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Comparative Study on Self-Medication among Medical and Non-Medical University Undergraduates

Nayel Syed[1], Mirza Tasawer Baig[1*], Hira Arif[2], Aisha Jabeen[3], Qurat-ul-Aen Ismail[2], Noorulain Pirzada[5], Nazia Tabbasum[2], Tooba Ilyas[1]

[1] Department of Pharmacy Practice, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan

[2] Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan

[3] Department of Pharmacology, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan

[4] Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Shaheed Benazir Bhutto Dewan University, Karachi, Pakistan

Abstract: People usually pursue self-medication to deal with common ailments. Reuse of previous prescriptions, utilization of available unused medicines at home (from another prescription), and recommendation of any medicine by family and friends are some of the key factors that trigger self-medication. To evaluate the practice of self-medication, the selected population was university undergraduates, as the youth have a great impact on social media, which may help them to teach self-medication in two ways, i.e., increase or decrease of self-medication. This study was aimed at comparing the self-medication practices among medical and non-medical university undergraduates (students). This was a cross-sectional study conducted among the medical and non-medical university undergraduates in Karachi, Pakistan. A validated questionnaire was filled by 452 participants and analyzed using SPSS version 25. It was found that 59.5% of medical students always prefer self-medication, whereas 40.5% of non-medical students were seen to self-medicate when falling ill. Among all medical students, 49.4%, compared to 50.6% among non-medical students, were found to have self-medicated. From this study, we found that the medical student graduates showed the highest prevalence of self-medication compared to students in a non-medical field. Awareness campaigns about the consumption of medicine without prescription should be arranged by healthcare professionals and the government for the youth. The selling of drugs without prescription or medical advice should also be restricted by Pakistani healthcare authorities via organizing essential curative and preventive seminars.

Keywords: self-medication, medical undergraduate, non-medical undergraduate, students.

医科大学与非医科大学本科生自我用药比较研究

摘要：人们通常追求自我药疗来治疗常见的疾病。重复使用以前的处方、在家中使用可用的未使用药物（来自另一个处方）以及家人和朋友推荐任何药物是触发自我用药的一些关键因素。为了评估自我药疗的实践，选择的人群是大学本科生，因为青少年对社交媒体的影响很大，这可能有助于他们通过两种方式教授自我药疗，即增加或减少自我药疗。本研究旨在比较医学和非医学大学本科生（学生）的自我用药实践。这是一项在巴基斯坦卡拉奇的医学和非医学大学本科生中进行的横断面研究。一份经过验证的问卷由 452 名参与者填写，并使用 SPSS 第 25 版进行分

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About the authors: Nayel Syed, Mirza Tasawer Baig, Department of Pharmacy Practice, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan; Hira Arif, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan; Aisha Jabeen, Department of Pharmacology, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan; Qurat-ul-Aen Ismail, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan; Noorulain Pirzada, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Shaheed Benazir Bhutto Dewan University, Karachi, Pakistan; Nazia Tabbasum, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan; Tooba Ilyas, Department of Pharmacy Practice, Faculty of Pharmacy, Ziauddin University, Karachi, Pakistan

Corresponding author Mirza Tasawer Baig, mirzatasawerbaig@gmail.com

析。发现 59.5%的医学生总是喜欢自行服药，而 40.5%的非医学生在生病时会自行服药。在所有医学生中，49.4%而非医学生中的 50.6%被发现进行过自我治疗。从这项研究中，我们发现与非医学领域的学生相比，医学生毕业生的自我用药率最高。医疗保健专业人员和政府应为青少年安排关于非处方药消费的宣传活动。巴基斯坦卫生当局还应通过组织必要的治疗和预防研讨会来限制销售没有处方或医疗建议的药物。

关键词：自我用药，医学本科，非医学本科，学生。

1. Introduction

Self-medicating (SM) is at a highly alarming stage globally. People usually pursue self-medication to deal with common ailments. The definition of self-medication by the World Health Organization (WHO) is given as “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms” [1], whereas SM was defined by the International Pharmaceutical Federation (FIP) as "the use of non-prescription medicines by people on their own initiative" [2].

The definition of medicine is given as “a product that contains a compound with established biological effects, plus excipients or excipients only; it may also have contaminants; the active compound is typically a drug or prodrug” [3].

The SM issue is progressing worldwide, which has its own merits and demerits [4]. Various studies have been conducted worldwide to check SM prevalence patterns [9-13]. The key elements associated with self-medication include age, sex, self-care orientation, and implementation of medical education. These elements vary person to person [20]. However, it can help one recover from minor illnesses, be a little less time consuming and more cost-effective if practiced properly [5]. Reuse of previous prescriptions, usage of unused medicines at home, and encouragement by family and friends enforced individuals to self-medicate themselves [6]. This practice can provoke prohibited use of drug addiction and may cause delayed identification of a serious medical condition [7]. Failure to make healthcare systems better, excessive use of over-the-counter (OTC) drugs and a collapse of the governmental management system of drugs has caused widespread self-medication [8]. Self-care management includes ancient herbal drug methods, use of substitutes, and home remedies [21]. Drugs dispensed without prescription has increased self-medication–associated problems [22]. Frequently used medicines for self-medication include painkillers, antibacterials, antitussives, antimalarials, and sedatives [22]. The rate of self-medication (SM) practices is much higher in developing countries than in European countries [23]. Previously, some studies that were conducted in Pakistan concluded that the prevalence of SM practices is around 51% [6, 7, 24, 25]. Harmful consequences of self-medication include drug interactions with food, diseases, and drugs. Also, the etiology of diseases can be further compromised [7]. In Pakistan, most people are unaware of the usage of medications, and sometimes they do not get proper counseling as well, leading to even more self-medication practices [18].

Self-medication has now become a common practice among young people due to the impact of social media [16]. The incidence of SM varied from 38.5% in Ethiopia [14] to 98% in Palestine [15]. Little data is available on SM prevalence in non-medical and medical undergraduate students in Karachi, Pakistan. Previous research studies have shown that self-medication is prevailing among university students [6, 15, 17]. They try to put their medical knowledge into practice and therefore start practicing self-medication [19]. It is necessary to check self-medication patterns among medical students as they symbolize forthcoming health care professionals [19]. A recent study showed a high consumption of antibiotics among medical and non-medical undergraduates [26].

University students were highly suitable for this research study as the media and the Internet have a great impact on young people and can encourage them to practice self-medication. Also, compared with other populations of society, university students can be easily convinced to participate in such awareness studies. The purpose of this study was to determine the possible factors that are related to self-medication behavior and to identify self-medication practices among medical and non-medical university students.

2. Research Methodology

2.1. Study Plan

This was a detailed cross-sectional study conducted among medical and non-medical university students in

Karachi, Pakistan.

2.2. Selection Criteria

The students are from medical schools, the department of pharmacy, MBBS, and BDS. Various academic level students were targeted. We approached the students with the survey during their scheduled elective course classes by taking their 10 minutes.

2.3. Informed Consent

Informed verbal consent was given to the students after explaining to them the purpose behind this study in which the involvement was voluntary. Furthermore, we informed the students that their participation in this study would be confidential.

2.4. Sample Size and Sample Collection

The questionnaire contained 20 questions. The survey included questions on respondents' gender, age, discipline, year of study; immediate response toward sickness; type of medicine used for self-medication; reason(s) behind their self-medication practice; illness for which they self-medicate; frequency of self-medication; their understanding of antibiotic resistance and significance of course completion for antibiotics; the importance of checking the drug expiry date, directions for using the drug, drug interactions, and side effects; their point of view on self-medication; whether they face any hindrance in buying medicines and antibiotics without a prescription; and their understanding as to whether the government should stop selling medications without a prescription when these medicines can contribute to an effective health care system. The survey primarily included close-ended questions. The questionnaire was administered to 452 students after being trialed in a smaller group of students to find out if the questions were understandable. Expert colleagues within the field face-validated the questionnaire for intelligibility and clarity. IBM SPSS Statistics 25 was used to evaluate the results.

This study was carried out in seven universities in Karachi, Pakistan. Renowned medical colleges included Ziauddin University, Jinnah Sindh Medical University, and Dow University of Health Sciences (DUHS), whereas nonmedical universities included NED University, Iqra University, Shaheed Benazir Bhutto Dewan University, and Bahria University. The study was conducted from December 2021 to January 2022.

3. Results and Discussion

This study was conducted with 498 students, out of which 46 students left the questionnaire incomplete; only 452 students were included in the final analysis.

The majority of the participants were medical students (62.5%), while the remaining 37.5% were nonmedical students. Most of the respondents were female (68.18%), with male respondents making up 31.81% of the total. The results showed that 52.84% of the students were between the ages of 21 and 26, 45.73% were between 16 and 20, and only 1.42% were over 25 years of age; of this last group, 80% were medical students, who have an additional year in their doctoral degree program. Second-year nonmedical students (36.36%) and third-year medical students (39.09%) took active part in the study. The sociodemographic data of the study is compiled in Table 1.

Table 1 The sociodemographic data

		Field		Total
		Medical	Nonmedical	
Study year	1st year	64.6%	35.4%	100.0%
	2nd year	54.7%	45.3%	100.0%
	3rd year	64.7%	35.3%	100.0%
	4th year	69.0%	31.0%	100.0%
	5th year	71.4%	28.6%	100.0%

The results of this study showed that 49.4% of medical students consult a doctor when they get ill, whereas 66.5% of them self-medicate. The nonmedical students showed different results: 50.6% of them visit a doctor when they get ill rather than self-medicating (33.5%). The main source for self-medication was the advice of family or friends (42.9%), whereas 43.58% of the students disclosed that they get medicine from a pharmacy using old prescriptions; very few students (11.14%) self-medicate with old medicines they have at home. The topmost reason behind self-medication among the medical students was to save time (73.8%), whereas the majority of nonmedical students (43.9%) revealed that they get quick relief through self-medication (Table 2). The percentage of medical students who often self-medicate was higher (61.3%) than that of nonmedical students (38.7%). When the respondents were asked about their knowledge regarding the duration of treatment, 83.3% of the medical students strongly agreed that they knew about it, whereas the majority of nonmedical students (64.5%) neither agreed nor disagreed. The results were the same regarding the respondents' knowledge of antibiotic resistance. Regarding checking the expiry date before administering the medication, 68.2% of the medical students and 31.8% of the nonmedical students stated that they always check it. Medical students who used the previous prescription for understanding the quantity or dose to administer was 67.4%, while 48.7% of the nonmedical students asked the pharmacist for this information.

Table 2 The study results

		Field	
		Medical	**Nonmedical**
Reasons of self-medication	Doctor/clinic far, high fee, no trust in the doctor, scared of lab test	62.0%	38.0%
	Saves time	73.8%	26.2%
	Quick relief	56.1%	43.9%
Frequency of self-medication	Always	59.5%	40.5%
	Often	61.3%	38.7%
	Sometimes	73.0%	27.0%
	Rarely	78.4%	21.6%
	Never	40.0%	60.0%
Awareness about drug interactions	Always	78.3%	21.7%
	Often	78.7%	21.3%
	Sometimes	63.0%	37.0%
	Rarely	62.78%	37.22%
	Never	45.2%	54.8%
Perception about	Strongly agree	66.7%	33.3%
Governmental actions against self-medication	Agree	66.7%	33.3%
	Neither agree nor disagree	67.3%	32.7%
	Disagree	64.0%	36.0%
	Strongly disagree	83.3%	16.7%

Regarding drug interactions, the study showed that medical students (63%) and nonmedical students (37%) have little awareness about it, whereas the majority of the students (62.78%) from the medical and nonmedical fields rarely know about the side effects associated with their medications, as shown in Table 2. We obtained similar results regarding knowledge of drug indications. The reasons the respondents gave for avoiding self-medication were lack of knowledge (62.16%), while 37.83% avoid it due to possible side effects. Medical students who never have difficulty purchasing medicines without a prescription were 78.4%, while 21.4% of nonmedical students agreed to it. Likewise, the majority of the respondents were not hindered in purchasing antibiotics without a prescription, which raises a big question. A total of 70.94% respondents agreed that the government should take action on self-medication by restricting the availability of medicines available without a prescription.

The therapeutic classes of OTC drugs consumed for self-medication among medical and nonmedical students are shown in Table 3.

Table 3 The therapeutic classes of OTC drugs consumed for self-medication among medical and nonmedical students

Therapeutic classes of OTC drugs	**Medical students (%)**	**Nonmedical students (%)**
Analgesics	65.1	34.9
Antitussives	65.2	34.8
Antacids	63.3	36.7
Antipyretics	64.9	35.1
Antihistamines	67.7	32.2
Sedatives	75.9	24.1

Self-care treatment of common ailments with medicines and without medical advice from a health care professional is known as self-medication. Various research studies have demonstrated that the practice of self-medication is more widespread among medical students than among nonmedical undergraduates. The current study was conducted among university undergraduates, that is, medical and nonmedical students of various renowned institutions, to study their level of understanding and perception regarding the practice of self-medication. A self-explanatory questionnaire was utilized for this study, which was highly related to the knowledge given by the respondents. Students were asked to fill out the questionnaire independently; however, mutual discussions couldn't be precluded completely [14, 15, 27].

Among the causes of increased self-medication practice, time-saving is one of the major causes as undergraduate students have hectic study schedules as well as social lives [28].

It is estimated that 66.79% of self-medication practice is among medical students, results which are similar to those of a study proposed by Zafar et al. [6] in Karachi, Pakistan; this study showed that self-medication among medical students is high, at 76%.

The drugs used most without a prescription, i.e., for self-medication, are antipyretics for fever; painkillers, also known as analgesics (for muscle pain, menstrual pain, headache, migraine, toothache, etc.); anti-allergy medications, also known as antihistamines for cough or flu; and anti-asthmatics for asthma. This study is similar to the research conducted by Zafar et al. [6], who used painkillers, drugs for fever, and antibiotics as the highly utilized group of drugs for self-medication.

In Pakistan, self-medication is prevalent because there is no strict barrier to prescription for buying medicines which is why the source used for information is inappropriate. The mindset of its knowledge was opted

wrong.

WHO strengthens the need for pharmacists for the safe use of medicines among consumers and to create awareness about the need to visit the doctor before using prescription medicine. Also, there is a need to explain the merits and demerits associated with self-medication. These goals can be achieved by creating awareness campaigns in educational institutes. We must not forget the role of community pharmacists in accomplishing this target [1].

4. Conclusion

This study found that the medical subject's graduates showed higher self-medication prevalence than the nonmedical field students. The research concluded that people mostly received self-medication medicines from pharmacies or by previous prescriptions. Saving time was among the topmost reasons for practicing self-medication. Painkillers, anti-allergy and cough syrups were among the medicines commonly used for self-medication by the students.

Easy availability of medicine without a prescription is one of the most important causes of self-medication among the youth, and this issue is elevating. Moreover, the role of media is also held accountable for it. Awareness campaigns about the consumption of medicine without prescription should be arranged by health care professionals and the government for the youth. The selling of drugs without any prescription or medical advice should also be restricted by Sindh, Pakistan health care authorities by organizing essential curative and preventive seminars.

The research showed that there is an immense need to set up educational and awareness seminars, workshops and campaigns to enhance self-medication knowledge and awareness in society. The pros and cons of taking medicine without a prescription and its impact on a person's health should also be highlighted through these sessions.

5. Limitations

This research is restricted by a few limitations. The current study shows the data and results of undergraduate students only. Moreover, all of the institutes surveyed for undergraduate students were located in Karachi, Pakistan. Students of various academic years were included in this study. The study could have shown different results if it was not restricted by such limitations.

Furthermore, there were differences in the demographic data of the two groups, which may have influenced the results. Additionally, we could not predict if the financial status of the participant contributed to such high rates of self-medication practices among the youth because the questionnaire did not contain any question(s) regarding the economic status of the participant.

In addition to the above, the current study survey was conducted in the summer as winter could have shown high rates of self-medication practices; this is because people treat themselves with antibiotics to subside the symptoms of the cold.

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