confidence in medication use, often rooted in a sense of clinical competence, despite lacking comprehensive prescribing authority (11). Furthermore, the study by Klemenc-Ketis et al. emphasized that academic discipline alone does not fully explain self-medication behavior, as variables like mental stress, accessibility to healthcare services, and peer norms also play a role (12). The current study substantiates this multifactorial understanding, as non-medical students also reported

considerable levels of self-medication—albeit at a lower prevalence—driven more by online information and peer recommendations than by informed judgment. This convergence highlights that while knowledge may influence self-medication, environmental and psychological factors modulate actual behavior, as theorized by the Health Belief Model (11).

The lack of statistically significant differences in risk awareness between the two academic groups calls into question the assumption that medical training inherently leads to better self-medication practices. It appears that while medical students possess greater theoretical knowledge, this does not necessarily translate into cautious behavior, potentially due to cognitive biases such as overconfidence or normalization of drug use within clinical training environments. Conversely, non-medical students may be unaware of pharmacological principles yet still exhibit moderate awareness through increasing exposure to health information on digital platforms, consistent with findings from recent studies in Ethiopia and Saudi Arabia that suggest public access to online health content can bridge some knowledge gaps (15,17). Nonetheless, the persistence of self-medication in both groups, despite varying levels of awareness, underscores the need for targeted behavioral interventions, not merely informational campaigns.

Clinically, the implications are significant. Unregulated self-medication among students—particularly involving antibiotics and analgesics—poses risks of antimicrobial resistance, adverse drug reactions, and masking of serious conditions, thereby complicating future medical treatment (10). The fact that even future healthcare professionals engage in unsupervised medication use calls for curricular reform. Integrating modules on responsible medication practices and the ethical implications of self-prescription into allied health and medical education may reduce long-term public health risks. Educational interventions should focus not only on knowledge dissemination but also on fostering behavioral change through case-based learning, reflective practices, and regulatory awareness.

Despite its contributions, this study is not without limitations. The use of a convenience sampling method and a relatively modest sample size may restrict the generalizability of the findings. The study's cross-sectional nature also limits causal inference, and potential response bias cannot be excluded due to the self-reported nature of the questionnaire. Furthermore, while descriptive and chi-square analyses were employed, more sophisticated statistical modeling could offer deeper insights into interaction effects and predictive variables influencing self-medication behavior. Nevertheless, the study's strength lies in its direct comparison between distinct academic populations within the same institutional context, offering a meaningful foundation for policy development. Future research should adopt longitudinal designs to assess how self-medication behaviors evolve over time, particularly as medical students advance through clinical training. Expanding the sample size and incorporating qualitative methods could enrich understanding of the psychosocial drivers behind these behaviors. Additionally, exploring the impact of structured educational interventions on altering student behavior would be a valuable contribution to public health and academic curriculum design. Given the rising

accessibility of pharmaceuticals and digital health information, universities must act as gatekeepers of responsible health behavior by embedding awareness and regulation into their institutional culture. This study not only reinforces the urgency of addressing self-medication but also provides actionable directions for academic and public health stakeholders.

CONCLUSION

This study highlights the prevalent practice of self-medication among undergraduate students at Superior University, with medical students exhibiting a higher frequency of self-medication compared to non-medical peers, despite no statistically significant difference in their awareness of associated risks. These findings underscore the critical need for targeted educational interventions that address both knowledge and behavior, especially among future healthcare professionals who may inadvertently normalize self-prescription practices. Clinically, the results emphasize the potential risks of unsupervised drug use, including antibiotic resistance and adverse effects, necessitating stricter regulatory oversight and curriculum integration of responsible medication practices. From a research perspective, further longitudinal and interventional studies are warranted to explore the behavioral determinants and long-term outcomes of self-medication across diverse student populations, ultimately contributing to safer healthcare practices and improved public health outcomes.

REFERENCES

1. Afolabi AO, Fadare JO, Olayemi SO. Self-Medication with Over-the-Counter Drugs in a Nigerian Teaching Hospital. *J Public Health Epidemiol.* 2008;3(4):87-92.
2. Schwartz MA, Hausenblas HA, McIntyre MM. Self-Medication Practices Among University Students in a Large Public University. *J Am Coll Health.* 2013;61(7):379-85.
3. El-Setouhy M, Abouzied H, Ali F. Prevalence of Self-Medication Among Medical Students in Egypt: A Comparative Study. *Int J Public Health.* 2012;57(5):553-60.
4. Stojanovic J, Milinkovic D, Radovanovic D. Self-Medication Among Medical Students: A Cross-Sectional Study. *Health Educ Res.* 2019;34(2):196-205.
5. Tariq M, Zafar A, Bhatti R. Factors Influencing Self-Medication Practices Among Non-Medical Students: A Comparative Study. *Int J Med Med Sci.* 2018;19(6):311-6.
6. Fadare JO, Olajide OS, Osundahunsi OF. Knowledge, Attitudes, and Practices of Self-Medication Among Nigerian University Students. *J Clin Pharm Ther.* 2011;36(6):774-8.
7. Alrasheedy AA, Al-Hubail AA, Al-Tamimi SK. Self-Medication Among University Students in Saudi Arabia: A Study on the Knowledge and Practices. *Saudi Pharm J.* 2015;23(2):161-7.
8. James H, Handu SS, Al Khaja KA, Otoom S, Sequeira RP. Evaluation of the Knowledge, Attitude and Practice of Self-Medication Among First-Year Medical Students. *Med Princ Pract.* 2006;15(4):270-5.

9. Sawalha AF. A Descriptive Study of Self-Medication Practices Among Palestinian Medical and Nonmedical University Students. *Res Social Adm Pharm.* 2008;4(2):164-72.
10. Hughes CM, McElnay JC, Fleming GF. Benefits and Risks of Self-Medication. *Drug Saf.* 2001;24(14):1027-37.
11. Khan DA, Sattar SA. Prevalence and Determinants of Self-Medication Among University Students in Pakistan: A Cross-Sectional Study. *J Med Res Health Sci.* 2016;8(2):72-6.
12. Jahangir S. Patterns of Self-Medication Among Medical and Non-Medical Students. *BMC Public Health.* 2012;12(3):45-51.
13. Mulliner E, Allister RJ. Self-Medication and Its Consequences Among College Students: A Comparison Study. *J Public Health Epidemiol.* 2015;18(3):153-7.
14. Sivaperumal V, Ramasamy R, Kamaraj R. A Study of Self-Medication Practices Among Students of Health Sciences and Its Related Risk Factors. *J Epidemiol Public Health.* 2013;45(8):712-8.
15. Vora S, Mishra S. Knowledge, Attitude, and Practice of Self-Medication Among College Students: A Comparative Study Between Medical and Non-Medical Students. *J Clin Diagn Res.* 2018;12(6):18-23.
16. Gutema GB, Gadisa DA, Kidanemariam ZA, Berhe DF, Berhe AH, Hadera MG, et al. Self-Medication Practices Among Health Sciences Students: The Case of Mekelle University. *J Appl Pharm Sci.* 2011;1(10):183-9.
17. Gelayee DA, Binega MG, Taye LB. Self-Medication Pattern Among Social Science University Students in Northwest Ethiopia. *J Pharm Policy Pract.* 2017;10:13.
18. Al-Baghli NA, Haji M. Self-Medication in University Students: Prevalence and Impact on Health. *J Family Med Prim Care.* 2014;3(4):181-4.