Original Article

Self-medication practices among university students at a public university in Riyadh, Saudi Arabia

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Abstract

Background: Self-medication is a concern at the global level. It comes with complications and different health issues. This study measures the prevalence, influential factors, and reasons behind self-medication. **Methods:** A descriptive cross-sectional study was conducted at Imam Mohammad Ibn Saud Islamic University. The prevalence and influential factors were measured between September and November 2023. Statistical analysis was performed using RStudio (R version 4.3.1). We used frequencies and percentages to present categorical variables. Using a convenient sampling technique. Factors associated with using self-medication and the differences between students of the medical college and their non-medical counterparts were assessed using Pearson's Chi-squared test or Fisher's exact test. Statistical significance was considered at $P < 0.05$. **Result:** We initially received 410 responses on the online platform. However, we excluded seven responses from those who disagreed to participate and 12 from participants outside Riyadh. The majority of the participants were female (67.5%). Three hundred nineteen (319) participants indicated that they had ever used self-medications, accounting for a prevalence of 81.6%. Regarding the reasons for self-medication, the most frequently cited factors were 'previous experience' (66.5%) and 'time-saving' (50.2%). Additionally, the primary source of drug information utilized for self-medication practices was predominantly from 'relatives/friends' (62.4%) and 'pharmacologists' (48.0%). Medications were primarily used for headache (76.8%), fever (48.6%), and pain (47.3%). The most commonly used classes of drugs used for self-medication were painkillers (84.0%), vitamins (42.0%), and eye drops (32.9%). **Conclusion:** The results showed that the prevalence of self-medication is high in the surveyed population. There has been an association between monthly income and the prevalence of self-medication. As pharmacists are the second most common source of drug information, it is essential to increase responsibility and avoid marketing and personal benefiting behavior as they are considered a reliable source of information in the population. Healthcare organizers can utilize our study to educate people about the adverse effects of self-medication.

Keywords: Imam Mohammad Ibn Saud Islamic University, medical students, non-medical students, Riyadh, Saudi Arabia, self-medication, undergraduate students

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Introduction

Health officials across the globe are expressing worries regarding the increasing instances of individuals treating themselves without professional medical guidance. Self-medication refers to the act of independently administering drugs or other forms of treatment to address a medical condition

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without seeking guidance or oversight from a caregiver. This can involve non-prescription drugs, natural remedies, and lifestyle modifications. Engaging in sensible self-treatment can serve as a helpful method of addressing minor health issues without the necessity of consulting a healthcare professional. According to the source, it has the potential of decreasing doctor appointments (easing the burden on healthcare centers) and providing affordable alternative therapies for patients (enhanced availability of treatment).[1,2] The choice to engage in self-medication is impacted by the nature of the sickness, the individual's situation, and the regulations in the specific country concerning drug consumption and distribution. Factors that impact self-medication among patients encompass various social, cultural, and economic aspects. These include age, gender, level of education, medical knowledge, financial circumstances, and attitude toward self-care.[1] Previous research conducted in various countries has indicated that students tend to engage in self-medication at a higher rate compared to the overall population.[3] Nevertheless, it has come to our attention that several investigations have been conducted regarding the prevalence of self-medication among students attending universities in various regions of Saudi Arabia. Nevertheless, our study provides supplementary data on this subject as no investigations were undertaken at any university in Riyadh.[1,4-6] This study is happening for that reason. In research conducted on students at King Khalid University in Abha, Saudi Arabia, it was discovered that 86.9% of individuals with both medical and non-medical educational backgrounds had engaged in self-medication. Pain relievers were identified as the most frequently utilized medication during the previous 6 months.[4] A different research conducted in Hail, Saudi Arabia, found that self-medication was linked to mild ailments like headaches, coughs, colic, and influenza.[1] According to a systematic review and meta-analysis conducted between January 2020 and May 2022, the prevalence of self-medication was assessed, revealing that students exhibited a higher incidence of self-medication compared to the general population.[3]

Furthermore, a comprehensive evaluation and synthesis of relevant studies on college students sought to determine the frequency of self-medication among students globally. To assess the applicable studies, a two-step literature search was conducted. In the first stage of the research, the electronic databases PubMed/MEDLINE via Ovid, EMBASE, ISI/Web of Science, and Google Scholar were utilized. Boolean operators and Medical Subject Headings (MeSH) were applied during the search. Phase 2 consisted of investigations that evaluated the occurrence of self-medication among students or individuals for whom acquiring prevalence data is essential. Out of 89 studies that were examined, it was found that 70.1% of the 60,938 student participants had engaged in self-medication at some point. Female students have self-administered medication at a rate that is 1.45 times higher than that of male students. According to a study, medical students have a higher tendency to use self-medication, with a percentage of 97.2%, compared to non-medical students, whose rate is 44.7%.[7] A recent research study has revealed that residents of Riyadh, Saudi Arabia, have reported experiencing harmful consequences from self-medication, an elevated risk of drug interactions, diminished treatment efficacy, and a recurrence of symptoms.[2] The goal of this study was to assess the occurrence and rate at which undergraduate students at Imam Mohammed Ibn Saud Islamic University in Riyadh, Saudi Arabia, engage in self-medication. Additionally, the study aimed to determine the factors influencing self-medication and identify where these students obtain medication information.

Materials and Methods

Study subjects and design

A descriptive cross-sectional study was conducted at Imam Mohammad Ibn Saud Islamic University (IMSIU). The prevalence and influential factors of self-medication were measured between September and November 2023. IMSIU is a public university in Riyadh, Saudi Arabia, established in 1953; it started with Sharia College and expanded to more than ten colleges, including medicine, engineering, computer, and information science. We included all 18-year-old and above undergraduate students at IMSIU. We excluded postgraduate students and staff members. In addition, we included non-Arabic or non-English speakers and those who have limited/or no Internet connection. In addition, we included any student outside Riyadh city.

Sample size

The sample size will be calculated using a formula, where Z is the standard normal variate, given as 1.96 for 5% type 1 error (P value < 0.05), P is the expected proportion in the population (50% in undergraduate = 0.5) (Badrasawi and Zidan, 2019), and d is the margin of error (5% = 0.05).

A sample of at least 385 is required for this study. As a result, to minimize the margin of error and validate the results, we collected 410 undergraduate university students.

Questionnaire construction and data collection

The self-administered questionnaire contains 13 questions ranging from multiple-choice to checkboxes and close-ended (yes and no) that include self-medication prevalence, frequency, class of drugs used, illnesses, influential factors, and source of drug information. The questionnaire was modified to achieve the study's goal, while it was inspired by previous studies.[1,2,8-10] It was distributed through online channels via online messenger services and emails. The questionnaire will be provided in bilingual: Arabic and English. The questionnaire consisted of three sections:

Part 1: Sociodemographic

The participants will be asked seven questions about their gender, age group, nationality, university course, level of education, family

monthly income, and residency. Residents of the outer Riyadh city were excluded from the final data analysis.

Part 2: Self-medication prevalence, frequency, and class of drugs

Two questions asked the participant about self-medication practices and the frequency of practice in the last 3 months. Eleven different illnesses were asked, including headache, pain, fever, cough, hair health, skin health, drowsiness, influenza, vomiting, diarrhea, constipation, and any other in checkboxes fashion. Eleven questions asked about the class of drugs that have been used: pain killers, vitamins, herbal medicine, dietary supplements, eye drops, antacids, anti-histamine, cough suppressants, sleeping pills, antibiotics, and others.

Part 3: Factors and sources of drug information

Subgroup A and subgroup B had a total of 13 questions. Subgroup A contains six questions regarding the influence of self-medication: mild illness, cost-effectiveness, time-saving, urgency, previous experience with diseases, and others. Subgroup B will have seven questions regarding the source of drug information: the Internet, social media, TV, hospital, pharmacologist, relatives, and others.

Data analysis

Statistical analysis was performed using RStudio (R version 4.3.1). We used frequencies and percentages to present categorical variables. Factors associated with using self-medication and the differences between students of the medical college and their non-medical counterparts were assessed using Pearson's Chi-squared test or Fisher's exact test. Statistical significance was considered at $P < 0.05$.

Results

Demographic characteristics

We initially received a total of 410 responses on the online platform. However, we excluded seven responses from those who disagreed to participate and 12 from participants outside Riyadh. The majority of the participants were female. Regarding age distribution, around half of the respondents were within the age range of 21 to 25 years. Regarding nationality, the overwhelming majority were Saudi students. In terms of the level of education, the highest proportion of respondents was from year 1. Concerning family monthly income, the most common bracket was between 5000 SAR. The most represented university courses were the College of Economics and Administrative Science and the College of Medicine, Table 1).

Prevalence of self-medication use and the associated factors

In general, most of study participants indicated that they had ever used self-medications, accounting for a prevalence of 81.6%. A significantly higher prevalence of self-medication practices was noted among participants with a family monthly income level of >20,000 SAR and 10,000 to 15,000 SAR compared to those with other income brackets, including 15,000 to 20,000 SAR, 5000 to 10,000 SAR, and <5000 SAR. No other variables, including gender, age, nationality, university course, and level of education, showed significant associations with self-medication practices ($P > 0.05$, Table 2).

In the multivariable analysis, the monthly income remained significant, where self-medication was significantly predicted by having a monthly family income of 10,000 to 15,000 SAR and >20,000 SAR, Table 3).

Characteristics of self-medication practice among medication users

Almost one-quarter of the self-medication users did not receive medication within the last 3 months, and one-third received the medicines two times. Regarding the reasons for self-medication, the most frequently cited factors were 'previous experience' and 'timesaving'. Additionally, the primary source of drug information utilized for self-medication practices was predominantly from 'relatives/friends' and 'pharmacologists'. Notably, some respondents also relied on information from the 'Internet' and 'hospitals'. Medications were primarily used for headache, fever, and pain. The most commonly used classes of drugs used for self-medication were painkillers, vitamins, and eye drops, Table 4.

Regarding reasons for self-medication, the proportion of medical college participants citing 'Timesaving' as a reason was significantly higher than that reported by non-medical college participants ($P = 0.022$). Furthermore, the proportion of medical college participants citing 'Mild illness' as a reason was significantly higher than that reported by non-medical college participants ($P = 0.021$). A substantially higher proportion of medical students obtained information about self-medication from other sources compared to non-medical students ($P < 0.001$, Table 4).

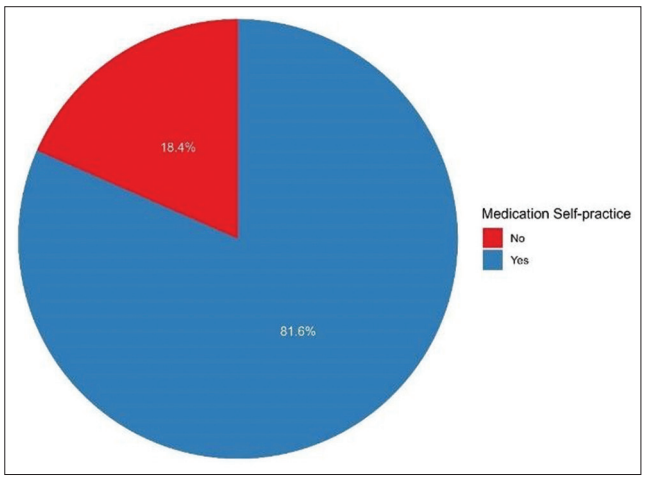
Discussion

Prevalence of self-medication

Based on the findings of our research, it was observed that 81.6% of the participants acknowledged their involvement in self-medication. In contrast, a separate survey done in Hail revealed a significantly greater proportion of students, specifically 98.2%, who reported engaging in self-medication.[1] On the other hand, a study carried out in Al-Madinah found that 64.8% of students participated in the practice of self-medication.[11] The findings of a study conducted in Brazil and Pakistan revealed that 86.4% and 76% of individuals in these respective nations partake in self-therapy.[12,13] Hence, it can be observed that Saudi Arabia is not the exclusive country encountering a notable prevalence of self-medication. A study conducted in Dammam city, focusing on medical and pharmacy faculties, revealed a prevalence rate of 26%.[14]

Table 1: Demographic characteristics of the respondents (*n*=391)

Characteristic	Overall, *n*=391	Medical College		*P*
		No *n*=313	Yes *n*=78	
Gender				<0.001
Male	127 (32.5%)	87 (27.8%)	40 (51.3%)	
Female	264 (67.5%)	226 (72.2%)	38 (48.7%)	
Age (year)				0.421
<20	178 (45.5%)	139 (44.4%)	39 (50.0%)	
21-25	193 (49.4%)	155 (49.5%)	38 (48.7%)	
26-30	11 (2.8%)	10 (3.2%)	1 (1.3%)	
>30	9 (2.3%)	9 (2.9%)	0 (0.0%)	
Nationality				0.319
Saudi	377 (96.4%)	300 (95.8%)	77 (98.7%)	
Non-Saudi	14 (3.6%)	13 (4.2%)	1 (1.3%)	
University course				<0.001
College of Computer and Information Science	59 (15.1%)	59 (18.8%)	0 (0.0%)	
College of Economics and Administrative Science	86 (22.0%)	86 (27.5%)	0 (0.0%)	
College of Engineering	5 (1.3%)	5 (1.6%)	0 (0.0%)	
College of Fundamentals of Religion	6 (1.5%)	6 (1.9%)	0 (0.0%)	
College of Languages and Translation	18 (4.6%)	18 (5.8%)	0 (0.0%)	
College of Media and Communication	15 (3.8%)	15 (4.8%)	0 (0.0%)	
College of medicine	78 (19.9%)	0 (0.0%)	78 (100.0%)	
College of science	16 (4.1%)	16 (5.1%)	0 (0.0%)	
College of Sharia	48 (12.3%)	48 (15.3%)	0 (0.0%)	
College of Social Science	28 (7.2%)	28 (8.9%)	0 (0.0%)	
Other	32 (8.2%)	32 (10.2%)	0 (0.0%)	
Level of education				0.472
Year 1	135 (34.5%)	102 (32.6%)	33 (42.3%)	
Year 2	59 (15.1%)	48 (15.3%)	11 (14.1%)	
Year 3	69 (17.6%)	55 (17.6%)	14 (17.9%)	
Year 4	68 (17.4%)	56 (17.9%)	12 (15.4%)	
Year 5	26 (6.6%)	24 (7.7%)	2 (2.6%)	
Year 6	34 (8.7%)	28 (8.9%)	6 (7.7%)	
Family monthly income (SAR)				<0.001
<5,000	97 (24.8%)	84 (26.8%)	13 (16.7%)	
5,000-10,000	71 (18.2%)	65 (20.8%)	6 (7.7%)	
10,000-15,000	66 (16.9%)	57 (18.2%)	9 (11.5%)	
15,000-20,000	66 (16.9%)	52 (16.6%)	14 (17.9%)	
>20,000	91 (23.3%)	55 (17.6%)	36 (46.2%)	



Both males (81.1%) and females (81.8%) engaged in self-medication at similar rates.[7]

Predictors of self-medication practice

A significant correlation was found between higher family monthly income and a higher prevalence of self-medication practices, with a rate of 91.2%. A comparable result has been noted in Northeast Ethiopia, which is associated with a rise in household income.[15] This implies that those with higher financial means may have a larger propensity for engaging in self-medication, maybe due to their enhanced access to pharmaceuticals and their perception of their ability to buy them. Previous studies have underscored the correlation between higher income levels and a preference for hospital-based therapy over self-medication, as evidenced by additional research findings.[16,17]

Self-medication behavior

When examining the characteristics of self-medication behaviors among those who use medication, it is noteworthy to

Table 2: Factors associated with the use of self-medications (*n*=391)

Characteristic	Medication Self-practice		*P*
	No *n*=72	Yes *n*=319	
Gender			0.864
Male	24 (18.9%)	103 (81.1%)	
Female	48 (18.2%)	216 (81.8%)	
Age (year)			0.914
<20	33 (18.5%)	145 (81.5%)	
21-25	37 (19.2%)	156 (80.8%)	
26-30	1 (9.1%)	10 (90.9%)	
>30	1 (11.1%)	8 (88.9%)	
Nationality			0.728
Saudi	69 (18.3%)	308 (81.7%)	
Non-Saudi	3 (21.4%)	11 (78.6%)	
University course			0.169
College of Computer and Information Science	9 (15.3%)	50 (84.7%)	
College of Economics and Administrative Science	19 (22.1%)	67 (77.9%)	
College of Engineering	0 (0.0%)	5 (100.0%)	
College of Fundamentals of Religion	3 (50.0%)	3 (50.0%)	
College of Languages and Translation	4 (22.2%)	14 (77.8%)	
College of Media and Communication	1 (6.7%)	14 (93.3%)	
College of medicine	9 (11.5%)	69 (88.5%)	
College of science	2 (12.5%)	14 (87.5%)	
College of Sharia	11 (22.9%)	37 (77.1%)	
College of Social Science	4 (14.3%)	24 (85.7%)	
Other	10 (31.3%)	22 (68.8%)	
Level of education			0.217
Year 1	29 (21.5%)	106 (78.5%)	
Year 2	10 (16.9%)	49 (83.1%)	
Year 3	11 (15.9%)	58 (84.1%)	
Year 4	7 (10.3%)	61 (89.7%)	
Year 5	5 (19.2%)	21 (80.8%)	
Year 6	10 (29.4%)	24 (70.6%)	
Family monthly income (SAR)			0.003
<5,000	28 (28.9%)	69 (71.1%)	
5,000-10,000	15 (21.1%)	56 (78.9%)	
10,000-15,000	7 (10.6%)	59 (89.4%)	
15,000-20,000	14 (21.2%)	52 (78.8%)	
>20,000	8 (8.8%)	83 (91.2%)	
Medical College			0.080
No	63 (20.1%)	250 (79.9%)	
Yes	9 (11.5%)	69 (88.5%)	

acknowledge that a minority (21.3%) refrained from consuming any medication throughout the preceding 3-month period. The aforementioned finding gives rise to apprehensions regarding the appropriateness and safety of self-administered medication in specific circumstances. Seeking help from medical professionals is imperative for individuals to obtain an accurate diagnosis and appropriate treatment.

The findings of our data analysis revealed a notable disparity in self-medication practices between individuals who have affiliations with medical colleges and those who do not. Our research findings indicate that the proportion of individuals affiliated with medical colleges who cited 'saving time' as a motivation for self-medication was notably higher, with a percentage of 62.3%. In comparison, participants who were not affiliated with medical colleges reported a lower percentage of 46.8%. The significance of this differentiation was substantiated by the statistical analysis findings, as evidenced by a *P* value of 0.022.

Rationale of using self-medication

There is a tendency for individuals who have received formal medical education at a medical college to perceive self-medication as a means of time efficiency. These individuals possess a comprehensive understanding of common health conditions, treatments, and the capacity to independently diagnose oneself. Due to the convenient availability of healthcare training facilities, medical students increasingly depend on self-medication. Consistent with prior research, it was shown that a significant proportion of both medical (97.2%) and non-medical (44.7%)

Table 3: Multivariable regression analysis for the predictors of self-medication practice among participants

Characteristic	OR	95% CI	*P*
Gender			
Male	Reference	Reference	
Female	1.09	0.60, 1.94	0.784
Age (year)			
<20	Reference	Reference	
21-25	0.86	0.43, 1.72	0.660
26-30	2.33	0.33, 47.8	0.465
>30	1.83	0.26, 37.3	0.599
Nationality			
Saudi	Reference	Reference	
Non-Saudi	1.23	0.32, 6.22	0.776
Level of education			
Year 1	Reference	Reference	
Year 2	1.42	0.64, 3.37	0.404
Year 3	1.67	0.74, 3.99	0.232
Year 4	2.55	0.95, 7.52	0.073
Year 5	1.24	0.38, 4.59	0.735
Year 6	0.67	0.24, 1.89	0.438
Family monthly income (SAR)			
<5,000	Reference	Reference	
5,000-10,000	1.43	0.67, 3.11	0.356
10,000-15,000	3.20	1.33, 8.65	0.014
15,000-20,000	1.46	0.68, 3.22	0.334
>20,000	3.92	1.67, 10.1	0.003
Med			
No	Reference	Reference	
Yes	1.66	0.77, 3.95	0.220

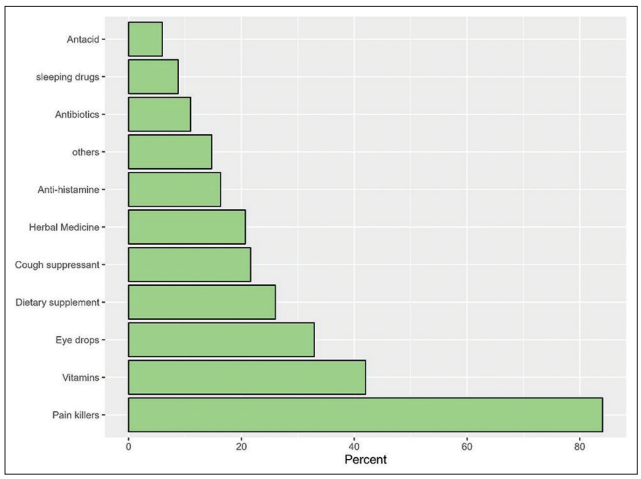
OR=Odds Ratio, CI=Confidence Interval

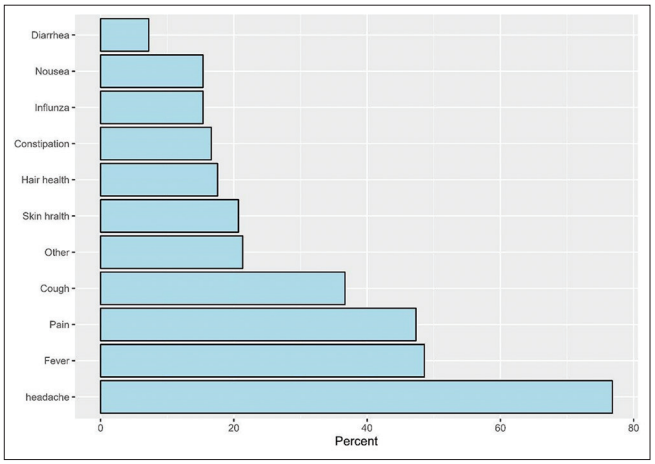
students exhibited self-medication behaviors. This finding suggests a positive association between elevated levels of health-related knowledge and a proclivity toward self-medication.[18-20]

Common medical symptoms that drive self-medication

The predominant objectives for the utilization of drugs were the alleviation of headaches (76.8%), reduction of fever (48.6%), and mitigation of pain (47.3%). Based on many researches, analgesics were the predominant medications employed for self-administration, constituting 84.0% of instances. These medications are commonly used to treat the three most common diseases identified in our investigation [Figure A]. In Saudi Arabia, there is a high prevalence of vitamin deficiencies, specifically vitamin D, which impacts around 42.0% of the population.[21-23] The ease of consuming vitamin D supplements is a notable consideration, especially in a civilization characterized by high solar radiation, leading to decreased exposure to ultraviolet (UV) light [Figure B].

Moreover, there has been an increase in the utilization of eye drops (32.9%, as indicated in Table 4) as a result of the escalating incidence of dry eye disease (DED) symptoms caused by extended periods of digital device usage for both professional and leisure activities.[24] Moreover, two-thirds of the population in Riyadh's primary healthcare sector exhibited symptoms indicative of potential DED.[25]





Source of self-medication information

The study revealed that the predominant sources of drug information for self-medication were identified as "relatives/friends" (62.4%), in contrast to a study performed at King Khalid University, which indicated that drug information was provided by relatives and friends (30%) (20%).[4] This underscores the substantial impact of intimate acquaintances in offering guidance on particular medications, most likely due to the tendency of individuals to place faith in the endorsements of their close associates. Furthermore, it was found that approximately 48.0% of respondents regarded "pharmacologists" as the second most dependable source of information. A separate survey conducted at Hail University revealed that 79.6% of students actively sought recommendations from pharmacists.[1] The trustworthiness of pharmacists as healthcare practitioners can be linked to this phenomenon. Hence, it is advisable to give precedence to the involvement of pharmacists in promoting patient engagement in reducing their dependence on self-medication.

The importance of doing a thorough assessment of the reliability and precision of online sources is underscored by the substantial dependence on the Internet (37.6%) and hospitals (24.8%) as primary sources of drug information.

Table 4: Characteristics of self-medication practice among medication users and the difference in practice between participants of the medical and non-medical colleges (*n*=319)

Characteristic	Overall, *n*=319	Medical College		*P*
		No *n*=250	Yes *n*=69	
Frequency of practice in last 3 months				0.074
I do not remember	53 (16.6%)	44 (17.6%)	9 (13.0%)	
None	68 (21.3%)	60 (24.0%)	8 (11.6%)	
2 times	99 (31.0%)	76 (30.4%)	23 (33.3%)	
3 times	33 (10.3%)	23 (9.2%)	10 (14.5%)	
4 times	19 (6.0%)	16 (6.4%)	3 (4.3%)	
5 times	8 (2.5%)	5 (2.0%)	3 (4.3%)	
>5 times	39 (12.2%)	26 (10.4%)	13 (18.8%)	
Conditions for which medications were used				
Constipation	53 (16.6%)	46 (18.4%)	7 (10.1%)	0.103
Cough	117 (36.7%)	95 (38.0%)	22 (31.9%)	0.351
Diarrhea	23 (7.2%)	19 (7.6%)	4 (5.8%)	0.794
Nausea	49 (15.4%)	39 (15.6%)	10 (14.5%)	0.821
Influenza	49 (15.4%)	39 (15.6%)	10 (14.5%)	0.821
Skin health	66 (20.7%)	48 (19.2%)	18 (26.1%)	0.211
Fever	155 (48.6%)	125 (50.0%)	30 (43.5%)	0.337
Hair health	56 (17.6%)	45 (18.0%)	11 (15.9%)	0.691
Headache	245 (76.8%)	196 (78.4%)	49 (71.0%)	0.198
Pain	151 (47.3%)	116 (46.4%)	35 (50.7%)	0.524
Other	68 (21.3%)	48 (19.2%)	20 (29.0%)	0.079
Class of drugs that have been used				
Anti-histamine	52 (16.3%)	34 (13.6%)	18 (26.1%)	0.013
Cough suppressant	69 (21.6%)	54 (21.6%)	15 (21.7%)	0.980
Antibiotics	35 (11.0%)	27 (10.8%)	8 (11.6%)	0.852
Dietary supplement	83 (26.0%)	61 (24.4%)	22 (31.9%)	0.210
Eye drops	105 (32.9%)	85 (34.0%)	20 (29.0%)	0.433
Sleeping drugs	28 (8.8%)	17 (6.8%)	11 (15.9%)	0.018
Herbal Medicine	66 (20.7%)	54 (21.6%)	12 (17.4%)	0.445
Pain killers	268 (84.0%)	215 (86.0%)	53 (76.8%)	0.065
Antacid	19 (6.0%)	10 (4.0%)	9 (13.0%)	0.009
Vitamins	134 (42.0%)	107 (42.8%)	27 (39.1%)	0.585
Others	47 (14.7%)	34 (13.6%)	13 (18.8%)	0.277
Reasons for self-medication				
Cost-effective	30 (9.4%)	26 (10.4%)	4 (5.8%)	0.246
Previous experience	212 (66.5%)	170 (68.0%)	42 (60.9%)	0.267
Time-saving	160 (50.2%)	117 (46.8%)	43 (62.3%)	0.022
Urgency	81 (25.4%)	60 (24.0%)	21 (30.4%)	0.277
Mild illness	115 (36.1%)	82 (32.8%)	33 (47.8%)	0.021
Other	40 (12.5%)	29 (11.6%)	11 (15.9%)	0.335
Source of drug information				
Hospital	79 (24.8%)	62 (24.8%)	17 (24.6%)	0.978
Other	46 (14.4%)	27 (10.8%)	19 (27.5%)	<0.001
Pharmacologist	153 (48.0%)	118 (47.2%)	35 (50.7%)	0.604
Relatives/friends	199 (62.4%)	161 (64.4%)	38 (55.1%)	0.157
Internet	120 (37.6%)	98 (39.2%)	22 (31.9%)	0.267
Social Media	61 (19.1%)	51 (20.4%)	10 (14.5%)	0.269
TV	7 (2.2%)	6 (2.4%)	1 (1.4%)	>0.999

Limitations

To begin with, the data collection method used in this survey was based on self-reporting, which may introduce a chance for bias. Furthermore, this study employed a convenient sampling method. Furthermore, our research was focused exclusively on one university located in the Riyadh region, thereby suggesting the need for other universities to take notice.

Conclusion

The findings indicated that a significant portion of the population surveyed presented a high prevalence of engaging in

self-medication. We have identified a link between the frequency of self-medication and individuals' monthly income. It is crucial to enhance accountability and prevent pharmacists from engaging in marketing and self-serving behavior since they are widely trusted as a dependable source of drug information, ranking second only to healthcare professionals. Healthcare organizers can use our research findings to raise awareness about the negative consequences of self-medication for people's health.

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Author contributions

All authors participated in the concept, Design, analysis, interpretation of data, writing, and manuscript review. They have seen and approved the final version of the manuscript.

Ethical approval

The IMSIU IRB Committee approved the study (project number 578-2023; approval date, 09 January 2024). All writing was done in accordance with the ethical principles of the Declaration of Helsinki. The survey link included a brief study description and a more detailed explanation on the front page.

Informed consent

Written informed consent was obtained from all participants included in the study.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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